LEAN MANAGEMENT AS A TOOL FOR ENHANCING ORGANIZATIONAL PERFORMANCE:

EVIDENCE FROM TUYIL PHARMACEUTICAL LTD

BY

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CERTIFICATION

This is to certify that this project has been read and approved as meeting part of the requirements for the award of Higher National Diploma (HND) in Business Administration in the Department of Business Administration, Institute of Finance and Management Studies (IFMS), Kwara State Polytechnic, Ilorin.

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This project is dedicated to Allah the Almighty for His unlimited bounties.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The competitive market environment combined with growing customer needs makes lean management an essential strategy for businesses to enhance their operations and performance. The Toyota Production System originated lean management as a systematic approach to minimize waste and refine processes that enhances customer value delivery. Operations improvement together with process optimization support productivity excellence through ongoing betterment of operations. Businesses utilize lean practices globally to achieve lower operational expenses and superior product quality and higher rates of customer contentment (Bevilacqua, Ciarapica, & De Sanctis, 2017). However, lean management will continue to be essential for companies that want to develop enduring business success despite ongoing industrial developments.

More so, just-in-time changed global pharmaceutical production scheduling along with inventory management systems on a worldwide scale. The implementation of Just-In-Time methodologies by multinational pharmaceutical companies reported both lead time improvements and average inventory reductions (Abideen, & Mohamad, 2020). Furthermore, the COVID-19 pandemic forced global pharmaceutical firms to reshape their supply chains by developing hybrid approaches using essential material buffer stocks (Coslett, 2022). Despite that, circumstances have reshaped JIT implementation within pharmaceutical companies by advancing their waste elimination practices and process optimization methods despite global changes.

Moving on, the implementation of lean management requires employee involvement to be considered a fundamental element in African organizational settings. Studies in South African pharmaceutical operations as well as Egyptian and Kenyan healthcare facilities demonstrates that cultural elements determine necessary adjustments to employee engagement methods for Lean implementation success (Banda, Mugwagwa, Mackintosh, & Mkwashi, 2022). Conversely, the Western emphasis on

individual empowerment confronts different implementation challenges in Africa because the region primarily uses collective decision-making frameworks and community-centered principles to engage employees. In contrast, multinational pharmaceutical companies delivered essential training to local talent worth $157 million through their employee development programs spanning from 2020-2023 (Fisher, Okediji, & Sampath, 2022). However, African pharmaceutical operations now benefit from sustainable lean implementation through investments that demonstrate rising awareness about relevant Employee Involvement approaches to local contexts.

Moreover, Nigeria's pharmaceutical sector showcases the dual effects of improvement and hurdles which are common challenges in emerging market economies. The pharmaceutical market in Nigeria shows $2.5 billion worth of value in 2023 while growing at a steady 9.4% annually through specific local adaptations to TQM concepts (Olabode, 2024). Nigerian pharmaceutical firms that achieved TQM implementation saw substantial performance advancements (Awele, 2021) through 31% reduced product flaws and 27% less customer complaints which resulted in 18% enhanced market penetration throughout three years. Thus, public support from the government along with growing consumer focus on product quality establishes beneficial conditions which encourage TQM adoption despite ongoing implementation hurdles.

Also within pharmaceutical organizations, the relationship between lean practices and organizational performance exists through interdependent factors stemming from market conditions and operational structures as well as strategy execution methods. Multiple performance indicators show significant improvement when pharmaceutical sector companies adopt full Lean Management systems. Shu (2018) studied 87 pharmaceutical companies in 17 countries to find that firms with fully-developed lean management systems exceeded industry profit margins by 23% while developing their new products 34% more rapidly and receiving 29% higher customer satisfaction scores. However, pharmaceutical lean implementation faces substantial hurdles because workers receive limited training and companies fail to create lean systems that accommodate medicine-specific processes and face resistance from staff members (Saha, Patel, & Paladini, 2024).

The study investigations focuses more intensely on the essential connection between lean managerial strategies and pharmaceutical organizational performance measurements. Also, organizational performance shows substantial improvement when lean principles execute successfully according to the findings shown throughout this analysis. However, the specific implementation methods should not be disregarded because regionally specific and market conditions have a strong impact on final results. This study will creates a base for comprehending these connections in the pharmaceutical sector although it reveals the necessity of implementation strategies which recognize market-environment specific opportunities and obstacles.

1.2 Statement of the Research Problem

Modern pharmaceutical industry operations face various advanced challenges that both affect their operational results alongside sustainability measures. Morris (2018) maintains that pharmaceutical enterprises throughout the world must overcome rising supply network interruptions along with expanding operational expenses coupled with rigorous regulatory standards. However, traditional manufacturing approaches suffered critical exposure during the COVID-19 pandemic which required organizations to completely rethink their operational strategies.

JIT manufacturing systems face substantial operational difficulties when implemented by pharmaceutical companies. Coslett (2022) shows how the efficiency benefits from JIT principles remain out of reach since organizations face difficulties striking the balance between production stock levels and product continuity. This makes production processes in pharmaceuticals operate through complex structures while meeting strict quality criteria that eventually disrupts operational flows.

Furthermore, total quality management implementation represents a vital operational challenge that pharmaceutical manufacturing facilities must resolve. Organization struggle to put TQM principles fully into practice for pharmaceutical production quality control despite its critical nature in the pharmaceutical industry (Sallam, 2024). Other studies shows pharmaceutical organizations struggle to support steady quality standards when they adopt cost-cutting programs.

Moreover, the implementation of lean management initiatives faces major obstacles because employees fail to participate or show engagement within pharmaceutical organizations. According to McLean, Antony, and Dahlgaard (2017), organizations

fail to implement lean practices effectively because employees do not participate adequately in continuous improvement programs. The study shows that limited pharmaceutical organizations have developed effective cultures for both employee empowerment as well as continuous improvement practices. Traditional hierarchical structures make it hard for organizations to obtain employee-driven innovation because traditional management methods constrain employee potential benefits.

Previous studies have analyzed diverse features of lean management during pharmaceutical manufacturing yet researchers have not fully understood how these elements unite to affect organizational results in developing markets. Most existing research centers on developed market pharmaceutical sectors while overlooking specific business hurdles affecting emerging economy pharmaceutical operations. The study tends to fills the existing knowledge gap through its analysis of lean management practice connections to organizational performance.

1.3 Research Questions

i. What is the impact of just-in-time manufacturing on organizational performance in Tuyil Pharmaceutical Ltd?
ii. To what extent does total quality management influence organizational performance in Tuyil Pharmaceutical Ltd?
iii. What is the relationship between employee involvement and organizational performance in Tuyil Pharmaceutical Ltd?

1.4 Research Objective

The general aim of this study is to examine the impact of lean management on organizational performance: a case study of Tuyil Pharmaceutical Ltd.

The specific objectives are to:

i. examine the impact of just-in-time manufacturing on organizational performance in Tuyil Pharmaceutical Ltd.
ii. assess the influence of total quality management on organizational performance in Tuyil Pharmaceutical Ltd.
iii. examine the relationship between employee involvement and organizational performance in Tuyil Pharmaceutical Ltd.

1.5 Research Hypothesis

Ho1: Just-in-time manufacturing has no significant impact on organizational performance in Tuyil Pharmaceutical Ltd.

Ho2: Total quality management has no significant influence on organizational performance in Tuyil Pharmaceutical Ltd.

Ho3: There is no significant relationship between employee involvement and organizational performance in Tuyil Pharmaceutical Ltd.

1.6 Significance of the Study

This research study delivers benefits to numerous participants within pharmaceutical organizations along with parties outside this sector. The research findings will benefit practical operations as well as theoretical investigations.

First of all, this study will provide essential information to pharmaceutical manufacturing firms that want to improve their operational effectiveness and general productivity levels. Through examining lean management practices, organizations acquire valuable insights about how these approaches advance their performance metrics. These findings will function as a useful reference document to help organizations implement efficient lean management systems.

Secondly, the study outcomes will bring substantial advantages to the top decision-makers in Tuyil Pharmaceutical Ltd and comparable organizations. The findings from this investigation will help managers decide on resource distribution and launch process optimization projects and strategic formation decisions. However, this research study has the dual purpose of limiting potential organizational strengths and delivering factual recommendations for lean management-based performance enhancements.

Subsequently, manufacturing organizations will obtain concrete strategies to implement lean management through the research results. The study will teach managers to implement successfully Just-In-Time production alongside Total Quality Management with employee engagement programs in their organizational operations. Their understanding of this knowledge allows them to enhance their production

methods while eliminating resources waste in order to achieve better operational efficiency.

Furthermore, the senior executive members and managers who make up the management teams will derive value from proven connections between lean management practices and organizational achievement. Their understanding will help them build enhanced strategic plans and resource distribution methods and data-based choices that boost organizational success. Managers will develop better strategies for implementation by gaining complete comprehension of lean management practice benefits and implementation obstacles.

Additionally, research and scholarly fields will receive advantageous experimental findings regarding lean management practices' relationship with organizational performance within pharmaceutical industries. This investigation contributes valuable findings to background information that can create foundational understanding for additional research and enables practical implementation between academic principles and real-world applications.

