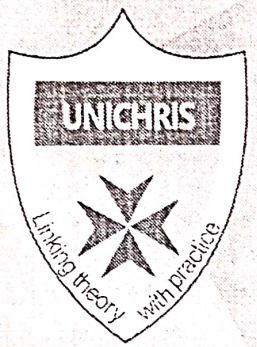
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LEAN MANAGEMENT PRACTICE AND THE PERFORMANCE OF PUBLIC UNIVERSITIES IN SOUTH-WEST, NIGERIA

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Abstract

A dynamic system, higher education institutions, particularly universities, require a specific management approach to carry out the activities that are planned for the achievement of the institutions' objectives in particular and of national growth in general. Although lean management practices in global environment is growing, there appear to be few empirical studies that examined its relative effect on organizational performance, in terms of operational cost efficiency, particularly in the context of higher education system in the context of Nigeria education system. Thus, this study examines the effect of lean management on university performance. 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.

Keywords: Lean Management; Operational Cost Efficiency; Value Identification; Value Stream Mapping; Continuous Workflow

1.1 Introduction

Globally, universities now operate within intricate and rapidly changing environments, posing challenges to efficient management. This complexity necessitates university management to grapple with resource management issues, including capacity planning, quality service delivery, and efficiency. Reflecting a global trend, Nigerian universities have experienced a significant surge in student enrollment since the

1980s (Falowo, 2022; Okebukola, 2010), transforming many institutions from exclusive havens for the privileged few to more inclusive entities. While universities are designed to address societal challenges, they currently face resource shortages and administrative hurdles that constrain their ability to deliver expected value, particularly to students in terms of both quality and timely of service delivery. Consequently, Nigerian universities have adopted various management models and philosophies from the corporate world, aiming to minimize waste and maximize performance. This has led to a growing advocacy for lean principles as a means to continually enhance universities for the benefit of all stakeholders (Adesola & Ekundayo, 2022; Ileuma, 2017).

The application of lean management practices in Nigerian universities seeks to improve service delivery, producing quality graduates, reducing stress for academic staff, and enhancing overall efficiency and productivity. Lean management is perceived as a set of practices that prove instrumental in reducing costs and enhancing the efficiency and quality of service delivery for both organizations and institutions alike (Udeze, Ugbam & Ugwu, 2023). Lean management serves as a strategic tool for fostering continuous organizational evolution by identifying and addressing real problems. While lean practices have demonstrated success in service organizations, including public services (Radnor, 2015), there is limited literature exploring its impact on university management paradigms. Nevertheless, the University of Miami (Ohio) serves as a notable example, showcasing the adoption of lean management and achieving increased value in service delivery along with over $27 million in cost improvements since 2009 (Feldt & Underwood, 2015). This suggests that lean management is adaptable across various industries and organizational types, including higher education institutions.

In the university context, lean management not only targets waste reduction and administrative streamlining but also emphasizes the development and sustenance of trust, transparency, and accountability. It delegates authority and responsibility to individuals involved in daily work processes, empowering them to modify their practices for enhanced efficiency in service delivery. In an environment marked by dwindling resources, burgeoning student enrollment, and escalating expectations of accountability, this paper posits that the application of lean management in university administration will elevate the value and performance of university processes. It provides both the understanding and tools necessary to better serve students amid these challenges.

Attempts have been made in recent years to transfer lean management principles and practice to higher education sector with indications of mixed consequences and debate over its suitability and effects (Thirkell & Ashman, 2014). However, question is being raised on whether or not adopting and implementing lean management could efficiently and effectively help in delivering better value to institution's stakeholders, particularly the students, in terms of quality and quantity of service at minimal cost by eliminating or minimizing wastages (Adesola & Ekundayo, 2022; Egbuta, Omosigho, Akinlabi & Ajike, 2022; George, 2003). Scholars and practitioners point out that low level of administrative processes and cost efficiency are currently one of the most alarming global economic problems for universities (Falowo, 2022; Adesola & Ekundayo, 2022; Motyka, 2018). The potential consequence of this occurrence is declining operational efficiency. Therefore, it becomes imperative to extend searchlight towards improving university capacity to enhancing performance, essentially as it relates to operational cost efficiency.

Moreover, despite the growing awareness of the need for lean management implementation in higher education institutions, few studies have examined the effectiveness of its basic dimensions in terms value identification, value stream, mapping continuous, workflow pull system, and continuous improvement of towards improved university performance in terms of operational cost efficiency. Thus, this study examined the effect of lean management on university performance, with particular reference

to operational cost efficiency of public universities in South-West, Nigeria.

1.2 Research Question

i. To what extent do dimensions of lean management influence operational cost efficiency of public universities in South-West, Nigeria?

1.3 Objective

The specific objective of this paper is to

i. examine the extent to which dimensions of lean management influence operational cost efficiency of public universities in South-West, Nigeria.

1.4 Research Hypothesis

H_0: Dimensions of lean management have no significant influence on operational cost efficiency of public universities in South-West, Nigeria

Literature Review

2. Conceptual Clarifications

2.1 Concept of Lean Management

Kobayashi (2005) characterizes lean management as both an organizational and cleaning methodology designed to maximize resource utilization while minimizing costs. Building on this perspective, Robinson and Yorkstone (2014) emphasize that lean management involves a continuous search for the simplest and smoothest processes to perfectly meet customer needs. In essence, lean management is a comprehensive management philosophy dedicated to identifying and eliminating "waste" across an organization's entire value stream (Udeze et al., 2023; Egbuta et al., 2022; Odero, 2017). This underscores that lean management serves as an approach aimed at reducing waste and enhancing the value added in work processes. In this context, waste is defined as anything that does not significantly benefit an organization's work processes or add value to its activities.

