

Exploring the Role of Organizational Culture in Lean Operations: A Strategic Approach

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Abstract- This study explores the symbiotic relationship between organizational culture and lean operations through a strategic lens. Employing a descriptive survey methodology with a correlational approach, we investigate how organizational culture influences lean management practices. Our research focuses on department managers within the Ministry of Home Affairs, with a total population of 3,300 individuals. Samples were selected at various stages of the study, including a main sample of 300 department managers for comprehensive analysis. Statistical analyses, conducted using the Statistical Package for the Social Sciences (SPSS), validate measurement scales and examine mean score differences. Our findings reveal significant levels of lean management and organizational culture among department managers, indicative of a mature and innovative work environment within the Ministry. Additionally, we elucidate how organizational culture fosters creativity, innovation, and self-sufficiency among department managers, bolstering the efficacy of lean operations. These insights emphasize the importance of cultivating a supportive and adaptable organizational culture to enhance lean management practices and drive organizational success.

Keywords: Organizational Culture, Lean Operations, Department Managers, Strategic Approach, Innovation.

I. INTRODUCTION

The notion of ‘corporate sustainability’ has garnered significant interest from researchers and practitioners in the modern business landscape, indicating a growing recognition of its significance. A substantial amount of scholarly literature has thoroughly analysed the findings supporting this subject from many viewpoints, with a frequently studied area being the correlation between corporate sustainability and performance (Ababneh, O. M. A., 2021). The subject has also garnered significant interest from the viewpoint of practitioners. Notable examples

encompass pieces that explore the correlation between competitive advantage and corporate social responsibility, as well as articles that go into the concept of producing shared value. According to a recent study report on corporate sustainability, 90 percent of the polled business leaders view ‘sustainability’ as a significant phenomenon. Specifically, a 2017 analysis indicates that the majority of major organisations incorporate corporate responsibility reporting into their yearly financial reports, and this pattern is on the rise. The United Nations Global Compact emphasises the significance of the corporate sustainability agenda and calls for commercial organisations to synchronise their operations and strategies with internationally recognised values of human rights, labour, environment, and anti-corruption. Furthermore, the UNGC urges organisations to implement strategic measures to bolster their sustainable development objectives (Adeniyi, I. S., Al Hamad., 2024). Despite the increasing significance of corporate sustainability, integrating sustainability objectives with internal organisational operations seems to be a difficult undertaking, primarily due to inherent conflicts in sustainability operations. Organisations that embrace and enforce sustainability often encounter a conflict between their pursuit of profit or economic success and their obligations to society and the environment. This is because sustainability encompasses three distinct yet interconnected objectives: social, environmental, and economic. The primary objective of business organisations is to maximise profit or increase shareholders’ value. Nevertheless, disregarding the needs of significant stakeholders and the potential business consequences on the environment may prompt concerns regarding the viability of their long-term survival. In order to tackle the conflict between economic performance and

social/environmental responsibility, previous studies have highlighted the importance of adopting a win-win approach (business case for sustainability), considering trade-offs, and employing an integrated approach that balances social, environmental, and economic aspects. However, a significant portion of the previous research that has concentrated on the business case approach either offers a theoretical framework or investigates the connection between corporate social responsibility (or corporate social/environmental performance) and financial success. While these studies provide some understanding of the concept and implementation of sustainability and its impact on organisational performance, the literature still lacks clarity on how organisations can effectively manage their conflicting social, environmental, and economic objectives in real-world situations (Adler, N., et.al, 2012).

In order to address the various sustainability difficulties, they face, numerous organisations strive to prioritise technology solutions. Nevertheless, these endeavours may face challenges in achieving desired results without altering individuals' attitudes and value systems. In order to achieve lasting organisational transformation, it is crucial to integrate both climate (the tangible aspects such as policies, procedures, and practices) and culture (the shared beliefs and values within the organisation) by combining human value systems and technology processes. Organisational culture is widely recognised as a significant determinant of the success or failure of organisational efforts to promote sustainability. The achievement of cultural change towards corporate sustainability is heavily reliant on the presence of common norms and values inside the organisation. However, various obstacles might impede organisational improvements towards sustainability. The factors contributing to these challenges encompass employees' resistance, insufficient backing from top-level executives, reluctance to embrace new systems and procedures, aversion to seeking expert advice, and a tendency towards linear thinking. These barriers can stem from various factors, such as informational, emotional, behavioural, and systemic organisational implications. Despite the growing importance of organisational culture in addressing corporate sustainability concerns, there is currently a limited comprehension of the diverse and competing organisational cultures that impact corporate sustainability. For instance,