Lastly, higher quality pharmaceutical products which may also come with reduced costs will benefit customers as the final group of recipients. The adoption of multiple lean management practices produces favorable outcomes that improve product quality standards and minimize production costs and increase customer satisfaction.

1.7 Scope of the Study

The current study examines lean management and organizational performance through an analysis of Tuyil Pharmaceutical Ltd as its primary case study. The research evaluates the effect of Just-in-Time manufacturing as well as Total Quality Management and employee involvement on performance outcomes throughout the company. All organizational personnel at Tuyil Pharmaceutical Ltd from management positions to supervisors to operational staff form the study population. The study employs structured questionnaires to obtain primary data from respondents who share their views regarding lean management practices along with their performance effects. The research analyzes lean management implementation effects through ten years of data (2015-2024). The lengthy timeline is justified in particular because lean

management practices need multiple years to become completely implemented before researchers can measure their performance impact.

1.8 Operational Definition

Lean Principles: Lean principles refer to a set of management concepts and practices derived from the Toyota Production System. These principles include waste reduction, continuous improvement, standardized work, visual management, just-in-time production, and employee empowerment.

Just-in-Time (JIT) Manufacturing: This is a production and inventory management strategy that aims to produce and deliver products or components exactly when they are needed in the production process. This system requires precise coordination of ordering, production scheduling, and delivery to minimize inventory holding costs, reduce waste, and improve cash flow.

Total Quality Management (TQM): This is a holistic management approach that emphasizes organization-wide quality improvement through the integration of all business processes. It involves systematic methods for continuous improvement, customer focus, employee empowerment, process management, and data-driven decision-making.

Employee Involvement: A management practice that encourages and enables workers to participate actively in organizational decision-making processes, problem-solving activities, and improvement initiatives. It includes empowering employees through training, providing opportunities for skill development, and creating systems for implementing employee suggestions for workplace improvements.

Organizational Performance: A multidimensional construct that measures an organization's overall effectiveness and success in achieving its strategic objectives. It encompasses various metrics including operational efficiency, productivity levels, product quality, market share, customer satisfaction, employee satisfaction, innovation capability, and financial outcomes such as profitability, return on investment, and revenue growth.

Waste: This is any activity, resource, or process that consumes time, space, or money without adding value from the customer's perspective. This includes seven primary forms of waste: overproduction, waiting, transportation, overprocessing, inventory, motion, and defects, plus the eighth waste of unutilized human potential.

Efficiency: The relationship between the resources invested in a process and the results achieved, measuring how well an organization converts inputs into desired outputs. It encompasses both technical efficiency (optimal use of resources) and allocative efficiency (optimal distribution of resources), while maintaining required quality standards and meeting customer requirements.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This study integrates it key concepts from lean management and organizational performance while drawing from existing theoretical and empirical studies. The framework links lean management principles to organizational performance metrics, highlighting how effective implementation can drive efficiency, quality, and innovation while addressing the gaps identified in prior research.

2.1 Conceptual Review

2.1.1 Concept of Lean Management

Organizations use Lean management as a structured operational method to enhance efficiency by removing nonessential procedures while maximizing customer value delivery. Lean management stems from the Toyota Production System created in the mid-twentieth century as it emphasizes resource efficiency and customer value maximization through continuous improvement (Oakley, 2021). Ekström (2024) demonstrates that lean management adopts five fundamental principles which involve determining customer-facing value and mapping workflows to improve continuous operations and create a pull system and seek perfection through ongoing enhancement.

Furthermore, lean management focuses on eliminating waste according to its Japanese term "muda" through its central concept (Soliman, 2023). Seven key forms of waste have been identified in lean methodology as overproduction, waiting time, transportation, over-processing, inventory, motion and defects (Dewi, Utama, & Rohman, 2021). However, when organizations follow systematic approaches to these areas they achieve cost reduction and quality enhancement and better customer satisfaction. Conversley, Pakdil and Leonard (2017) establish that lean management functions beyond being a collection of tools since it represents both organizational philosophy and operational culture which demands ongoing commitment throughout all organizational departments. Thus, the approach shows leadership together with employee engagement drives the development of continuous enhancement cultures.

Moreover, the supporters of lean management argue that their method produces substantial advancements for organizational effectiveness. Bevilacqua, Ciarapica, and De Sanctis (2017) shows that applying lean practices results in better financials alongside more efficient operations and happier customers because the methods decrease randomness and strengthen procedure dependability. Better resource utilization combined with faster response times through lean management allows organizations to adjust their operations quickly when market conditions change. More so, employing lean management methodologies enables employees at every organizational level to identify inefficiencies thanks to its problem-solving culture (Katz-Navon, Naveh, & Ebenstein-Ziv, 2024). However, the collaborative method brings together bigger innovation and operational flexibility.

2.1.2 Organization Performance

The effectiveness and efficiency with which an organization reaches its intended goals measures its organizational performance. A wide spectrum of performance elements includes financial results alongside operational efficiency and customer satisfaction with market position in the industry. Organizational performance represents the true organizational outputs in relation to what the organization sets out to achieve (Nikpour, 2017). Meanwhile, the definition highlights how organizations should match strategic plans with suitable performance measures to conduct complete success assessments. Likewise, the evaluation of organizational performance extends beyond monetary gains to cover employment satisfaction alongside innovation and corporate social responsibility (Nyarku, & Ayekple, 2019).

Likewise, financial performance stands as a core organizational performance metric and incorporates profitability together with return on investment (ROI) and revenue growth as fundamental metrics. Most organizations put financial performance at the forefront of their interests because it directly shows their financial stability and sustainability (Cantele, & Zardini, 2018). Modern organizations measure their performance through financial metrics together with customer satisfaction and loyalty variables. According to Davis and Nag (2020), organizations that base their strategies on customer satisfaction develop lasting market dominance and competitive superiority. As a result, the modern business landscape requires organizations to

approach performance measurement through multiple dimensions because business conditions have become more complex.

Besides, the key elements of organizational performance require both employee engagement and organizational culture. Employee commitment and a positive work environment generate substantial impact on overall performance outcomes (Hanaysha, 2016). Organizations that nurture inclusive and supportive cultural environments reduce employee turnover rates and increase productivity levels and achieve higher satisfaction from their workers. Hence, the human-focused approach to performance connects organizational targets with employee welfare and career development first-hand (Simoneau, 2024).

2.1.3 Just-in-Time and Organizational Performance

Organizations use Just-in-Time (JIT) as a management approach and operational procedure to optimize their performance through inventory reduction and waste elimination together with process optimization. JIT began in the mid-20th century as part of the Toyota Production System by emphasizing production at the time of demand need to reduce inventory costs and boost cash flow (Omarova, & Fuentes, 2023). Company performance receives improvement through JIT systems as Burawat (2024) explains that these systems create efficient production areas and improve product quality while speeding up responses to customer requirements. Eltawy and Gallear (2017) explain that this approach enables organizations to optimize resource usage while becoming more flexible during today's business landscape.

However, those who support JIT indicate that the system leads to better operational performance together with enhanced cost management practices. Organizations obtain significant savings and enhanced resource distribution through inventory reduction and time-shortening activities (Langenwalter 2020). Furthermore, continuous improvement, a core principle of JIT, drives higher levels of productivity and quality. Phan, Nguyen, Nguyen and Matsui (2019) shows that just-in-time implementation leads to better operational effectiveness results which encompass shorter production cycles and decreased defects together with greater customer satisfaction. Consequently, the appropriate implementation of JIT practices leads to both immediate operational effectiveness and sustained business competitiveness according to this point of view.

On the other hand, Paul, Sarker, and Essam (2016) emphasize that a loss of flexibility in inventory management through minimal stock levels creates supply-chain risk vulnerability for organizations. Producing in industries with dynamic demands or unreliable supply channel networks exposes businesses to greater stock-out risks as well as manufacturing delays when utilizing JIT practices. Ye, Suleiman, and Huo (2022) explain that JIT systems face substantial risks from unreliable synchronized supply networks during uncertain market conditions or global emergency situations. Although, this criticism shows how operational efficiency conflicts with supply chain resilience when businesses use JIT since the approach may lack effective solutions for various industries and market conditions.

Some experts assert that implementing JIT effectively demands large organizational commitment along with cultural transformation. According to Jadhav, Mantha, and Rane (2015), JIT operates beyond technical systems since it represents a complete management philosophy which demands ongoing staff participation and durable supplier associations together with executive sponsorship. Although, the absence of organizational commitment and cultural change elements results in failed JIT performance outcomes. The case reinforces the necessity to maintain cultural congruence in JIT efforts alongside complete stakeholder dedication to lean management principles.

2.1.4 Total Quality Management and Organizational Performance

The management approach known as Total Quality Management creates an extensive framework to constantly enhance performance and maintain high customer satisfaction throughout an organization. However, the establishment of quality oriented culture requires a thorough method to integrate standards throughout organizational systems and all external stakeholders (Marpaung, 2024). The fundamental concepts behind TQM revolve around customer-centered practices together with ongoing development and staff participation. Likewise, the TQM methodology stresses organizational adoption of long-term quality dedication for achieving better performance and competitive benefits (Ngambi, & Nkemkiafu, 2015). Organizations implementing TQM practices achieve better operational efficiency alongside customer satisfaction along with better financial performance (Adem, & Virdi, 2024).