Dragomir and Surugiu (2013) posit that lean-based management centers its focus on the customer, value creation, efficiency, effectiveness, savings, sustainability, and increasing performance. This indicates that a lean organization meticulously analyzes and comprehends customer value, directing its key resources and processes towards continual enhancement. The ultimate objective is to deliver perfect value to the customer through an impeccable value creation process that aims for zero waste (Signoretti & Sacchetti, 2020; Henao, Sarache & Gómez, 2019; Dragomir & Surugiu, 2013). As highlighted by Odero (2017), lean methodology is grounded in three fundamental principles: delivering value from the customer's perspective, eliminating waste (anything that does not contribute value to the end product), and fostering a culture of continuous improvement. In essence, these principles underscore the commitment to customer-centric approaches, waste reduction, and an ongoing quest for improvement within the lean management framework. Robinson and Yorkstone (2014) assert that lean management is more than a theoretical concept; it is a philosophy of applied work. This underscores the necessity of fostering a fundamental respect for people to ensure the sustained success of continuous improvements within an organization. The application of lean management demands a comprehensive and ongoing program of continuous improvement, leading to visible changes throughout the entire organization over an extended period (Tarurhor & Emudainohwo, 2020; Radnor, 2015).

In practice, lean management entails a harmonious blend of effective operational and people management. This combination empowers organizations to implement process improvements, thereby enhancing efficiency and the quality of products or services (Udeze et al., 2023; Tasdemir & Gazo, 2018; Pinto-Junior & Mendes, 2017; Hashmi, Khan, & Haq, 2015; Womack & Jones, 2005; Liker, 2004). It is conceptualized as a set of tools and techniques available to organizations aiming to facilitate the implementation of process improvements and related changes, including efficient operational processes, corporate culture, and a commitment to continuous improvement. The essence of lean management lies in the continuous improvement of work processes, purposes, and people. Instead of attempting to exert total control over work processes and maintaining a centralized

spotlight, lean management encourages shared responsibility and leadership (Afunwa, 2020).

The existing literature underscores the potential for developing administrative and academic processes in higher education institutions to deliver efficient and cost-effective services to students, thereby increasing value at a low cost (Adesola & Ekundayo, 2022; Odero, 2017; Comm & Mathaisel, 2005). Balzer (2010) suggests that applying an efficient management system to higher education institutions can serve as a deliberate strategy for systematic change, prompting colleges and universities to rethink how they meet the needs and expectations of their stakeholders. He contends that lean principles and practices can be ingrained in the institutional culture by involving faculty and staff in the analysis and improvement of higher education processes to enhance proficiency (Balzer, 2010). Synthesizing these perspectives, this study defines lean management as a continuous effort to run and manage an institution in a way that enhances educational services and work processes. This involves incremental improvements over time to boost efficiency and service quality. The study posits that lean management is applicable not only to service organizations in general but also specifically to universities as institutions. The study equally infers that lean management offers an approach for eliminating activities and work processes that waste financial, time, and human resources in the university setting. This is achieved by analyzing and revising work processes to eliminate any steps that do not contribute value to stakeholders, particularly the students who are the primary customers.

2.2 Concept of Performance

Abdulkareem and Oyeniran (2011) contend that measuring performance in the public sector, particularly in service-providing organizations like universities, is a complex task. This involves assessing resources in terms of total expenditures, personnel, and other resources, and comparing them with outputs such as students' academic performance, graduation rates, and research quality. Jeyaraman and Teo (2010) elaborate on operational performance, defining it as the internal operations' effectiveness in terms of cost and waste reduction, product quality improvement, delivery performance, flexibility, and productivity enhancement. The success of lean management directly impacts the efficiency of internal operations (Punnakitikashem, 2013). Operational performance can be categorized into five key areas: speed, cost, overall productivity, quality, and customer satisfaction (Falowo, 2022; Graban 2009). Lean management is shown to significantly enhance the speed of service delivery, reducing waiting times (Womack et al. 2005; Graban 2009) and improving service delivery overall (Laganga, 2011). Quality improvement is another benefit, achieved through error reduction (Tasdemir & Gazo, 2018; Graban 2009; Mazzocato 2010), defect reduction, enhancement of service quality (Womack, 2005), and improved work processes. Performance measurements in this context encompass efficiency, effectiveness, quality, timeliness, and employee engagement (Punnakitikashem, 2013). Lean management is thus recognized as a valuable tool in optimizing these performance metrics within public sector organizations like universities.

Falowo (2022); Odero (2017) among others viewed performance as the accumulated end-results of all the organization's work processes and activities; the output of work undertaken in organizations and quantified into objectives an organization wants to achieve. Thursby (2000) argues that performance of a university should be measured by how effective it transforms inputs into outputs, based primarily on an evaluation of three key success factors (KSF), namely: achievement of academic objective (teaching-learning), achievement of research quality, and achievement of community services and supporting activities. Kontoghiorghes, Awbrey, and Feurig (2005) propose a dual perspective for categorizing university performance, distinguishing between objective and human resource-related subjective dimensions. Objective performance measures are typically quantitative, encompassing financial aspects like revenues and cost containment, student enrollment levels, the number of academic programs, and research grants secured. On the other hand, subjective

performance indicators are qualitative, covering operational efficiency in terms of service quality, innovation, knowledge creation, adaptation to change, market and public perception, corporate reputation, and customer satisfaction.

This study specifically focuses on the qualitative dimension of performance, which incorporates measures such as timeliness in service delivery, reduction of waste in operational processes, knowledge creation among university academic staff, cost reduction, alleviation of employee fatigue, enhanced employee role engagement, operational cost efficiency, employee job satisfaction, and customer satisfaction. By considering these qualitative aspects, the study aims to provide a comprehensive understanding of the multifaceted nature of university performance.

2.3 Basic Lean Management Dimensions and Sub Hypotheses Development

The review of literature indicates a widespread consensus among scholars regarding the foundation of lean thinking, which revolves around five fundamental and well-established dimensions or principles (Udeze et al., 2023; Yu, Chavez, Jacobs, & Wong, 2020; Zucchella & Previtali, 2019; Odero, 2017; Balzer, Brodke & Kizhakethalackal, 2015; Emiliani, 2015; Radnor, 2015; Thirkell & Ashman, 2014; Balzer, 2010; Womack & Jones, 1996). These lean principles, comprising value identification, value stream mapping, flow, pull, and perfection, are fundamentally focused on creating customer value by identifying and eliminating wasteful activities in value-creation processes (Odero, 2017; Womack & Jones, 1996).

It can be argued that the effective implementation of these five lean dimensions ensures that the overall organizational strategy is consistently followed through continuous review of the organization's processes. This ongoing scrutiny aims to guarantee that these processes are perpetually delivering value to all stakeholders, particularly the customers. Such an approach enables organizations to maintain efficient levels of service delivery while remaining adaptable and responsive to a changing environment through the implementation of sustainable change techniques. In essence, the lean principles provide a structured framework for organizations to achieve continuous improvement and enhance their overall effectiveness.