several studies propose that corporate sustainability is mostly influenced by external factors, but others imply that internal factors inside an organisation are the main catalysts for corporate sustainability. Although there are differing opinions, various literature suggests that organisations tend to choose structured or hierarchical control systems rather than flexibility when it comes to managing sustainable practices. Some studies highlight the need of promoting a culture that values innovation and respect for individuals as a means of incorporating sustainability into initiatives. However, other studies emphasise the importance of implementing a blend of adaptable and command-oriented cultures in order to achieve long-lasting performance. Although these studies offer valuable insights into the influence of organisational culture on company sustainability, most of them focus on only a few aspects of organisational culture. Attempting to reach either extreme could impede the effective execution of organisational reforms intended to accomplish sustainability goals.

To remain competitive in the business environment, organisations in both the service and industrial sectors have implemented lean management technologies to identify and eliminate waste. Although there are numerous success stories regarding lean manufacturing, there is still a considerable degree of uncertainty regarding the optimal implementation of this approach. This research study examines the impact of organisational culture and leadership on the implementation of the lean system (Agyabeng-Mensah, Y., et.al, 2020). Additionally, it offers guidance on assessing the organisational culture before implementing lean, using the Lean Culture Assessment Model (LCAM). Recently, it has been discovered that the lean method has been extensively utilised in both service and manufacturing industries. This technique allows businesses to decrease costs by eliminating operations that do not provide value.

Although lean practices are widely adopted, there is a growing apprehension in the business community over the adoption of lean principles in both large corporations and small and medium-sized organisations (SMEs). One contributing factor to this issue is a lack of comprehension regarding Toyota's culture and the crucial challenges associated with implementing lean practices. Culture is a potent and often subconscious set of influences that shape the behaviour of both individuals and groups. The current

study focuses on important aspects related to the implementation of lean practices, including examining the influence of cultural and leadership characteristics. In order to comprehend the organisational culture, businesses should adopt the Lean Culture Assessment Model (LCAM) before implementing lean management. Lean is a well-established and continuous improvement attitude that focuses on reducing waste. During the literature review, it was found that numerous organisations have experienced non-value addition activities referred to as lean wastes. The wastes encompassed in this list are overproduction, waiting, transportation, incorrect processing, inventory, superfluous motions, and defects.

II. CONCEPTUALISATION OF LEAN MANAGEMENT AND LEAN MANUFACTURING

Lean management (LM) is a very effective managerial strategy that is widely acknowledged for its ability to improve the overall operational performance of enterprises. Many companies have started using Lean Manufacturing (LM) principles in order to meet market demands, lower expenses, and gain a competitive advantage, after the success of Toyota and other lean organisations globally. Nevertheless, despite the implementation of these LM measures, a number of organisations have been unable to attain exceptional performance. Operations management researchers have identified multiple factors contributing to the lack of success in implementing Lean Manufacturing (LM) (Akpa, V. O., Asikhia, O. U., & Nneji, N. E., 2021). These include the intricate nature of LM implementation, the presence of contingency factors that restrict its positive effects, an overemphasis on Just-In-Time (JIT) practices without sufficient consideration of other crucial operational aspects, and inadequate attention to human resource management (HRM).

Lean has historically been perceived as a systematic approach to ongoing improvement with the goal of optimising organisational efficiency. Recent study indicates that employing lean practices not only improves efficiency but also enhances organisations' resilience to respond to environmental changes. As per the Lean Enterprise Institute, lean organisations have more adaptability in comparison to non-lean organisations. However, current empirical research

has not thoroughly investigated the extent to which lean practices promote flexibility and the specific mechanisms via which this occurs. Adaptability in firms refers to their ability to effectively respond to quickly changing surroundings by integrating, building, and reconfiguring both internal and external skills. This concept is known as dynamic capabilities. By enhancing its dynamic capabilities, Samsung outperformed Apple and became the dominant worldwide smartphone manufacturer. Prior research has investigated the connections between continuous improvement strategies such as lean and dynamic capabilities, indicating components of the organisational infrastructure for continuous improvement that enhance dynamic capabilities. Several studies have discovered a positive correlation between lean approaches and systematic problem-solving, agile manufacturing, and continuous improvement. Nevertheless, it is still uncertain how the implementation of lean practices assists companies in consistently adjusting their processes to accommodate environmental changes, such as fluctuating customer demands, emerging technologies, sustainability goals, and significant but unlikely events like pandemics, climate disasters, and political conflicts.