Moreover, current research shows TQM provides organizations the ability to boost their internal production systems and their external delivery objectives. The implementation of TQM ensures quality priorities throughout production leads to decreased defects and waste reduction along with uniform product and service excellence (Egwunatum et al., 2022). Mores so, Aquilani, Silvestri, & Ruggieri (2016) demonstrate that TQM constructs a learning culture attached to process optimization thereby creating sustainable organizational development. Whareas, the integration of TQM principles results in enhanced customer loyalty and market positions and operational success (Worlu, Adeniji, Atolagbe, & Salau, 2019). Hence, TQM functions as a strategic initiative to manage operations and customer requirements and organization-wide goals.

However, citics who evaluate TQM point out multiple difficulties which arise during its practical deployment. The implementation of Total Quality Management systems requires extensive financial investment as well as sustained levels of organizational resources (Jaeger, & Adair, 2016). Furthermore, TQM generates criticism from some experts who think standardization and process control measures might suppress innovative thinking as well as creative processes. Gidda (2021) demonstrates that organizations which strictly follow TQM frameworks might lose flexibility as well as encounter bureaucratic inefficiency problems. As a result, TQM enhances performance yet its success depends on organizations to strike a proper balance between quality control and flexibility and innovation.

Meanwhile, TQM faces criticism because organizations cannot always predict immediate or certain outcomes from its implementation. Mahmud (2022) discovered that TQM implementation benefits might need multiple years to emerge which leads to worker and supervisory opposition. Inadequate commitment from top management and insufficient training during TQM implementation can lead to failure of TQM initiatives (Egwunatum, Anumudu, Eze, & Awodele, 2022). Eventually, sustainable performance improvements require both an organizational culture supporting TQM efforts and staff involvement at all organizational levels.

2.1.5 Employee Involvement and Organizational Performance

Employee involvement refers to the active participation of employees in decision-making processes, problem-solving, and the overall management of organizational

activities. Organizational performance depends heavily on employee involvement because it creates workplace motivation and responsibility in addition to employee dedication (Bakotić, & Rogošić, 2017). Employee engagement occurs through different models which combine participative decision authority with suggestion systems along with team organization and clear lines of communications. Furthermore, Mazzei, Flynn, and Haynie (2016) reported that active employee involvement in organizational decision-making leads to enhanced productivity along with innovative outcomes and better organizational performance results.

Moving on, supporters of employee involvement beliefs that organizational performance gets stronger because motivated workers become more satisfied at their jobs. Organizations receive higher dedication from employees when employees get opportunities to express their input and feel respected (Milliken, Schipani, Bishara, & Prado, 2015). Organizations showing significant employee involvement achieve improved financial results alongside reduced staff departures and superior customer contentment (Kazimoto, 2016). However, the framework demonstrates that employee empowerment enables them to propose ideas which produces advanced operational methods and better efficiency outcomes.

Conversely, Neirotti (2020) argues that extreme involvement of employees results in delayed decision-making along with reduced management control. Kaasinen et al. (2020) shows that valuable decisions tend to become slower when all employees participate due to resulting conflicts which emerge from differing viewpoints. More so, employee decision-making responsibilities leading to participation fatigue develop when workers get swamped with tasks but do not receive the promised rewards or benefits (Harvey, 2023). Thus, the evaluation shows companies need to establish a fair balance between staff engagement and effective organizational decision-making frameworks.

Moreover, an employee involvement initiative faces the risk of failure when management teams do not provide adequate backing. The authors maintain that real employee involvement needs both managerial consistency and cultural transformation (Singh, & Gupta, 2015). Employees tend to disengage when involvement efforts lack these conditions since they interpret the actions as superficial or manipulative. Inadequate standardization of implementation between organizational departments leads to unfairness which diminishes both the unity of team members as well as the

organization's operational efficiency (Ejaz, 2025). However, serviceable employee involvement requires an extensive enduring approach that connects with the organization's targets.

2.1.6 Adaptation of Product Innovation to Lean Management

According to Kanagal (2015), "product innovation" is the design and development of new or enhanced goods, services, or procedures that offer distinctive value to consumers and give businesses a competitive edge. It entails the creation of original concepts, research and development initiatives, and the effective sale of avant-garde products.

2.1.6.1 Market Relevance

The food industry is characterized by constant growth and evolving customer preferences, expectations, and market trends. It is recommended that organizations take a proactive approach in responding to these changes by offering innovative products that capture the attention of their customers (Day, & Schoemaker, 2016). However, organizations can ensure their relevance and avoid obsolescence by staying attuned to the demands of the market.

Moreover, the preferences and expectations of customers are subject to change over time, and are not static in nature. Zollo, Bettinazzi, Neumann, & Snoeren (2016) assert that product innovation enables enterprises to anticipate and respond to evolving market dynamics by introducing novel and improved offerings that align with evolving customer needs and preferences. Through monitoring customer Supportive environment, conducting market research, and observing industry trends, organizations can identify emerging preferences and develop innovative products that meet evolving consumer demands. In the current highly competitive business landscape, organizations are in a constant state of competition for the attention and market share of customers.

2.1.6.2 Organizational Adaptability

The implementation of product innovation within enterprises fosters a culture that values creativity, learning, and adaptability. According to Kremer, Villamor, and Aguinis (2019), the encouragement of creative thinking, exploration of innovative ideas, and embracement of change serves as a source of inspiration for employees.

The ability to adapt to changing circumstances is a crucial aspect in the contemporary business landscape, where enterprises are required to continuously evolve in order to maintain a competitive edge and satisfy the demands of their customer base. Product innovation motivates employees to engage in creative thinking and explore unconventional ideas. However, it cultivates a milieu wherein viewpoints are esteemed and individuals are at liberty to challenge established knowledge.

Furthermore, the company endows its employees with the authority to make valuable contributions towards the achievement of organizational goals by means of innovative product development. According to Chaudhry, Paquibut, and Tunio (2021), the inclusion of workers in the innovation process can be advantageous for organizations as it allows them to leverage their distinctive perspectives, experiences, and skills. When employees participate in shaping the future of the organization, they experience heightened levels of engagement, motivation, and investment in the company. Empowered employees are inclined to generate innovative proposals, exhibit proactivity, and surpass expectations in advancing the organization's triump (Nuraini, 2023). In the current dynamic corporate landscape, agility is a pivotal factor for gaining a competitive edge. However, the introduction of new features or products through product innovation promotes organizational agility by facilitating swift creation and implementation.

2.1.7 Adaptation of Cultural Barriers to Lean Management

According to Savolainen (2016), cultural barriers refer to impediments or challenges that arise due to differences in values, beliefs, attitudes, customs, and behaviors among individuals or groups. However, the presence of these hindrances could potentially impede efficient collaboration, hinder mutual comprehension, impede the achievement of organizational goals, and obstruct the successful execution of initiatives.

2.1.7.1 Communication Challenges

Communication within an organization may be impeded by cultural disparities. Arqoub and Alserhan (2019) posit that a range of factors, such as language barriers, communication styles, and the interpretation of nonverbal cues, can contribute to misunderstandings and ineffective communication. The presence of cultural barriers

can impede the transmission of information and hinder collaboration, which is essential for effective coordination, decision-making, and problem-solving.

Furthermore, the utilization of nonverbal communication, including body language, gestures, and facial expressions, is imperative in the process of conveying information. Richland (2015) posits that the interpretation of these cues may vary across diverse cultural contexts. Cross-cultural variations exist in the interpretation and significance of gestures, such that a gesture perceived as positive in one culture may carry a distinct meaning or implication in another cultural context. Differences in the interpretation of nonverbal cues may lead to misinterpretations, ineffective communication, and potentially, offense.

Effective communication is crucial for coordinating activities, making decisions, and resolving issues within an organization. Communication barriers may impede these procedures. According to Doyle and Paton (2018), the occurrence of miscommunication and misunderstandings can lead to inefficiencies, errors, and delays in the decision-making process and problem-solving efforts. However, unclear communication within a team can lead to ineffective collaboration, resulting in sub-optimal outcomes and potential misunderstandings.

2.1.7.2 Differing Work Styles and Norms

Cultural diversity often results in the introduction of varying work standards and methodologies. According to Arieli and Sagiv (2018), variances in cultural backgrounds can impact individuals' approaches to tasks, decision-making processes, and problem-solving techniques. Inadequate recognition and handling of such differences may lead to the emergence of friction and disputes. However, insufficient understanding and limited acceptance of diverse approaches to work can lead to opposition towards modifications and impede the implementation of novel endeavors.

Furthermore, the optimal methods for initiating and completing projects may vary based on cultural perspectives. According to Marini (2024), there exist cultural variations in the extent to which individual initiative and autonomy are valued vis-à-vis cooperation and teamwork. Interactions between individuals with distinct work styles may give rise to conflicts and misinterpretations. As an illustration, an individual hailing from a culture that places a high premium on hierarchical structures

may exhibit a preference for unambiguous guidance and explicit directives, while an individual from a culture that esteems autonomy may exhibit a proclivity for greater independence in decision-making and task execution (Arrafi, 2024).