2.3.1 Dimension of Value Identification

The primary tenet in lean management is the identification of value that the organization aims to deliver to its customers. Radnor (2015) contends that while all five principles are crucial for implementing lean management practices, the most pivotal element is likely the first principle of value identification. In lean management, the concept of value is predominantly defined by the customer or consumer. Pearce and Pons (2019) and Kang and Manyonge (2014) emphasize that the initial and paramount step in lean thinking involves identifying the customer and defining value from the customer's perspective—understanding what the customer wants, when and at what price, and determining the essential resources and activities required to create that value. To achieve this, the organization must specify the value defined by its customers' needs. Seddon (2005) underscores that analyzing what constitutes customer value or demand serves as the critical starting point of the lean philosophy. This is because, without a comprehensive definition of value, organizations risk optimizing products and processes that may not align with the customers' needs (Hernandez-Matias et al., 2019; Pearce & Pons, 2019; Odero, 2017). Value may be perceived as the offering of a service that a customer is willing to pay for. This implies that, at its core, lean thinking asserts that a product or service should provide genuine value to the customer.

In the university environment, the primary customer is the student. Survey results indicate that the key value sought by students is to achieve the best results (quality) in the shortest possible time (lead time) (Chizoba & Chika, 2022; Afunwa, Agbaeze, Ike & Isichei, 2020; Chibaira & Hattingh, 2013). From this perspective, the value stream in the classroom should be oriented towards delivering high-quality outputs in the shortest possible lead

time. Dobson and Shumsky (2007) highlight that modern-day students are calling for a change in teaching and administrative methods, driven by their ability to access information faster than any previous generation. University management and lecturers must adapt their strategies to align with this new era of students. This involves adopting teaching methods that capture students' interest, motivate them, and demonstrate the relevance of acquired knowledge to real-life problems (Odero, 2017). Achieving this requires a proper identification of activities that create value for various stakeholders within the educational system. Thus, the first sub-hypothesis: "*value identification has no significant effect on operational cost efficiency*".

2.3.2 Dimension of Value Stream Mapping

In the realm of lean management practices, a value stream is a comprehensive process that charts out the activities and actions required for producing a service. The value stream encompasses the complete set of activities or actions across all segments of the organization that collaborate to deliver the product or service (Afunwa et al., 2020; Hernandez-Matias et al., 2019; Kang & Manyonge, 2014). Essentially, it represents the end-to-end process that brings value to the customer. Womack and Jones (1996) pointed out that throughout the analysis of value streams, activities fall into one of the following three categories which include:

i. Value-Added activities which are activities that create value and are essential changes to product/service, hence these activities should be maximized.
ii. Value-Enabling activities refer to activities that create no value but are unavoidable. The organization might highlight them for future elimination but they cannot be eliminated immediately.
iii. Non-Value-Added activities are those activities that can be immediately eliminated and are not dependent on improvement of other areas.

Non-value-added activities are deemed redundant and are considered pure waste, thus, they should be eliminated (Kang & Manyonge, 2014). The elimination of waste requires a precise and comprehensive understanding of the value stream (Womack et al., 2005).

In the university environment, value stream mapping is a lean management method used to analyze the current stage and design further stages for the sequence of events that take a service or product from its inception to the client. Value mapping helps reveal redundant activities and identifies those that can be shared across different services, departments, or faculties. One method of mapping in the university environment is the students' script (Eichentopf, Kleinaltenkamp, & van Stiphout, 2011). This approach can unveil what the student must contribute (prior knowledge, time), what the university must provide (lecturers, lecture halls, computers, and other teaching/learning resources), and where and how interactions occur (Odero, 2017). Value stream mapping in the context of a university setting is a tool for understanding and optimizing the processes involved in delivering educational services. It is therefore essential for organization to identify the value stream for each product providing that value and strive to remove non value added elements from this value stream (Radnor, 2015). Thus, the second sub-hypothesis: "*value stream mapping has no significant effect on operational cost efficiency*".

2.3.3 Dimension of Creating Continuous Workflow

The third step in implementing lean management involves creating a workflow based on the value-creating activities or actions identified in the previous steps. This step revolves around ensuring the continuous and uninterrupted flow of the product or service until it reaches the final customers. The lean management principle of flow aims to establish a seamless value chain, where each activity harmoniously aligns with every other, and there are no interruptions in the production process (Chizoba & Chika, 2022; Khan, Ali & Hongqi, 2018; Radnor, 2015). Radnor (2015) emphasizes that standardizing processes around best practices enables smoother operations, freeing up time for creativity and innovation. Recognizing the importance of creating a continuous workflow is crucial for waste

elimination. If the value stream encounters any interruptions, waste becomes an inevitable by-product (Radnor, 2015). Therefore, when establishing a flow of value, the organization's goal is to ensure a seamless delivery from the start to the finish of work processes, ultimately delivering value to the customer.

In a service context, the continuous workflow principle entails behaving in a manner that minimizes delays or stoppages in the work performed by others (Khan et al., 2018; Sua´rez-Barrazaa et al., 2012). When a process flows smoothly, work happens steadily. Conversely, when a process encounters disruptions, work accumulates, leading to peaks and troughs of activity, which aligns with the "batch-and-queue" concept (Khan et al., 2018; Odero, 2017). In the university environment, a common flow bottleneck is the failure of assessments to provide timely feedback to students on their progress toward the achievement of learning outcomes (O'Farrell, 2002). Timely feedback is crucial for students to understand where they have excelled, identify areas for improvement, and justify the grades or marks received in summative assessments (Odero, 2017). This illustrates the significance of a continuous workflow in educational settings to enhance the overall learning experience for students. Thus, the third sub-hypothesis: *"continuous workflow has no significant effect on operational cost efficiency".*

2.3.4 Dimension of Creating a Pull System

According to Kang and Manyonge (2014), the pull principle involves having a thorough understanding of customer demand and creating processes to respond accordingly. A pull system allows organizations to achieve a stable workflow and eliminate waste by only initiating work in response to actual demand. In such a system, work is pulled only when there is a demand for it, optimizing resource capacity and delivering products/services only when there is a genuine need. Radnor (2015) highlights that pull ensures that work progresses through each stage of the process as dictated by the end of the value stream, with movement and activity triggered by customer demand and linked to customer needs. In essence, the pull system dictates that new work processes are initiated only when there is a demand for them and when the team has the capacity to handle it. The goal is to produce value that is genuinely needed by customers and to avoid overproduction. Odero (2017) asserts that the pull principle means services are not produced until an order is placed, ensuring that the right thing is delivered at the right time, with the right quality, and in the right amount to meet customer needs (Janoski & Lepadatu, 2019; Bicheno, 2008). This approach helps organizations align their production or service delivery with actual demand, reducing waste and enhancing efficiency.