Process innovation refers to the capacity to modify organisational processes to suit different circumstances, which is especially advantageous in settings characterised by evolving technologies, diverse customer requirements, and market instabilities. The current body of research emphasises the significance of capacities associated with the fundamental building blocks of dynamic capabilities, such as sensing, learning, research and development, and training, in order to create process innovations.

III. LITERATURE SURVEY

Briody, E., Pester, T. M., & Trotter, R. (2012) have investigated manufacturing organizations in Syria to determine the influence of organizational culture and individual readiness for change. The study categorised organisational culture into four distinct kinds. Group or Organisational Culture prioritises collaboration, active involvement of members, granting authority to workers, and exchanging ideas. Success in this society is contingent upon the adaptability and management of tasks both within and beyond the institution. The

organisation is bound by trust and respect for top management, who are esteemed as mentors. Consensus-based decision-making is employed, prioritising cooperation and active participation. Developmental Culture promotes continuous development, high flexibility, creativity, and innovation among workers. It encourages an environment where employees are free to be creative and innovative, leading to the production of unique and new products. The flexibility and minimal control in this culture help the organization capture a significant market share by enabling the execution of innovative initiatives.

Kumar, R., & Kumar, V. (2012) have revealed that several factors hinder the progress in adopting Lean Management (LM) for continuous improvement. These components include the lack of management's long-term strategic planning, support, efficient communication, innovation, adequate time, training, workforce, and financial resources. Inadequate and erratic involvement from management can result in employees experiencing change fatigue, developing scepticism, or even becoming aggressive towards ongoing change initiatives. It is essential for senior management to prioritise the understanding of Lean concepts and possess expertise of Lean Management before commencing worker training. The organisation should take caution when dealing with mediocre consultants, since they often result in failures during the early stages of implementation. Ensuring collaboration across several parties can be challenging unless the firm provides training to its vendors, as exemplified by the TSAM instance. It is essential to involve multiple stakeholders in continuous improvement in a highly regulated business. During each regular training session for TSAM employees, staff members from the supplier also participate, demonstrating outstanding collaboration.

Moradlou, B. H., & Perera, T. (2017) have developed a framework emphasizing that a communication culture is fundamental to successfully implementing Lean in an organization. Efficient communication elucidates and facilitates workers' comprehension of the necessity to move to Lean production, equipping them for change instead of catching them off guard. Prior to building the change agent system, it is essential to ensure that all personnel have a clear comprehension of the vision and plan. Teams are subsequently established through the utilisation of

suitable team-building methodologies, enabling employees to proficiently execute the modifications. Nordin, N., et al. (2012) have studied the UK construction industry and identified several barriers to implementing Lean Management (LM). The initial obstacle arose from the outsourcing of specialised services to experts whose work culture, social norms, and values did not correspond with the LM philosophy, rendering the seven phases of Lean incompatible. Conventional procurement and resource supply techniques frequently faced challenges in meeting client demands and ensuring prompt product delivery. A lack of familiarity with Lean principles among specialists and suppliers resulted in cultural and behavioural variances among contractors and suppliers. The mismatch led to delays, the need for more work, rejected items, and wasted inventory. In addition, certain subcontracted specialists exhibited a lack of customer orientation as a result of insufficient knowledge and comprehension of Lean principles. Insufficient support for Lean efforts will occur if the senior management of the firm and its suppliers are not fully dedicated to promoting Lean awareness and education, as well as providing the essential design and financial assistance.

Sarhan, S., & Fox, A. (2013) have reported that 80% of workers resigned from an automotive company in China after receiving training and gaining experience, making it challenging to replace these skilled workers. The dearth of expertise among recently hired operators resulted in variances in quality and frequent interruptions in machine operations. Furthermore, these inexperienced operators lacked the expertise to address complex issues and necessitated further instruction. Lean Management (LM) programmes prioritise the development of skills and the regular movement of employees between various manufacturing centres.

Certain organisations encounter difficulties in intercultural communication, specifically in relation to the interpersonal abilities of team members. Proficiency in the English language is essential for lean training in order for supervisors to effectively integrate operators' suggestions into continuous improvement efforts and win approval from personnel at all hierarchical levels (Zimmermann, A., & Bollbach, M. F., 2015). The authors emphasised the contrast between the indirect communication style commonly observed in China and the direct

communication style characteristic of Germany, resulting in misconceptions. Chinese colleagues regarded Germans to be impolite and uninterested in the vital aspects they were trying to communicate, while Germans found Chinese communication to be frustratingly ambiguous, making it challenging to ascertain whether instructions were comprehended (Lam, L., Nguyen, P., Le, N., & Tran, K., 2021). The workers' indirect communication style was protracted and hindered the swift problem-solving necessary for one-piece flow production.