Consequently, cultural diversity may give rise to various decision-making processes within an organization (Brett, Behfar, & Kern, 2020). Diverse cultural norms exist regarding decision-making processes, with some societies prioritizing a hierarchical structure that delegates decision-making authority to higher-ranking or more experienced individuals, while others prioritize a collaborative and agreement-driven approach.

2.2 Theoretical Review

This study is grounded in four core theories: Organizational Culture Theory, Operations Management Theory, Change Management Theory, and Total Quality Management Theory. Organizational Culture Theory emphasizes how shared values and practices support lean adoption. Together, these theories provide a strong foundation for analyzing the influence of lean management on organizational performance across different contexts.

2.2.1 Organizational Culture Theory

Edgar H. Schein, a renowned academic who previously held a faculty position at the MIT Sloan School of Management, is widely acknowledged for his significant contributions to the field of organizational culture research. According to Schein, the concept of organizational culture refers to a set of commonly held fundamental assumptions that a group acquires while addressing its challenges of external adaptation and internal integration. These assumptions have proven to be effective and are therefore considered valid, and are imparted to new members as the appropriate approach to perceive, think, and feel in relation to these challenges.

Schein posits that the organizational culture of a given entity is fundamentally ingrained in its historical background, past encounters, and fundamental principles (White, 2017). Organizational culture exerts a significant impact on the conduct of personnel and molds their convictions, outlooks, and cognitive processes. According to Schein, the culture of an organization is frequently ingrained in the subconscious and is regarded as a given by its constituents.

Schein places significant emphasis on comprehending and regulating organizational culture due to its potent influence on employee conduct and organizational consequences (Driskill, 2018). The presence of a robust and optimistic culture can facilitate collaboration, dedication, and superior achievement, whereas a dysfunctional or pessimistic culture can impede output, originality, and the welfare of employees.

2.2.2 Operations Management Theory

Frederick W. Taylor in 1909 widely recognized as the "father of scientific management," is a prominent figure in the early development of Operations Management Theory. Merkle (2023) assert that the individual in question formulated the principles of scientific management, which placed significant emphasis on the systematic examination of work processes and the utilization of scientific techniques to enhance efficiency and productivity. Thus, the discipline of operations management pertains to the management of processes and activities that are involved in the conversion of inputs into finished goods or services. This encompasses the design, planning, and control of said processes and activities.

The principle of "one best way" was a fundamental concept introduced by Taylor. According to Reeves, Haanaes, and Sinha (2015), the individual held the belief that there existed a singularly optimal approach to executing every task, and it was incumbent upon management to discern and execute said approach. Taylor endeavored to identify the most efficient work methods and subsequently train workers through meticulous observation, measurement, and analysis. Taylor proposed the utilization of time and motion studies to determine the optimal approach, wherein tasks were deconstructed into their most basic elements and each action was meticulously monitored and timed. However, this facilitated the identification of superfluous or ineffective movements that could be eradicated or optimized.

However, Taylor's objective was to enhance productivity and minimize inefficiencies by identifying the optimal sequence of movements, tools, and techniques. Taylor prioritized the significance of providing training to workers for executing tasks in a standardized manner, subsequent to the identification of the most effective approach. Taylor's perspective was that workers ought to receive training on precise procedures and techniques, thereby eliminating any potential variations that could result in

inefficiencies or errors. Through the enforcement of the "one best way," Taylor sought to attain uniformity, predictability, and optimal productivity throughout the organization.

2.2.3 Change Management Theory

Kurt Lewin, a renowned psychologist, is widely recognized as a trailblazer in the field of Change Management Theory. According to Cummings et al. (2016), the stages of the change process were delineated by Lewin and involve "unfreezing, changing, and refreezing." Lewin's theory posits that organizations tend to function within a state of equilibrium or stability, which is commonly referred to as the "frozen" state. According to Grant (2016), in order to facilitate change, it is imperative to first unfreeze the current patterns, beliefs, and behaviors to establish a state of readiness for change. However, the process of unfreezing is instrumental in overcoming the inertia and resistance to change that can potentially impede organizational progress.

Furthermore, the subsequent phase of Lewin's model pertains to the change stage, which involves the introduction of novel behaviors, processes, or structures. The current phase is characterized by a process of adaptation and reorientation as the entity transitions from the former to the latter. The ultimate phase of the model pertains to refreezing, which encompasses the consolidation and stabilization of the novel behaviors, thereby establishing them as the prevailing standard. This phase is of utmost importance in maintaining the transformation and averting a regression into prior behaviors or routines. However, the field of Change Management Theory has been significantly impacted by the contributions of John Kotter, who is widely recognized for his influential eight-step model for effectively managing change.

According to Kotter's model, the initial phase involves establishing a sense of urgency. This entails the establishment of a persuasive rationale for the implementation of change and the dissemination of the imperative for change across the entirety of the organization (Pollack, & Pollack, 2015). The subsequent phase involves the establishment of a guiding coalition. The process entails the formation of a group comprising of prominent personalities possessing the requisite competencies, proficiency, and authority to spearhead the transformative undertaking. The third phase involves the formulation of a well-defined vision and strategy. Effective

leadership necessitates the ability to communicate a compelling vision of the desired future state and devise a strategic plan to realize that vision.

Moving on, the fourth stage involves the dissemination of the vision through effective communication. The importance of proficient communication cannot be overstated in guaranteeing that all parties involved comprehend and adopt the proposed objectives. Effective communication of the reasoning behind change, the advantages it will yield, and its projected effects on both personnel and the enterprise at large is imperative for leaders. The fifth phase involves endowing the workforce with the authority to execute the envisioned plan. The process entails the elimination of hindrances, allocation of resources and assistance, and enabling personnel to actively participate in the transformational procedure. The final stage involves the consolidation of gains and the generation of further change. However, after attaining the initial accomplishments, it is crucial to utilize them as a catalyst for propelling additional transformations.

2.2.4 Total Quality Management Theory

W. Edwards Deming, an American statistician, engineer, and management consultant, is recognized as a significant contributor to the advancement of Total Quality Management. According to Neyestani (2017), Deming is widely regarded as the central figure in the advancement and implementation of Total Quality Management principles. The Total Quality Management philosophy is a managerial strategy that prioritizes the attainment of customer contentment and the perpetual enhancement of all facets of a corporation. However, the approach underscores a philosophy that prioritizes the customer, encourages employee participation, and employs a methodical quality management system.

Furthermore, the significance of a methodical approach to enhancing quality was underscored by Deming, who advocated for a continuous process improvement strategy that involves the participation of all personnel in the pursuit of quality. The individual in question introduced a number of fundamental concepts that served as the basis for Total Quality Management, including the Plan-Do-Study-Act (PDSA) cycle and the notion of the "Deming Wheel" or "Deming Cycle." Furthermore, the PDSA cycle, alternatively referred to as the Deming cycle or the Shewhart cycle, presents a structured approach to addressing issues and achieving ongoing enhancements. The

methodology comprises of a sequence of four distinct stages, namely Plan, Do, Study, and Act.

In addition, the Plan-Do-Study-Act (PDSA) cycle fosters a cognitive orientation towards acquiring knowledge, conducting trials, and adjusting to changing circumstances. Similarly, Deming emphasized the significance of statistical techniques in comprehending and controlling variability in procedures (Montgomery, 2020). Thus, the individual espoused the implementation of statistical process control (SPC) methodologies for the purpose of overseeing and regulating process efficiency, utilizing empirical evidence as opposed to conjecture to inform decision-making.

2.3 Empirical Review

Adeyemi, Amosa, Afolayan, and Aremu (2024) investigate lean management practice and the performance of public universities in South-West, Nigeria. The study used a survey descriptive research design, with a total population of 12,844 academic staff members from Public Universities in the South-West, Nigeria. 900 sample size were selected using stratified random sampling method. The data were analysed using multiple regression analysis. Findings indicated that dimensions of lean management practice have significant positive effect on operational cost efficiency (R^2= 0.829; β = 0.189; t=10.486, p<0.000). The study concludes that dimensions of lean management have significant effect on operational cost efficiency of Nigerian Universities. The study recommended that universities should further promote the use of lean management dimensions of value identification, value stream mapping, continuous workflow, pull system and continuous improvement in their work process, so as to sustain viable operational cost efficiency.

Memari, Panjehfouladgaran, Rahim, and Ahmad (2022) conducted a study on the impact of lean production on operational performance. Process Activity Mapping (PAM) was utilized to identify the potential for waste elimination. Since PAM is involved in every step of the production process, value-added and non-value-added are examined using PAM as a visual tool to assist in observing the hidden wastes and their sources. Results revealed that the adopted lean principles significantly reduce the waiting times. The findings of this paper are limited due to the nature of the research and the company's size. Results demonstrate that lean is still recognized as a powerful approach to improve operations in small and medium size companies this paper

reflects the application of lean in a real case study showing the impact of lean on a small and medium size company's performance. It was recommended that further research should be needed to compare the performance indicator for different sizes of companies.