In a university setting, applying the "pull" principle implies that education should be directed by customer needs. In this context, customer needs refer to the competence requirements in society, and educational processes should be adapted to produce relevant competence in the quantities needed (Bergman & Klefsjö, 2010). This approach aligns education with the demands and expectations of the broader society, ensuring that the knowledge and skills imparted are directly relevant and contribute meaningfully to the needs of students and the community at large. By embracing the "pull" principle, universities can enhance the effectiveness and responsiveness of their educational programs to better serve the evolving needs of their stakeholders. Thus, the fourth sub-hypothesis: *"pull system has no significant effect on operational cost efficiency".*

2.3.5 Dimension of Establishing Continuous Improvement

Continuous improvement, also referred to as a state of perfection, involves the management's pursuit of perfection, aiming to remove non-value-adding activities from the value chain and consistently reduce the number of steps, time, and information required to efficiently serve the customer (Radnor, 2015). Achieving this involves ensuring that employees at every level are actively involved in continuously improving processes. Kang and Manyonge (2014) emphasize that the process of reducing lead time, buffer space, costs, and mistakes is ongoing to continuously improve work processes

and achieve sustainable customer satisfaction. Continuous improvement is an iterative process because, as improvement efforts progress, more layers of waste become visible, and the process moves towards the theoretical point of perfection. The organization's goal in continuous improvement is to enhance activities that generate the most value for customers while eliminating as many wasteful activities as possible.

The principle of perfection is somewhat challenging to apply as it can be seen as the result of successfully applying the previous four principles (Janoski & Lepadatu, 2019; Odero, 2017; Atkinson & Nicholls, 2013). If the other principles are fulfilled, activities that waste time and resources are eliminated, leading to the achievement of perfection. According to Carlborg, Kindström, and Kowalkowski (2013), perfection is attained when a customer is satisfied with the service, and the right amount of resources has been used to produce the service. From this perspective, perfection involves achieving service excellence with maximum customer satisfaction while simultaneously ensuring high efficiency with significant cost reduction. Continuous improvement can be attained only if every employee takes ownership and responsibilities of their actions and tasks at work place. Hence, organization management needs to place more trust in the employees' expertise and increase their independence in time according to their performance. Thus, the fifth sub-hypothesis: *"continuous improvement has no significant effect on operational cost efficiency".*

The study considers lean management principles as a philosophical approach to effective and efficient management, aiming to continuously eliminate waste in all work processes through small and incremental improvements. This approach not only improves quality and reduces defects but also enhances overall service flexibility. It is crucial for organizations to acknowledge the responsibility of educating and enlightening employees and tactical teams. This educational effort is designed to help them understand the importance of each lean principle with the ultimate goal of fostering a culture that embraces the lean approach. By ingraining these principles into the organizational culture, the aim is to create an environment where continuous improvement becomes a natural and integral part of the way work is done, ultimately leading to more effective and efficient operations.

2.4 Theoretical Background: Knowledge-Based Theory (KBT)

The Knowledge-Based Theory (KBT) of the firm is rooted in the resource-based view, emphasizing knowledge as a strategically significant resource that bestows a competitive advantage upon a firm (Barney, 1991). According to KBT proponents, the difficulty of imitating knowledge-based resources and their social complexity make heterogeneous knowledge bases and capabilities key determinants of superior firm performance (Githumbi, 2017). Knowledge is considered a unique strategic resource that doesn't depreciate in the traditional economic sense and can generate increasing returns. Its utilization involves various entities such as organizational identity and culture, routines, policies, processes, employees, and systems (Githumbi, 2017).

In the context of a university institution, possessing superior knowledge is posited to lead to outperformance when compared to others with similar resource levels. This superiority extends to human resource skills and expertise, as well as operational processes, providing the institution with a competitive edge in the industry. Therefore, the Knowledge-Based Theory provides a foundation for emphasizing the study's focus on how a university can enhance resource utilization by applying lean principles. This application aims to maximize value creation and minimize waste, ultimately influencing the university's overall performance (Kanyabi & Devi, 2012). The study explores how lean management practices align with and complement the principles of the Knowledge-Based Theory to improve efficiency and effectiveness within a university context.

2.5 Empirical Review

The study conducted by Udeze et al. (2023) explored the impact of Lean Manufacturing on performance in the Nigerian manufacturing

sector. Using a descriptive research method, the study involved a population of 2703 employees from selected manufacturing organizations, with a sample size of 336 determined using Godden's (2004) statistical formula. The study achieved a 97% response rate, and hypotheses were tested using Pearson Product-Moment Correlation Coefficient and linear regression analysis. The results indicated a positive correlation between leanness and organizational efficiency ($r = .663$, $p < .05$). Furthermore, the study found that lean supply chain integration significantly affects competitiveness ($t = 25.146$, $F = 0.000 < 0.05$). Consequently, the study concludes that leanness has a significant influence on organizational efficiency, suggesting that organizations with leaner production processes are better positioned to sustain competitiveness.

In another study by Falowo (2022), the focus was on the job performance of academic staff, specifically examining teaching effectiveness and research productivity. The study included 250 academic staff and 967 students as samples in Southwestern Nigeria. Primary data were collected through questionnaires and analyzed using descriptive statistics. The findings indicated that teaching by academic staff in the region was effective, with indicators such as mastery of work, attitude to teaching, accessibility of lecturers by students, and supervision contributing to this effectiveness. The study concluded that the teaching effectiveness of academic staff directly influences the level of research productivity.