IV. RESEARCH METHODOLOGY

The researcher employed a descriptive survey methodology with a correlational approach. This methodology was selected because it aims to identify conditions and relationships between observed

phenomena and reality (Mahmoud, Z., et.al, 2021). By gathering data from community members, it aims to evaluate the current state of the community across different variables. This methodology was considered appropriate as it aligns with the research's requirements and enables the fulfilment of its objectives.

The research community consisted of department managers affiliated with agencies of the Ministry of Home Affairs, totalling 3,300 department managers. A sample of 30 department managers was selected for the survey, representing 0.9% of the population. Additionally, a sample of 150 department managers was chosen to construct the measurement scales for lean management and organizational culture, representing 4.5% of the population. Furthermore, a main research sample of 300 department managers was selected, representing 9% of the population.

Table 1: Distribution of Research Population and Sample

Population Segment	Main Sample	Sample for Exploratory Experiment	Sample for Scale Development	Total Population
Number of Members	300	30	150	3,300
Percentage of Total	9%	0.9%	4.5%	100

IV (I) Measurement Scale

In this study, a diverse array of methodologies was employed to comprehensively explore the research objectives. Firstly, the survey method was utilized, enabling the gathering of data from a large pool of participants through structured questionnaires. This approach facilitated the acquisition of quantitative data, offering valuable insights into participants' perspectives and experiences (Nielsen, J. S., Boer, H., & Lindgren, P., 2016). Secondly, in-depth interviews were conducted to delve deeper into participants' thoughts, beliefs, and experiences. These qualitative interviews allowed for a more nuanced understanding of the research topic, capturing rich and detailed information. Lastly, both experimental tests and observations were employed to gather additional data and observe participants' behaviors and reactions under controlled conditions. By integrating these varied methodologies - surveys, interviews, experiments, and observations - the study adopted a comprehensive and multifaceted approach to data collection, thereby enhancing its validity and enriching the overall findings.

IV (II) Statistical analyses

In this study, we utilized the Statistical Package for the Social Sciences (SPSS) as the primary tool for data processing and analysis. Various statistical procedures were conducted using SPSS. These included calculating the mean (arithmetic average) of the data to determine the central tendency, determining the standard deviation to assess the dispersion or variability around the mean, and examining skewness to evaluate the asymmetry of the data distribution. Additionally, the researcher conducted independent samples t-tests to compare the means of two separate groups and performed one-sample t-tests to compare the mean of a single group with a known value (Olga, L., & Valeria, T., 2018). By employing these statistical analyses, the study aimed to rigorously examine and interpret the collected data, contributing to the robustness of the research findings.

V. FINDINGS

The validity and reliability of psychological and educational scales are paramount psychometric properties, irrespective of their intended application.

Ensuring these properties is vital to uphold the quality and appropriateness of measurement and evaluation tools.

V (I) Validity of the Scales:

Scale validity pertains to the precision and suitability of the scale in measuring the designated construct, excluding any other constructs. The researcher evaluated the validity of the lean management and organizational culture scales for department managers within the Ministry of Home Affairs through the computation of the content validity index. Initially, the scales were presented in their original format to a panel of experts and specialists to affirm the validity of the scale items in measuring the intended construct. Subsequently, through statistical analysis of the scale items, construct validity was established using the two-group comparison method and the internal consistency coefficient, a common validity measure in educational and sports research (Othman, A. A. E., & Abdelrahim, S. M., 2024). This was accomplished by determining the Pearson correlation coefficient between the item score and the total score of the domain to which the item belongs, as well as between the item score and the total score of the scale to which the item belongs.

V (II) Reliability of the Scales

Reliability holds a pivotal role in educational and psychological assessment. A reliable measure demonstrates consistency and dependability, indicating that an individual's score remains largely unchanged upon repeated administration or within the measure itself. To evaluate the reliability of the lean management and organizational culture scales, the researcher employed the split-half method and Cronbach's alpha coefficient.

Following the measurement of lean management and organizational culture variables with the pertinent scales and gathering data from 300 department managers in the Ministry of Home Affairs for the main experiment, the researcher aimed to present primary data on the research variables. Descriptive statistics indicators, including mean, standard deviation, standard error, skewness, maximum value, and minimum value, were sought for all study variables. Upon statistical analysis, the results revealed skewness coefficients nearing zero for all variables, indicating a symmetrical distribution within the research sample. Moreover, the standard error values suggested an adequate sample size for statistical analysis.