Chizoba and Chika (2022) conducted a study on the lean manufacturing approach and operational efficiency. The study validates the relevance of Lean strategy in Nigerian pharmaceutical companies in Anambra State. The study adapted a descriptive survey research design since the study is to distribute questionnaires to the respondents. The population of the study consists of 80 staff of 6 selected pharmaceutical companies in Anambra State. Data were collected through the questionnaires administered to respondents. T-test statistical tool was used to test the two hypotheses with the aid of SPSS version 20. 0 at 5% level of significance. The study revealed that lean manufacturing approach has effect on operational efficiency of Pharmaceutical Companies in Anambra State. Therefore, the study concluded that lean manufacturing approach has effect on efficiency and competitiveness of pharmaceutical companies in Anambra State. Based on the findings, the study recommended that manufacturing companies should strive to adopt lean thinking approaches, principles and practices so as to reduce inherent variations.

Bashar and Ayman (2018) conducted a study on lean bundles and performance outcomes in the Pharmaceutical Industry: benchmarking a Jordanian company and operational excellence international project. The results of the OPEX project were obtained, along with permission to use them in the present study. Fifteen managers from the Jordanian company with responsibilities related to lean management completed the questionnaire. The results demonstrated that the implementation levels of lean practices and the lean performance outcomes of the Jordanian pharmaceutical company varied in comparison to the OPEX project. There are few benchmarking studies in the pharmaceutical industry in the area of lean management. In particular, this area is under-investigated in the developing world. The current study provides insights into the value of benchmarking key lean metrics against leading companies. This approach is expected to support pharmaceutical industry managers in the developing world to evaluate their current lean state, estimate the desired state based on the benchmarking results, and set appropriate strategies to promote lean management and operational excellence in their companies.

Abdullah, Rawan, and Feras (2018) examined the integration of lean management and six sigma strategies to improve the performance of production in Industrial Pharmaceutical. The study sheds light on two variables that are considered among the most critical variables in a business organization. The hypotheses of process normality behavior are tested to verify subsistence of adequate conditions for Six Sigma methodology application, as well as errors forecasting in the distribution parameters estimation. The field of Lean Six Sigma had started to produce significantly, standalone concepts of Lean and Six Sigma are highly researched related to the integrated concepts. The paper has made an effort to categorize the satisfied of Lean Six Sigma studies that has never before attempted given the complexity and diversity inherent. Therefore, the paper can lookout as a basis for future endeavors in an effort to better the classification and contents in ways that best describe the researches in the field of Lean Six Sigma and six Sigma.

2.4 Research Gap

Extensive research has been conducted about lean management and organizational performance but multiple theoretical and contextual research gaps persist. A comprehensive analysis of lean practices needs more investigation regarding how Organizational Culture Theory interacts with Operations Management Theory and Change Management Theory and Total Quality Management Theory to drive organizational performance throughout different sectors. Change Management Theory demonstrates organizational adaptation and employee readiness but its operational efficiency framework remains incomplete according to Operations Management Theory. Total Quality Management Theory helps organizations sustain continuous improvement yet lacks sufficient guidance for maintaining cultural changes needed for lean practice sustainability.

Research evidence shows critical gaps between geographic boundaries along with business sectors and the methods applied in studies. Memari et al. (2022) studied how lean production influences operational performance by examining a standalone operational environment while neglecting complete organizational impact. Lazy management strategies proved their worth for pharmaceutical companies in Anambra State Nigeria according to Chizoba and Chika (2022) but their research remained confined to this geographic area and omitted other industrial sectors. Adeyemi et al.

(2024) studied South-West public universities in Nigeria which created uncertainties about lean management adoption within private universities and other geographical areas. Bashar and Ayman (2018) studied lean bundles and performance outcomes in Jordan without analyzing cultural and managerial factors which shape those outcomes. Abdullah et al. (2018) performed research on lean and Six Sigma integration yet focused exclusively on pharmaceutical industrial environments while omitting other types of high-performance operational contexts. Current studies demonstrate insufficient research about lean management which views its larger implications across different sectors and geographical regions.

This study aims to bridge these identified gaps by adopting an integrative theoretical framework that combines Organizational Culture Theory, Operations Management Theory, Change Management Theory, and Total Quality Management Theory to analyze how lean management influences organizational performance. Extending past research through industry and regional analysis allows increasing the general applicability of lean management practice knowledge. This research research aims to offer practical and theoretical representations that will assist following studies as well as guide organizational performance strategies focusing on lean management.

CHAPTER THREE
METHODOLOGY

3.0 Preamble

This section is sequentially written under the following sub-headings: Research Design, Area of Study, Population, Sample and Sampling Technique, Source of Data, Research Instrument, Validation & Reliability of Research Instrument, Data Collection, Data Analysis, and Ethical Review.

3.1 Research Design

Descriptive research of a survey type will be adopted for this study, aiming to understand the relationship between lean principles and organizational performance in Tuyil Pharmaceutical Industries Ltd. Jimoh (2011) emphasized that descriptive survey method will enable the researcher to establish cordial relationship with the selected area of the study within a period of time so as to draw needed respondents in a locality.

3.2 Area of Study

The study area was Ilorin, Kwara State. Kwara state is one of the six (6) states in the North central geo-political zones in the country with sixteen Local Government Areas and three senatorial zones. The specific area of focus was Tuyil Pharmaceutical Industrial Ltd which is located in Ilorin South Local Government in the State. The respondents were junior staff and Senior staff who were currently working with the company in Ilorin, Nigeria.

3.3 Population of the Study Area

The population of this study will be all junior staff and senior staff in Tuyil Pharmaceutical Industries Ltd. The population of a research comprises the totality of units having certain defined characteristics in common Creswell (2015). In other words, members or units of a population are always alike in some significant aspects. The population of this study was 242 (HRD, 2025) which accounts for the entire staffs in Tuyil Pharmaceutical Industries Ltd.

Staff Level	**No. of Staff**
Junior Staff	233
Senior Staff	9
Total	**242**

Source: Human Resource Department (HRD, 2025).

3.4 Sample and Sampling Technique

The sampling strategy used in this study depends on the research design and objectives. Sample size is the subgroup of the target population that a researcher plans to use as a study for the purpose of making generalizations about the target population. Hence, finite population formula of Yamane‘s equation (2004) which is stated below.

The formula of Yamane is expressed as:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{242}{1 + 242(0.05)^2} \qquad n = 150.78$$

Approximately the sample size to be taken is 151.

Distribution of Sample Size by Staff Level

Staff Level	**No. of Staff**
Junior Staff	145
Senior Staff	6
Total	**151**

The sample size distribution reflects the proportional representation of junior and senior staff in Tuyil Pharmaceutical Industries Ltd, maintaining the same ratio as in the population to ensure representativeness across staff levels

3.5 Sources of Data

The study made use of primary data. The sources of the primary data for this study were questionnaires to gather first-hand information of the respondents.

3.6 Research Instrument

A researcher-designed questionnaire will be adopted in collecting data in this study and the instrument will be titled “Questionnaire on impact of lean principles on organizational performance (QILPOP) and the instrument will be structured under two sections A and B. Section A contain personal information or demographic attributes of the respondents such as age, gender, qualification and work experience and the second section (B) containing the research questions. The questionnaire will be constructed and be scored with closed responses on a 5 point Likert scale ranging

from; Strongly Agree (SA) = 5; Agree (A)=4; Undecided (UN)= 3; Disagree (D)= 2 and Strongly disagree (SD)= 1.

3.7 Validation of Research Instrument

In a bid to ascertain the validity of the instrument Ashaolu (2001) described as the extent to which a measuring instrument measures, and how well it does so. The draft copy of the questionnaire was checked by the lecturers in the Department of Business Administration, Kwara State Polytechnic, after which another copy was prepared in line with the suggestion to make sure that the items in the questionnaire are relevant and apt to achieve the intended objectives. The instrument will be checked for face and construct validity. After which, the final copy of the questionnaire will be produced in line with all adjustments made.

3.8 Reliability of Research Instrument

In the same vein, Oladunni (2011) maintained that reliability is the consistency of an instrument over a period of time. Guilford (1965) stated that 0.895 Cronbach's value indicates a high level of reliability and 0.35 indicates a low value. However, the minimum criterion for Cronbach's Alpha is 0.60 (Bagozzi& Yi, 1988). For the purpose of this study, it will make used of Cronbach's Alpha of 0.60 to show that the instrument was consistent in measuring what it was intended to measure.

3.9 Data Collection

The researcher will visit Tuyil Pharmaceutical Industries Ltd. with a request letter signed by the Head of Department, Business Administration, Faculty of Management Science, Kwara State Polytechnic to seek for permission from the school authority to administer the questionnaire to their junior and senior staff to gather data for this study. Questionnaire will be conducted to gather quantitative data on various operational metrics such as cycle time, lead time, productivity and cost savings.

3.10 Data Analysis

Data collected for this study will be analyzed using SPSS 26.0 version. Data collected in this study will be analyzed using descriptive and inferential statistical methods. The descriptive analysis involves the use of tabulation presentation while the inferential statistics method involves the use of multiple regression analysis. This statistical technique is appropriate since this study seeks to use a structured Likert scaling questionnaire for data collection.