Egbuta et al. (2022) conducted a study to assess the impact of lean human resource initiatives on employee performance in selected SMEs in Lagos State, Nigeria. The research employed a survey research method, determining a sample size of 481 from a population of 8,396 using the Research Advisory Table. Respondents were chosen through a simple random sampling method, and primary data were collected using a validated questionnaire. The study found that 85% of participants responded, and the data underwent analysis using descriptive and inferential statistics, including multiple regression. The results revealed a significant impact of lean human resource initiatives on employee performance in Lagos, Nigeria, with employee performance being notably influenced by these initiatives ($Adj.R2 = 0.095$; $F(5,401) = 9.509$, $p < 0.05$). The study concluded that lean human resource initiatives had a substantial effect on the performance of SMEs in Lagos, Nigeria.

Adesola and Ekundayo (2022) explored the relationship between institutional factors and academic staff job performance in Southwest, Nigeria. The study utilized a descriptive research design with a population of 12,844 academic staff from public universities in Southwest, Nigeria. The sample included 90 Heads of Departments and 900 academic staff, selected through a multi-stage sampling procedure involving simple random, stratified random, and proportionate random sampling techniques. Two instruments, the 'Institutional Factor Questionnaire (IFQ)' and the 'Academic Staff Job Performance Questionnaire (ASJPQ),' were used to collect data. The findings analyzed using percentages, frequency count, Mean, Standard Deviation, and Pearson Product Moment Correlation, indicated a high level of academic staff job performance in public universities in Southwest, Nigeria, with favorable institutional factors.

Afunwa et al. (2020) addressed the need to enhance the performance of the telecommunication sector in Nigeria by investigating the effect of lean management practices on performance. Employing a survey research design, the study sampled 299 employees from 6 state offices of selected telecommunication firms using stratified sampling. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through Smart-PLS. The study uncovered a significant positive effect of lean management practices on the performance of telecommunication companies. Additionally, it found that workplace structure mediated the relationship between lean management practices and performance in the telecommunication sector.

Bellisario and Pavlov (2018) conducted a content analysis study on performance management practices in lean manufacturing organizations, employing a systematic review

method to examine evidence generated between 2004 and 2015. Utilizing a comprehensive Performance Management (PM) framework, the study synthesized findings, revealing that PM practices closest to front-line actions and those explicitly addressing operational realities had the most prominent role in Lean Manufacturing Organizations (LMOs). The results suggested a bias towards operational-level issues but indicated that LMOs might integrate operational and strategic levels through PM practices fostering organizational learning via employee involvement and engagement.

Ileuma (2017) examined school related factors as predictors of internal efficiency of public university students in South-West, Nigeria. Random sampling procedure was adopted for selection of four public universities in the South-West, Nigeria. Fifty students consisting of thirty males and twenty female students were selected from each public university and questionnaire was used for data collection. The data collected were analyzed using inferential statistics such as Pearson Product Moment Correlation Coefficient and Multiple Regression. The finding revealed that there was a significant relationship between school organizational climate and internal efficiency.

Hashmi, Khan and Haq (2015) conducted a study to examine the impact of lean management implementation on organizational operational performance. The main objective was examine the relationship between the operational characteristics (lean) and operational performance of the organization. Variables from which the extraction of the outcomes has been established include operational performance, daily schedule adherence, repeat production and flow oriented layout. 300 respondents consisting of supply chain managers from manufacturing sector in Pakistan were conveniently selected as sample size. A structured survey questionnaire was used for data collection. Correlation and multiple regressions analysis were used to analyze the data. The study found that positive association is being established amongst the operational performance and the daily schedule adherence, flow oriented layout and the repeat production. It was suggested to the supply chain management that they must entail their production team for having repetition in their work and become efficient in their production.

This study makes a valuable contribution by addressing an existing gap in the literature. While the application of lean management philosophy in the service industry is gaining importance in practical contexts, the current literature on this topic in relation to higher education institutions is notably limited. Specifically, within the university context, there is a lack of comprehensive research exploring the overall impact of lean management dimensions on operational cost efficiency in Nigerian Universities, representing an African perspective. Consequently, there is insufficient development in understanding the methodological aspects of integrating lean management dimensions into university work processes to enhance institutional development. The findings of this study aim to bridge the perceived gap between existing literature and the practical implementation of lean management dimensions.

3. Methodology

The primary focus of this study was to investigate adopting lean management dimensions and its relative effect on performance, specifically within universities located in the South-West geopolitical zone of Nigeria. The research design employed for this investigation was the descriptive survey design method. The target population comprised 12,844 academic staff members from the 18 public universities in the Southwest, Nigeria, as per the National Universities Commission (NUC) data for the year 2021. The selection criteria for inclusion were limited to academic staff within federal and state universities, given that universities primarily center around students who are primarily taught, mentored, and supervised by academic staff. Furthermore, academic staff members were deemed more actively involved in the university system compared to other staff categories, as highlighted by Okebukola (2018). Additionally, the quality of academic staff and the research they conduct play a pivotal role in determining the world-class status of universities, as

recognized by accreditation standards set forth by the National Universities Commission (NUC). Therefore, academic staff-to-student ratio and the quality of academic staff are critical considerations for the accreditation of Nigerian universities.

The sample for this study comprised 93 Heads of Departments, selected purposefully, and 889 academic staff members chosen randomly from public universities in Southwest Nigeria. The respondents were drawn from six Federal and State universities across three selected states, employing a multi-stage sampling procedure. In the initial stage, three out of the six states in the Southwest were randomly chosen using a simple random sampling technique. The second stage involved the utilization of a stratified random sampling technique to select six universities (three Federal and three State-owned universities) from each of the chosen states. In the third stage, a proportionate random sampling technique was used to select 93 Heads of Departments from the sampled six universities. Finally, in the last stage, a proportionate random sampling technique was employed to select 889 academic staff members from the sampled six universities. The collection of primary data involved administering questionnaires designed to gather information on issues related to lean management dimensions and operational cost efficiency. The Likert rating scale of five points was utilized during sampling, measurement, and recording of respondents' opinions, enabling them to express their views on all items ranging from strongly agreed to strongly disagree (5 points for strongly agree, 4 points for agree, 3 points for undecided, 2 points for disagree, and 1 point for strongly disagree).