Table 2: Assessment of lean management levels among department managers

Domains	Sample Size	Minimum Value	Maximum Value	Mean	SD	Standard Error	Skewness Coefficient
Lean Management	300	67.00	109.00	85.33	10.62	0.61	0.24
Organizational Culture	300	72.00	125.00	98.18	13.58	0.78	-0.02

V (III) Assessing the Organizational Culture Level

Following the development and deployment of an organizational culture scale on a research sample comprising 300 department managers in the Ministry of Home Affairs, the researcher computed the mean and standard deviation of their scores. Subsequently, a one-sample t-test was employed to evaluate the

significance of the disparity between the attained mean and the hypothetical mean of the scale (established at 80 points). The analysis unveiled a statistically noteworthy distinction between the two means, suggesting diversity in organizational culture among department managers.

Table 3: The Significance of Differences between the Achieved Mean and the Hypothetical Mean of the Organizational Culture Scale

Sample Size	T Value		DDL	Hypothetical Mean	SD	Mean	Sig
	Tabular	Calculated					
300	1.96	23.18	299	80	13.58	98.18	Significant

The discrepancy favours the achieved mean, suggesting that the organizational culture level surpasses the average. We attribute these distinctions

to the elevated achieved mean among department manager.

Our study aimed to establish measures for these variables and assess their prevalence among department managers. Our findings indicate a notable level of lean management, which may be attributed to the department managers' attainment of mental, cognitive, social, and ethical maturity (Prontenko, K., et.al, 2020). This maturity facilitates a shift from narrow, self-centered perspectives to broader social outlooks, considering the emotions and sentiments of others. Consequently, their conduct, grounded in such perspectives, fosters psychological and social harmony, culminating in effective management practices. Moreover, our study reveals a high level of organizational culture among department managers, characterized by their commitment to personal growth and excellence in administrative duties (Rejikumar, G., Aswathy Asokan, A., & Sreedharan, V. R., 2020). Their extensive tenure in the Iraqi Ministry of Interior cultivates strong listening, conversational, and interpersonal skills. Managerial attitudes and responses are influenced by emotions of affection and aversion toward teamwork culture, along with a sense of belonging to the organizational unit. Group dynamics significantly contribute to achieving collective objectives and meeting individual needs within the organization.

Moreover, our findings illustrate that department managers, through active engagement in collective decision-making and a sense of accountability, demonstrate self-sufficiency, reducing the necessity for supervision. They possess the capacity to stimulate creativity and innovation within their roles. Creativity, characterized by generating novel outcomes through interaction and the adoption of innovative approaches, fosters excellence, distinctiveness, and enhanced adaptability (Santhiapillai, F. P., & Ratnayake, R. C., 2021). Similarly, within the organizational culture framework, there is an inclination towards valuing initiative and individual autonomy over strict adherence to predefined rules and procedures. This culture maintains receptiveness to new ideas with minimal resistance, fostering an environment conducive to innovation and initiative. To enable security institutions to embrace this paradigm, there's a necessity to alleviate rigid operational rules and guidelines. Managers perceiving a high level of organizational support tend to feel a sense of indebtedness to the security institution, motivating them to reciprocate with positive attitudes and

behaviors towards the organization. These behaviors encompass bolstering productivity, promoting innovation, embracing a self-improvement culture, and demonstrating dedication and punctuality.

VI. CONCLUSION

The current study employed a descriptive survey methodology with a correlational approach to investigate various variables among department managers in the Ministry of Home Affairs. The methodology was chosen to identify relationships between observed phenomena and reality, aligning with the research's objectives (Shafiq, M., & Soratana, K., 2020). The research community comprised 3,300 department managers, from which samples were selected for different phases of the study. Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) to rigorously examine and interpret the collected data. The study found significant levels of lean management and organizational culture among department managers. These findings suggest that department managers have attained mental, cognitive, social, and ethical maturity, contributing to effective management practices. Moreover, the commitment to personal growth and excellence in administrative duties indicates a robust organizational culture within the Ministry of Home Affairs.

Furthermore, the study revealed that department managers demonstrate self-sufficiency, creativity, and innovation, reducing the need for supervision. They exhibit a willingness to embrace new ideas and initiatives, fostering an environment conducive to innovation and organizational growth (Tan, A. B., Van Dun, D. H., & Wilderom, C. P. (2023)). These findings underscore the importance of fostering a supportive organizational culture and reducing rigid operational guidelines within security institutions. In conclusion, the study sheds light on the significant levels of lean management and organizational culture among department managers in the Ministry of Home Affairs. These findings have implications for organizational development and highlight the importance of promoting a supportive and innovative work environment within security institutions.

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