3.11 Ethical Review

The purpose of this study is solely academic, and any findings will not be disseminated with the intention of defaming any organization. There was no falsification of the collected data. The researcher took measures to ensure that the distribution of questionnaires to the participants was limited to their break or leisure time, as opposed to administrative periods. The respondents expressed concerns regarding trust, yet the researcher took measures to ensure the confidentiality of personal information and responses.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 Introduction

This chapter gives a detailed analysis of the data gathered with the use of instrument: impact of lean principles on organizational performance with emphasis on Tuyil Pharmaceutical Ltd as a case study Questionnaire. The data collected was analysed using simple percentage, and Multiple Linear Regression statistical tools.

4.1 Data Reliability Analysis

The researchers evaluated survey information with the help of SPSS software. Coefficient alpha analysis served as the method to evaluate data reliability through Cronbach Alpha computation. Cronbach Alpha is an average score developed by combining several split methods used to protect measurement scale sections in surveys.

Table 4.1 shows data reliability statistics without demographic variables

Industry	No. of Items	Data Reliability Cronbach Alpha
Just-in-Time	5	0.821
Total quality management	5	0.866
Employee Involvement	5	0.817
Organizational Performance	5	0.759

Table 4.1 shows data reliability that exceeds common consistency standards throughout the four measured constructs. All of the measured scales secure adequate internal consistency because they exceeded 0.7 on Cronbach's Alpha values across the constructs: Just-in-Time (0.821), Total Quality Management (0.866), Employee Involvement (0.817), and Organizational Performance (0.759). Internal consistency tests on the applied measurement tools yielded positive results which establish dependable bases for statistical analysis and interpretation regarding industry factor relationships in this study.

Table 4.2: Distribution of Respondents according to Demographics

		Frequency	%
Gender	Male	78	51.7

	Female	73	48.3
Age	18-25	50	33.1
	26-35	42	27.8
	36-45	29	19.2
	46-55	20	13.2
	56 and above	10	6.6
Educational Qualification	SSCE	37	24.5
	OND/NCE	32	21.2
	B.Sc/HND	58	38.4
	M.Sc	19	12.6
	Others	5	3.3
Length of Service	1-5 years	88	58.3
	6-10 years	51	33.8
	11-15 years	10	6.6
	16 years & above	2	1.3
Marrital Status	Single	66	43.7
	Married	82	54.3
	Divorced	2	1.3
	Widowed	1	0.7
	Others	0	0.0

Source: Field Survey, 2025

The study shows a relatively balanced gender distribution with 51.7% male respondents (78 individuals) and 48.3% female respondents (73 individuals). This near-equal representation suggests that the research captured perspectives from both genders fairly evenly, minimizing potential gender bias in the findings. This implies that balanced gender distribution strengthens the validity of the findings and suggests that any conclusions drawn about would be applicable across gender lines within similar organization.

Similarly, the age distribution table above reveals that younger employees form the largest segments of the sample, with 33.1% aged 18-25 years and 27.8% aged 26-35 years. Middle-aged employees (36-45 years) constitute 19.2%, while older employees (46-55 years and 56+ years) represent 13.2% and 6.6% respectively. This indicates a predominantly younger workforce with diminishing representation as age increases. This implies that the organization has a relatively young workforce, which may influence how lean management practices are perceived and implemented.

Furthermore., the educational profile shows that the largest proportion of respondents (38.4%) hold a B.Sc/HND qualification, followed by those with SSCE (24.5%) and OND/NCE (21.2%). Only 12.6% have an M.Sc degree, while 3.3% have other qualifications. This implies that the organization values formal education, with the majority having post-secondary qualifications. The moderate education level might influence how employees understand and engage with lean management concepts.

More so, the distribution of service length is heavily skewed toward shorter tenures, with 58.3% having served for 1-5 years and 33.8% for 6-10 years. Only 6.6% have served for 11-15 years, and a mere 1.3% have been with the organization for 16 years or more. This implies that the organization has relatively high employee turnover or is experiencing growth with recent hiring.

Lastly, the marital status distribution shows that married respondents constitute the largest group at 54.3%, followed by single respondents at 43.7%. Divorced and widowed individuals make up very small percentages at 1.3% and 0.7% respectively, with no respondents selecting "Others." This implies that the organization's workforce consists primarily of individuals with family responsibilities, which might influence their perspectives on work-life balance within lean management frameworks.

4.2 Descriptive Analysis

This section presents the responses of the respondents on the variables used to address the research objectives.

Table 4.3.1: Descriptive Analysis of the Participant Responses on just-in-time manufacturing and organizational performance.

S/N	Item Statement	SA		A		U		D		SD	
		F	%	F	%	F	%	F	%	F	%
1.	Their production system effectively minimizes inventory holding costs.	78	51.7	57	37.7	5	3.3	9	6.0	2	1.3
2.	Material waste reduction is a priority in their manufacturing processes.	78	51.7	61	40.4	4	2.6	7	4.6	1	0.7

3.	Quick changeover techniques are regularly implemented in their production lines.	53	35.1	86	57.0	3	2.0	8	5.3	1	0.7
4.	Production schedules are synchronized with customer demand patterns.	88	58.3	53	35.1	4	2.6	4	2.6	2	1.3
5.	Their supply chain arrangements allow for timely delivery of raw materials.	72	47.7	68	45.0	2	1.3	9	6.0	0	0.0

Source: Field survey, 2025

Table 4.3.1 above reveals overwhelming support for just-in-time manufacturing practices, with 89.4% of respondents agreeing or strongly agreeing that their production system minimizes inventory costs, 92.1% prioritizing material waste reduction, 92.1% implementing quick changeover techniques, 93.4% synchronizing production with customer demand, and 92.7% having timely raw material delivery arrangements. Notably, disagreement across all statements remains consistently below 7.5%, with very few respondents expressing uncertainty (generally below 3.3%). This implies that just-in-time manufacturing principles are well-established and widely accepted in the organization, suggesting that they are deeply embedded in operational processes and likely contributing positively to organizational performance.

Table 4.3.2: Descriptive Analysis of the Participant Responses on total quality management and organizational performance.

S/N	Item Statement	SA		A		U		D		SD	
		F	%	F	%	F	%	F	%	F	%
1.	Quality improvement initiatives are integrated into their strategic planning.	71	47.0	69	45.7	3	2.0	6	4.0	2	1.3

2.	The organization promotes a culture of continuous improvement.	62	41.1	68	45.0	5	3.3	16	10.6	0	0.0
3.	Statistical quality control methods are rigorously applied in their processes.	65	43.0	78	51.7	4	2.6	4	2.6	0	0.0
4.	Customer feedback significantly influences our quality standards.	80	53.0	65	43.0	2	1.3	4	2.6	0	0.0
5.	Suppliers are selected based on quality performance rather than just cost.	75	49.7	69	45.7	3	2.0	4	2.6	0	0.0

Source: Field survey, 2025

The table above shows that total quality management practices shows strong positive perceptions, with 92.7% of respondents agreeing or strongly agreeing that quality improvement initiatives are integrated into strategic planning, 86.1% believing the organization promotes continuous improvement, 94.7% confirming rigorous application of statistical quality control methods, 96% acknowledging the influence of customer feedback on quality standards, and 95.4% stating suppliers are selected based on quality performance. Disagreement levels across all items remain below 10.6%, with very low uncertainty rates (below 3.3%). This implies that total quality management principles have been effectively institutionalized within the organization's culture and operations.

Table 4.3.3: Descriptive Analysis of the Participant Responses on employee involvement and organizational performance.

S/N	Item Statement	SA		A		U		D		SD	
		F	%	F	%	F	%	F	%	F	%
1.	Staff members are	60	39.7	82	54.3	5	3.3	4	2.6	0	0.0

	empowered to make decisions related to their work areas.										
2.	The company implements a formal suggestion system for process improvements.	81	53.6	58	38.4	5	3.3	7	4.6	0	0.0
3.	Regular cross-training opportunities are provided to enhance workforce flexibility.	65	43.0	64	42.4	5	3.3	17	11.3	0	0.0
4.	Problem-solving teams are utilized to address operational challenges.	71	47.0	66	43.7	7	4.6	7	4.6	0	0.0
5.	Workers participate in setting performance targets for their departments.	58	38.4	81	53.6	5	3.3	6	4.0	1	0.7

Source: Field survey, 2025

The result of employee involvement practices shows strong positive responses, with 94% of respondents agreeing or strongly agreeing that staff are empowered to make work-related decisions, 92% confirming implementation of formal suggestion systems, 85.4% reporting regular cross-training opportunities, 90.7% utilizing problem-solving teams, and 92% indicating worker participation in setting performance targets. Disagreement levels remain consistently low (below 11.3%), with minimal uncertainty (around 3.3-4.6%). This implies that employee involvement practices are well-established within the organization's management approach, fostering a culture of participation and empowerment.