Principal component analysis using SPSS (Version 27.0) was employed to explore the latent factors associated with each item. This was done to confirm the validity of the instrument. The Kaiser-Mayer-Olkin (KMO) and Bartlett's Test of Sphericity were conducted to assess the strength and sufficiency of the sample and relationships among variables. A KMO value greater than 0.60 indicates that data are suitable for factor analysis, and the results of KMO and Bartlett's test in this study suggested that the variables were highly significant, making principal component analysis suitable. To ensure the reliability of the instrument, the test-retest method of reliability was applied, and Cronbach's Alpha was calculated for each construct. The reliability index of 0.857 was obtained, signifying a high degree of consistency and reliability for all constructs in this study.

Table 3:1 Cronbach's Alpha Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	N
0.839	0.837	18	906

Source: Author's Computation, 2024

The study employed both descriptive and inferential statistical analyses to present and analyze the collected data. The data were processed using IBM Statistical Package for Social Sciences (IBM SPSS version 25.0). Multiple regression analysis was utilized to examine the relationship between the dependent and independent variables in the study. The decision rule applied was as follows: if the calculated p-value is less than the tabulated p-value (i.e., the level of significance, set at 0.05), the null hypothesis is rejected in favor of the alternate hypothesis. Conversely, if the p-value exceeds the level of significance (0.05), the null hypothesis is accepted.

Model Specifications

Hypothesis One:

OpCosEff= f(VaIden, VaStrMap, ConWor, PulSys, ConImp)

$OpCosEff = \beta_0 + \beta_1 VaIden + \beta_2 VaStrMap + \beta_3 ConWor + \beta_4 PulSys + \beta_5 ConImp + \varepsilon$

Where:

OpCosEff= Opeartional Cost efficiency (Dependent variable)

β_0= Intercept of the model.

β_1= Estimate of the parameter of the independent variable in the model of the slope.
E= Error term.
VaIden=Value Identification (Independent variable)
VaStrMap=Value Stream Mapping (Independent variable)
ConWor= Continuous Workflow (Independent variable)
PulSys= Pull System (Independent variable)
ConImp=Continuous Improvement (Independent variable).

4. Findings and Discussion

4.1 Preliminary Analysis

Table 4.1 shows that responses from the administered questionnaires indicate a high level of participation. Out of the total 982 questionnaires distributed, 906 were returned, accounting for 92.26% of the total. This response rate is considered satisfactory and adds to the validation of the instrument used in the study.

Table 4.1: Analysis of Responses to Questionnaire

Description	Frequency	Percentage
Administered	982	100.00
Returned	906	92.26
Not Returned	076	7.74

Source: *Field Survey, 2024*

It is equally imperative that before the actual data analysis, the data should be subjected to out of range and missing value tests, as suggested by Saiyidi (2014). The missing value was 5.1% lower than the suggested upper limit of 20% (Hair, et al., 2006), which established that the entered data were correctly coded and entered.

4.1.2 Descriptive Statistics

The study's constructs, including operational cost efficiency (OpCosEff), value identification (VaIden), value stream mapping (VaStrMap), continuous workflow (ConWor), pull system (PulSys), and continuous improvement (ConImp), underwent descriptive statistics measurements. The computed values include mean (M), standard deviation (SD), skewness, and kurtosis. These measurements were conducted to assess the normality distribution and degree of asymmetry for each construct. The results are presented in Table 4.2 below:

Table 4.2: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OpCosEff,	906	4.00	1.174	-1.424	.133	1.278	.265
VaIden	906	3.97	1.339	-1.058	.133	-1.264	.265
VaStrMap	906	3.82	1.498	-1.840	.133	-1.869	.265
ConWor	906	4.28	1.239	-1.726	.133	1.700	.265
PulSys	906	3.91	1.634	-1.024	.133	-1.768	.265
ConImp	906	4.15	1.354	-1.342	.133	1.330	.265
Valid N (listwise)	906						

Source: *Field Survey, 2024*

The results of the mean and standard deviation for the constructs: operational cost efficiency (OpCosEff), value identification (VaIden), value stream mapping (VaStrMap), continuous workflow (ConWor), pull system (PulSys), and continuous improvement (ConImp), are presented in Table 4.2 as follows: operational cost efficiency (OpCosEff) (M=4.00, SD=1.174); value identification (VaIden) (M=3.97, SD=1.33); value stream mapping (VaStrMap)

(M=3.82, SD=1.498); continuous workflow (ConWor) (M=4.28, SD =1.239); pull system (PulSys) (M=3.91, SD=1.634); and continuous improvement (ConImp) (M=4.15, SD =1.354). The standard deviation values are below the mean values, indicating normality (Amsami, Ibrahim, & Abdelsalam, 2020).

Furthermore, skewness and kurtosis are commonly used to test data normality. Skewness represents the extent to which a distribution deviates from normal, indicating the asymmetry observed in a probability distribution (James, 2021). The reported skewness and kurtosis for the items were OpCosEff (Sk=-1.424, Ko=1.278); VaIden (Sk= -1.058, Ko=-1.264); VaStrMap (Sk=-1.84, Ko=-1.869); ConWor (Sk= -1.726, Ko =1.700); PulSys (Sk= -1.024, Ko=-1.768); and ConImp (Sk=-1.3, Ko=1.330) respectively. These results indicate that skewness and kurtosis values fall within the range of normality, suggesting that the distribution of values is statistically suitable for further analysis.

4.1.3 Factor Analysis and Internal Consistency Reliability Results

The Kaiser-Meyer-Olkin (KMO) value and Bartlett's Test of Sphericity were utilized to assess the sampling adequacy and correlations in the data prior to conducting the factor analysis. The values of the KMO and Bartlett test of sphericity for the variables are presented in Table 4.3 below:

Table 4.3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.819
Bartlett's Test of Sphericity	Approx. Chi-Square	714.697
	Df	16
	Sig.	.000

Source: Field Study, 2024

Table 4.3 illustrates that all the variables have a KMO above 0.5. The Bartlett's test of sphericity shows chi-square values for the variables at 0.819, and the corresponding p-values of 0.000 are less than the significance level of 0.05. This test assesses whether the correlations between variables are significant enough for factor analysis to be appropriate (Field, 2005). Furthermore, the table indicates that Bartlett's test is highly significant ($p<0.001$) and suitable for further analysis. Detailed information on the factor analysis and internal consistency reliability is presented in Table 4.4. The current study employed Principal Component Analysis (PCA) with Varimax as the rotation method.