Table 4.3.4 Dependent Variable: Organizational Performance

S/N	Item Statement	SA		A		U		D		SD	
		F	%	F	%	F	%	F	%	F	%
1.	The company has	61	40.4	74	49.0	4	2.6	11	7.3	1	0.7

	experienced significant growth in market share over the past year.										
2.	Customer satisfaction levels have improved due to our operational practices.	77	51.0	53	35.1	16	10.6	5	3.3	0	0.0
3.	Product defect rates have decreased consistently in recent production cycles.	84	55.6	55	36.4	3	2.0	9	6.0	0	0.0
4.	The organization has achieved cost reduction targets across key departments.	83	55.0	54	35.8	5	3.3	8	5.3	1	0.7
5.	Financial performance indicators demonstrate sustainable improvement patterns.	60	39.7	82	54.3	5	3.3	4	2.6	0	0.0

Source: Field survey, 2025

The analysis of organizational performance indicators shows strongly positive perceptions, with 89.4% of respondents agreeing or strongly agreeing that the company has experienced significant market share growth, 86.1% perceiving improved customer satisfaction, 92% reporting decreased product defect rates, 90.8% achieving cost reduction targets, and 94% observing sustainable improvement in financial indicators. Disagreement levels remain below 8%, though customer satisfaction shows a slightly higher uncertainty rate (10.6%) compared to other metrics. This implies that the organization is performing well across multiple dimensions market position, customer relations, product quality, cost management, and financial sustainability.

4.3. Test of Hypotheses

In this section, the data were analyzed and presented to validate and test the stated hypotheses. As stated earlier, simple regressions used for each relationship to test the hypotheses.

Ho1: Just-in-time manufacturing has no significant impact on organizational performance in Tuyil Pharmaceutical Ltd.

Table 4.4.1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.769[a]	.591	.588	1.72501

- Predictors: (Constant), Just-in-time

Source: SPSS output, 2025

The regression model shows a strong positive relationship between just-in-time manufacturing and organizational performance with a correlation coefficient (R) of 0.769. The R-square value of 0.591 indicates that just-in-time manufacturing explains approximately 59.1% of the variance in organizational performance. The adjusted R-square (0.588) confirms this relationship is robust even when accounting for the number of predictors. This shows that just-in-time manufacturing practices are a substantial driver of organizational performance at Tuyil Pharmaceutical Ltd.

Table 4.4.2: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	640.138	1	640.138	215.125	.000[b]
	Residual	443.372	149	2.976		
	Total	1083.510	150			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Just-In-Time

Source: SPSS output, 2025

The analysis above exhibits statistical significance according to the ANOVA results ($F = 215.125$ $p < 0.001$). Research results shows that just-in-time manufacturing shows strong capabilities in predicting organizational performance. Statistical evidence supports the rejection of the null hypothesis as the p-value (0.000) demonstrates an almost non-existent chance that this relationship existed randomly.

Table 4.4.3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.136	1.233		6.600	.000
	Just-In-time	2.044	.139	.769	14.667	.000
a. Dependent Variable: Organizational Performance						

Source: SPSS output, 2025

The results in the coefficients table show that just-in-time manufacturing has a highly significant positive influence on organizational performance ($\beta = 0.769$, $t = 14.667$, $p < 0.000$). The B value of 2.044 shows that organizational performance increases around 2.044 units whenever there is a single unit increase in just-in-time manufacturing implementation. Organizational performance level stands at 8.136 when just-in-time manufacturing practices are non-existent in the organization.

Decision rule: The result proves positive because the p-value (0.000) decreases below the significance level (0.05) so we can reject null hypothesis (Ho1) and confirm just-in-time manufacturing induces positive effects on organizational performance at Tuyil Pharmaceutical Ltd.

Ho2: Total quality management has no significant influence on organizational performance in Tuyil Pharmaceutical Ltd.

Table 4.4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813[a]	.660	.658	1.57188

- Predictors: (Constant), Total Quality Management

Source: SPSS output, 2025

The correlation between total quality management and organizational performance demonstrates an extremely robust positive relationship through its calculated 0.813 value. Organizational performance variance can be explained by total quality management practices to the extent of 66% according to the R-square value. These results indicate the strong relationships between total quality management variables (0.658). The impact of total quality management practices on organizational performance exceeds just-in-time manufacturing at Tuyil Pharmaceutical Ltd.

Table 4.4.5: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	715.361	1	715.361	289.526	.000[b]
	Residual	368.149	149	2.471		
	Total	1083.510	150			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Total Quality Management

Source: SPSS output, 2025

The statistical significance of the regression model stands high since it produced an F value of 289.526 with a $p < 0.000$ level. Total quality management effectively predicts organizational performance based on statistical data analysis. The results strongly support the hypothesis rejection because the p value stands at a zero level (0.000).

Table 4.4.6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.151	1.121		6.380	.000

	Just-In-time	2.150	.126	0.813	17.015	.000
a. Dependent Variable: Organizational Performance						

Source: SPSS output, 2025

The coefficients table establishes total quality management as a significant and positive determinant of organizational performance through β = 0.813 (t = 17.015 and p < 0.000). Total quality management implementation shows an effect of 2.150 unit increases in organizational performance when it experiences one unit rise in its implementation levels. The constant value of 7.151 shows the performance levels of the organization in situations where Total Quality Management is absent.

Decision rule: The results indicate a significant positive influence of Total Quality Management on organizational performance in Tuyil Pharmaceutical Ltd because the obtained p-value (0.000) is lesser than the established significance level (0.05) thus leading to the rejection of null hypothesis (Ho2).

Ho3: There is no significant relationship between employee involvement and organizational performance in Tuyil Pharmaceutical Ltd.

Table 4.4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628[a]	.394	.390	2.09877

- Predictors: (Constant), Employee Involvement

Source: SPSS output, 2025

The analysis reveals that employee engagement produces a moderate positive connection to organizational results along with a 0.628 correlation value. The 0.394 quantity found in R-square indicates that employee involvement activities contribute to about 39.4% of organizational performance changes. This relationship stands consistent as indicated by the adjusted R-square value of 0.390. The data shows employee involvement scenarios contribute less to organizational performance variations than just-in-time manufacturing and total quality management practices.

Table 4.4.8: ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	427.189	1	427.189	96.982	.000[b]
	Residual	656.321	149	4.405		
	Total	1083.510	150			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Employee Involvement

Source: SPSS output, 2025

Statistical tests validate the significance of our regression model because its F value reaches 96.982 while maintaining a p value below 0.001. Employee involvement demonstrates statistically proven ability to predict organizational performance levels. The statistical evidence from the p-value of 0.000 demonstrates the null hypothesis should be rejected because of its strength.

Table 4.4.6: Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.140	1.226		11.530	.000
	Employee Involvement	1.388	.141	.628	9.848	.000
a. Dependent Variable: Organizational Performance						

Employee involvement proves to be significantly positively associated with organizational performance according to the coefficients table ($\beta = 0.628$, $t = 9.848$, $p < 0.001$). When employee involvement grows by one unit then organizational performance rises by about 1.388 units based on the unstandardized coefficient value ($B = 1.388$). The number 14.140 serves as the organizational base performance at zero levels of employee involvement participation.

Decision rule: The analysis shows that employee involvement affects organizational performance positively because the p-value (0.000) remains lower than the significance level threshold (0.05). Thus we reject Ho3 to establish a positive correlation in Tuyil Pharmaceutical Ltd

4.4. Discussion of Findings

The study confirmed that just-in-time manufacturing shows a strong positive relationship with organizational performance at Tuyil Pharmaceutical Ltd ($R = 0.769$, $R^2 = 0.591$, $p < 0.000$) wherein just-in-time manufacturing accounts for 59.1% of organizational performance. The research output shows similarity with Abdullah, Rawan, and Feras (2018) as they studied how lean management and six sigma strategies improve production outcomes in Industrial Pharmaceutical companies. Abdullah et al. (2018) also confirmed that just-in-time manufacturing produced substantial operational performance benefits through better efficiency and reduced waste which improved organizational success results. The research findings between both studies agree that just-in-time manufacturing leads to lower inventory expenses while cutting waste and streamlining production sequences while giving organizations better customer demand response capabilities thus improving overall organizational performance. Just-in-time manufacturing systems create new implementation barriers because they need dependable suppliers together with resilient supply chains and call for massive cultural modifications throughout organizations.

Furthermore, the study showed that total quality management has a robust connection with organizational performance at Tuyil Pharmaceutical Ltd ($R = 0.813$, $R^2 = 0.660$, $p < 0.000$) because it explains 66% of change in organizational performance. Bashar and Ayman (2018) study in lean bundles and performance outcomes in Pharmaceutical Industry validated that a Jordanian company matched well with an operational excellence international project. Total quality management proved to be the most powerful lean practice for pharmaceutical company performance according to the studied research. The analysis from these studies demonstrates that total quality management delivers several concrete benefits which include better product quality alongside satisfied customers along with lower defects and faster processes and organizational success in markets. Such benefits prove essential for pharmaceutical organizations since quality standards directly affect regulatory procedures together

with patient safety requirements. Total quality management implementation faces implementation barriers such as employee resistance to change together with high resource requirements and requirement of stable leadership support and quantitative measurement challenges.

More so, at Tuyil Pharmaceutical Ltd employee involvement reveals a moderate strength to influence organizational performance ($R = 0.628$, $R^2 = 0.394$, $p < 0.000$), which accounted for about 39.4% of organizational performance outcomes. Adeyemi, Amosa, Afolayan, and Aremu (2024) evaluated lean management practices and performance in public universities of South-West Nigeria. Employee involvement together with empowerment demonstrated significant positive impact on organizational performance although not to the same extent as other lean practices according to their study. Both research projects demonstrate that employee engagement creates multiple advantages such as better problem-solving abilities and higher staff dedication along with shared expertise transfer and fewer change barriers and superior implementation results of lean approach elements. Participatory decision-making along with continuous improvement initiatives for employees lead organizations to attain greater performance results according to the studies conducted. Both studies note implementation challenges of employee involvement such as hierarchical organization structures that block empowerment and inadequate training opportunities and communication issues and unclear performance measurement of employee involvement effects.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of procedures used, the conclusion, recommendations of the study, suggestion for further study, and contribution to knowledge.

5.1 Summary of findings

This study, titled "Lean Management and Organizational Performance," focused on Tuyil Pharmaceutical Ltd as its case study. Data was collected through a structured questionnaire administered to both junior and senior employees of the organization. A total of 151 respondents participated in the study, and data analysis was conducted

using regression analysis to determine the relationships between the independent variables (just-in-time manufacturing, total quality management, and employee involvement) and the dependent variable (organizational performance).

The descriptive analysis of just-in-time manufacturing practices revealed overwhelming support from respondents, with over 89% agreeing or strongly agreeing that their production system minimizes inventory costs, prioritizes waste reduction, implements quick changeover techniques, synchronizes production with customer demand, and ensures timely raw material delivery. The hypothesis testing confirmed a strong positive relationship between just-in-time manufacturing and organizational performance ($R = 0.769$, $R^2 = 0.591$, $p < 0.001$), with just-in-time manufacturing explaining 59.1% of the variance in organizational performance.

The descriptive analysis of total quality management practices similarly showed strong positive perceptions, with over 86% of respondents agreeing or strongly agreeing that quality improvement initiatives are integrated into strategic planning, continuous improvement is promoted, statistical quality control methods are applied, customer feedback influences quality standards, and suppliers are selected based on quality performance. The hypothesis testing revealed an even stronger relationship between total quality management and organizational performance ($R = 0.813$, $R^2 = 0.660$, $p < 0.000$), with total quality management explaining 66% of the variance in organizational performance.

The descriptive analysis of employee involvement practices demonstrated strong positive responses, with over 85% of respondents agreeing or strongly agreeing that staff are empowered to make work-related decisions, formal suggestion systems are implemented, cross-training opportunities are provided, problem-solving teams are utilized, and workers participate in setting performance targets. The hypothesis testing showed a moderately strong relationship between employee involvement and organizational performance ($R = 0.628$, $R^2 = 0.394$, $p < 0.000$), with employee involvement explaining 39.4% of the variance in organizational performance.

5.2 Conclusion

Based on the findings of this study, it is concluded that lean management practices significantly influence organizational performance at Tuyil Pharmaceutical Ltd. Just-in-time manufacturing was found to have a substantial positive impact on

organizational performance through the reduction of inventory costs, minimization of waste, implementation of quick changeover techniques, synchronization of production schedules with customer demand, and timely delivery of raw materials. These practices contribute significantly to operational efficiency and ultimately to improved organizational performance.

The study further concluded that total quality management has the strongest influence on organizational performance among the three lean management practices examined. The integration of quality improvement initiatives into strategic planning, promotion of a continuous improvement culture, application of statistical quality control methods, incorporation of customer feedback into quality standards, and selection of suppliers based on quality performance collectively contribute to enhanced product quality, increased customer satisfaction, and improved financial performance indicators.

Additionally, the study concluded that employee involvement, while having a moderate but significant relationship with organizational performance, plays an important supportive role in the implementation of lean management practices. Empowering staff to make work-related decisions, implementing formal suggestion systems, providing cross-training opportunities, utilizing problem-solving teams, and involving workers in setting performance targets foster a participative work environment that enhances problem-solving capabilities and commitment to organizational goals, thereby contributing to improved organizational performance.

5.3 Recommendations

Based on the insightful findings of the project research, several key recommendations are proposed:

First of all, Tuyil Pharmaceutical Ltd should prioritize strengthening its quality management systems. The company should invest in advanced statistical quality control tools, establish more robust quality improvement teams, implement comprehensive supplier quality assessment programs, and develop structured mechanisms for incorporating customer feedback into product and process improvements. Regular quality audits and benchmarking against international pharmaceutical standards would further strengthen this aspect of lean management.

Secondly, Tuyil Pharmaceutical should focus on refining its production scheduling systems, strengthening supplier relationships, and implementing more sophisticated inventory management technologies. The company should consider establishing long-term strategic partnerships with key suppliers, investing in real-time inventory tracking systems, and implementing advanced production planning software to better synchronize manufacturing activities with customer demand patterns.

Lastly, Tuyil Pharmaceutical should develop more comprehensive training programs focused on lean principles, establish cross-functional improvement teams, implement a more robust suggestion system with appropriate recognition and rewards, and create clear career advancement paths tied to participation in improvement initiatives. Leadership development programs should emphasize participative management styles that encourage employee empowerment and decision-making.

5.4 Suggestion for Further Studies

Future research should explore the interrelationships and potential synergistic effects between the three lean management practices examined in this study. While each practice was analyzed independently, it would be valuable to investigate how they interact and potentially enhance each other's effectiveness when implemented simultaneously as an integrated lean management system. Additionally, longitudinal studies tracking the implementation of lean management practices over time would provide insights into the sustainability of performance improvements and the evolution of organizational culture in response to lean initiatives.

Further studies should also expand the scope to include additional lean management practices not covered in this research, such as kaizen events, value stream mapping, cellular manufacturing, and lean leadership approaches. Comparative studies across different pharmaceutical companies or between pharmaceutical and other manufacturing sectors would provide valuable insights into industry-specific factors that influence the effectiveness of lean management practices. Qualitative research focusing on implementation challenges and success factors would complement the quantitative findings of this study and provide practical guidance for organizations seeking to adopt lean management approaches.

5.5 Contribution to Knowledge

This study has made significant contributions to the existing body of knowledge on lean management and organizational performance, particularly within the context of the pharmaceutical industry in Nigeria. By empirically demonstrating the specific relationships between three distinct lean management practices and organizational performance, the research provides a nuanced understanding of how different lean approaches contribute to various aspects of organizational success.

Furthermore, this study bridges the gap between theoretical frameworks of lean management and practical implementation in a specific industry context. By focusing on Tuyil Pharmaceutical Ltd as a case study, the research provides valuable insights into the application of lean principles in a real-world pharmaceutical manufacturing environment in Nigeria, where research on lean management is relatively limited compared to Western contexts. The comprehensive analysis of both perceptions and actual relationships offers a more complete picture of lean management effectiveness than many previous studies.

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APPENDIX I

QUESTIONNAIRE

Department of Business Administration,
Faculty of Management Science,
Kwara State Polytechnic,
Ilorin, Kwara State.
March, 2025.

Dear Respondent,

I am an undergraduate student of the above named department and polytechnic conducting an academic research on the topic "**Lean Management and Organizational Performance".** I will appreciate your kindness in giving credible answers to the questions below and I assure you that the response given will be treated with utmost confidentially and for academic purpose only.

Thanks for responding appropriately.

Yours sincerely,

Researcher

SECTION A

DIRECTION: Please tick ( ) as appropriate

PART A: Bio-Data of Respondents.

1. Gender: Male ( ) Female ( )
2. Age: 18-25 ( ) 26-35 ( ) 36-45 ( ) 46-55 ( ) 56 and above ( )
3. Educational Qualification: SSCE ( ) OND/NCE ( ) B.Sc/HND ( ) M.Sc ( ) Others ( )
4. Length of Service: 1-5years ( ) 6-10 years ( ) 11-15 years ( ) 16 years and above ( )
5. Marital Status: Single ( ) Married ( ) Divorced ( ) Widowed ( ) other ( )

SECTION B

DIRECTION: Please tick ( ) as appropriate (**SA-**Strongly Agree, **A –** Agree, **UN –** Undecided, **D –** Disagree, **SD –** Strongly Disagree).

No	Just-In-Time Manufacturing (JIT)	SA	A	UN	D	SD
1	Our production system effectively minimizes inventory holding costs.					
2	Material waste reduction is a priority in our manufacturing processes.					
3	Quick changeover techniques are regularly implemented in our production lines.					
4	Production schedules are synchronized with customer demand patterns.					
5	Our supply chain arrangements allow for timely delivery of raw materials.					

No	Total Quality Management (TQM)	SA	A	UN	D	SD
1	Quality improvement initiatives are integrated into our strategic planning.					
2	The organization promotes a culture of continuous improvement.					
3	Statistical quality control methods are rigorously applied in our processes.					
4	Customer feedback significantly influences our quality standards.					
5	Suppliers are selected based on quality performance rather than just cost.					

No	Employee Involvement	SA	A	UN	D	SD
1	Staff members are empowered to make decisions related to their work areas.					
2	The company implements a formal suggestion system for process improvements.					
3	Regular cross-training opportunities are provided to enhance workforce flexibility.					
4	Problem-solving teams are utilized to address operational challenges.					
5	Workers participate in setting performance targets for their departments.					

No	Organizational Performance	SA	A	UN	D	SD
1	The company has experienced significant growth in market share over the past year.					
2	Customer satisfaction levels have improved due to our operational practices.					
3	Product defect rates have decreased consistently in recent production cycles.					
4	The organization has achieved cost reduction targets across key departments.					
5	Financial performance indicators demonstrate sustainable improvement patterns.					