Table 4.4: Factor Loadings and Internal Consistency Reliability Results

Constructs	Indicators	Factor Loading	(α)
Emco	**Operational Cost Efficiency**		**.885**
OpCosEff1	My institution encourages practices that drive cost efficiency in project implementation	.793	
OpCosEff2	My institution employed specific improvement tools in promoting cost efficiency	.850	
OpCosEff3	My institution engages in staff training needed to encourage the use of tools toward cost efficiency	.828	
VaIden	**Value Identification**		**.808**
VaIden1	My institution work processes emphasize delivery of value from the customer's (students') perspective	.911	
VaIden2	My institution formulates policies to reflect customer's (students') needs	.878	
VaIden3	My institution has been able to provide students with the knowledge they could use in their future work and personal	.798	

	life		
VaStrMap	**Value Stream Mapping**		**.815**
VaStrMap1	My institution highlights a definite process that maps the activities and actions necessary for producing viable service delivery.	.883	
VaStrMap2	There is a performance measurement system within the institution that measure value created by individual academic staff towards the overall improvement of the institution.	.889	
VaStrMap3	Sufficient data currently exist within my institution to create a baseline against which to measure value delivery to customers (students)	.873	
ConWor	**Continuous Workflow**		**.736**
ConWor1	Service offering flows continuously in my institution without hindrances until it reaches the final end users.	.715	
ConWor2	My institution refers to staff to behave in a manner that minimizes delays or stoppages in the work performed by others	.716	
ConWor3	My institution has cross organisational improvement programmes in line with customer pathways.	.773	
PulSys	**Pull System**		**.728**
PulSys1	My institution only start new work process when there is a demand for it and the team to handle it has spare capacity.	.715	
PulSys2	In this institution, work moves through each stage of the work process as dictated by the end of the value stream.	.726	
PulSys3	My institution encourages perfect value creation process that has zero waste	.654	
ConImp	**Continuous Improvement**		**.793**
ConImp1	My institution pursue a culture of continuous improvement	.847	
ConImp2	My institution provides and encourages the use of tools to develop a culture of continuous improvement.	.751	
ConImp3	My institution encourages the use of methodology that focuses on improving the efficiency and effectiveness of work process	.727	

Source: Field Study, 2024

The factor analysis results presented in Table 4.4 showed that all 18 items generated components based on Kaiser's criterion, which involves retaining Eigenvalues greater than 1.0 (Field, 2005). The rotated component matrix, utilizing PCA with Varimax rotation, indicated that all variables related to the 18 items were retained for further analysis. To confirm the internal consistency reliability of the items, Cronbach's Alpha was employed (as demonstrated in Table 3.1).

4.2 Test of Hypothesis

For the purpose of predicting opeartional cost efficiency (OpCosEff), the study uses five explanatory variables namely VaIden (Value Identification); VaStrMap (Value Stream Mapping); ConWor (Continuous Workflow); PulSys (Pull System); and ConImp (Continuous Improvement).

H_0: Dimensions of lean management have no significant influence on operational cost efficiency of public universities in South-West, Nigeria

The regression results to examine whether or not dimensions of lean management practice significantly influence operational cost efficiency were presented in table 4.5-4.7.

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845[a]	.714	.710	.216

a. Predictors: (Constant), VaIden, VaStrMap, ConWor, PulSys, ConImp
Source: Researcher's Computation, 2023

The model summary presented in Table 4.5 indicates a significant relationship between dimensions of lean management practice and employee role engagement. The multiple correlation coefficient (R) value of 0.845 (84.5%) suggests a significant relationship between operational cost efficiency (OpCosEff) and dimensions of lean management practice, represented by the constructs of Value Identification (VaIden), Value Stream Mapping (VaStrMap), Continuous Workflow (ConWor), Pull System (PulSys), and Continuous Improvement (ConImp). The R-square value of 0.714 (71.4%) signifies that the independent variables, including Value Identification (VaIden), Value Stream Mapping (VaStrMap), Continuous Workflow (ConWor), Pull System (PulSys), and Continuous Improvement (ConImp), collectively have an impact of 0.714 (71.4%) on the dependent variable, operational cost efficiency (OpCosEff). This indicates that the combined effect of these independent variables can explain 71.4% of the variation in operational cost efficiency (OpCosEff).

The adjusted R^2 further confirms the actual effect of the independent variables on the dependent variable, with a value of 0.710 (71.0%). This suggests that Value Identification (VaIden), Value Stream Mapping (VaStrMap), Continuous Workflow (ConWor), Pull System (PulSys), and Continuous Improvement (ConImp) contribute to the variation in the level of operational cost efficiency (OpCosEff) among university academic staff. This adjusted R^2 value is considered satisfactory for determining the goodness of fit for the regression model, indicating its usefulness for making predictions.

Table 4.6 **ANOVA[a]**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	450.014	5	90.003	318.923	.000[b]
	Residual	93.129	330	.282		
	Total	543.143	335			

a. Dependent Variable: OpCosEff
b. Predictors: (Constant), VaIden, VaStrMap, ConWor, PulSys, ConImp

Table 4.6 reveals that the calculated p-value is 0.000 (positive), which is less than the tabulated p-value of 0.05 at a 95% confidence level. Additionally, the calculated F-statistic value of 161.068 exceeds the tabulated F-statistic value of 4.29, suggesting that the model of the study is well-fitted. Therefore, dimensions of lean management practice exhibit a significant influence on operational cost efficiency (OpCosEff) among university academic staff.

Table 4.7: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.169	.144		49.702	.000
	VaIden	.859	.042	.792	20.255	.000
	VaStrMap	.113	.039	.102	2.866	.004
	ConWor	.253	.028	.273	9.107	.000
	PulSys	.020	.025	.022	.793	.429
	ConImp	.122	.025	.128	4.854	.000

a. Dependent Variable: OpCosEff

Source: Researcher's Computation, 2023

The estimated equation of the model is expressed as $OpCosEff=ß_0+ ß_1VaIden+ ß_2VaStrMap+ ß_3ConWor+ ß_4PulSys+ ß_5ConImp +Ɛ$

In Table 4.7, the results indicate that operational cost efficiency (OpCosEff) among university academic staff is projected to be 7.169 when all other variables are held constant. With a unit increase in Value Identification (VaIden), Value Stream Mapping (VaStrMap), Continuous Workflow (ConWor), Pull System (PulSys), and Continuous Improvement (ConImp), operational cost efficiency (OpCosEff) would increase by 0.859, 0.113, 0.253, 0.020, and 0.122, respectively, while keeping other variables constant. These findings align with previous studies by Afunwa et al. (2020), Bellisario and Pavlov (2018), Egbuta et al. (2022), and Udeze et al. (2023), which also found that lean management practices positively and significantly influence organizational performance.

Furthermore, the beta coefficients for each dimension of lean management practice indicate their respective contributions. Value Identification has the highest contribution (β = 0.859; t=20.255, p<0.000), followed by Continuous Workflow (β = 0.253; t=9.107, p<0.000), Continuous Improvement (β = 0.122; t=4.854, p<0.000), Value Stream Mapping (β = 0.113; t=2.866, p<0.000), and Pull System (β = 0.020; t=0.793, p>0.005) being the least contributing factor. This implies that Value Identification is the most influential lean dimension significantly affecting operational cost efficiency. The summary of the regression analysis results reveals that the calculated p-values are less than the critical/tabulated p-values of 0.05. This indicates that all the constructs of lean management dimensions positively predict operational cost efficiency. Consequently, the dimensions of lean management practice exhibit a significant influence on operational cost efficiency.

4.3 Discussion of Findings

The broad objective of this study was to investigate lean management practices and it effect on University performance, with particular reference to operational cost efficiency. Five lean variables were jointly regressed against operational cost efficiency which is a performance variable for selected Universities in Nigeria. The result established that the constructs of lean management practices such as value identification, continuous workflow, continuous improvement, value stream mapping and pull system were positively and significantly effective to influencing operational cost efficiency in Nigeria University. The findings underscore the significant and positive influence of lean management practices on operational cost efficiency in Nigerian universities. Thus, alignment of processes with identified values, the establishment of continuous workflows, a commitment to continuous improvement, effective value stream mapping, and the implementation of pull systems collectively contribute to a leaner and more cost-efficient operational framework. Embracing these principles holds great promise for Nigerian universities seeking to enhance their overall efficiency while optimizing resource allocation

and minimizing unnecessary costs. This is in tandem with the findings of Udeze et al. (2023) and Egbuta et al. (2022) that leanness has a significant influence on organizational efficiency, suggesting that organizations with leaner processes are better positioned to sustain efficiency and competitiveness in the long run.

Additionally, the findings of the study concur to the argument of Pearce and Pons, 2019; Odero, 2017; and Hernandez-Matias et al., 2019 that lean management practices emphasize the identification of value from the perspective of the end-user. In the context of Nigerian universities, this involves discerning the needs and expectations of students, faculty, and administrative staff. By aligning processes with these identified values, institutions can eliminate unnecessary activities and streamline operations, leading to improved cost efficiency. Findings reveal that lean management practices, such as minimizing delays and eliminating bottlenecks, contribute significantly to a streamlined workflow. Thus, the establishment of a continuous workflow is crucial for maintaining efficiency in university operations. This ensures that tasks are completed promptly, reducing idle time and optimizing resource utilization, ultimately positively impacting operational cost efficiency. This is in tandem with the submissions of Afunwa et al., 2020; Hernandez-Matias et al., 2019; and Kang & Manyonge, 2014. The findings further established that the concept of continuous improvement, embedded in lean management principles, has shown promising results in Nigerian universities. By fostering a culture of continuous learning and adaptation, institutions can identify and rectify inefficiencies, enhance productivity, and reduce operational costs over time. This supported the submission of Chizoba & Chika, 2022; Khan, Ali & Hongqi, 2018; and Odero, 2017, that continuous workflow entails behaving in a manner that minimizes delays or stoppages in the work performed by others. The study equally found that creating a pull system has emerged as a powerful tool for visualizing and understanding the flow of processes within Nigerian universities. This concur with the submissions of Janoski & Lepadatu, 2019; and Radnor (2015) that through this technique, institutions can identify areas of waste and inefficiency, enabling targeted interventions to improve overall operational efficiency and, consequently, reduce costs. Thus, implementing a pull system in university operations, where tasks are initiated based on actual demand, has proven effective in curbing excess and optimizing resource allocation. This lean practice aligns activities with real-time needs, preventing overproduction and minimizing unnecessary costs associated with surplus resources.

5 Conclusion and Recommendation

The study aimed to investigate the impact of lean management dimensions on the performance of selected universities in Nigeria, focusing specifically on Federal Universities in the South-West geopolitical zone. The statistical analyses conducted in response to the research questions revealed a significant effect of lean management practices on operational cost efficiency. The regression analysis indicated that the constructs of lean management, including value identification, value stream mapping, continuous workflow, pull system, and continuous improvement, collectively account for a substantial proportion of the variation in the level of operational cost efficiency. All five constructs were identified as positive predictors of operational cost efficiency, leading to the conclusion that lean management practices are valuable tools that significantly influence operational cost efficiency. Consequently, they provide an effective approach for addressing inefficiencies in work processes and practices within university institutions.

Based on the study findings, the following specific recommendations are proposed:

Re-evaluation of Pull System

The study identified that the pull system, as a construct of lean management, contributed the least to individual task performance. Therefore, it is recommended that universities re-evaluate and redefine the pull system to enhance its effectiveness and efficiency. This could involve a thorough examination of its significance throughout the entire work process, focusing on value-added processes that offer the most substantial opportunities for improvement. By eliminating steps that do not create value but represent waste, universities can optimize the

contribution of the pull system to their operations.

Promotion of Value Stream Mapping

To further enhance value stream mapping, universities should actively promote employee engagement. This engagement can involve collaborative discussions among employees about the organization's work processes. This approach facilitates reaching agreements on necessary changes to improve work processes and ensures that these changes are effectively implemented within the institution.

Sustainability of Lean Practices

University management should recognize that the essence of lean management extends beyond initiating and implementing changes; it also involves sustaining these changes effectively. Therefore, there is a need to establish and maintain continuous employee job satisfaction methodologies. This sustained focus on employee satisfaction will empower employees to contribute significantly to ongoing process improvement efforts, fostering better communication within the organization and ultimately enhancing institutional performance

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