

Review on Lean Management

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Abstract- *The aim of this study is to review literatures on lean management. Many industries faced different challenges due to the emergence of globalization that led to low productivity which by augmentation evacuated the profitability level of firms intervening in global market. Lean management is amidst the management strategies that are acquiring currency at overturning this diminishing organizational profitability. The approach and method in which lean management is executed in service industry vary from manufacturing. Therefore, one of the easy methods for directing the issue of customers' satisfaction is to apply the method of Lean Management. The objective of this study is to perform a review of literature on the subject matter by exploring the different perspectives of scholars on the issues associated to the adoption of Lean Management Practices in an organization. The outcome of this study and paper has shown that for every industry to achieve competitive advantage and remain profitable it is essential to adopt lean management practices and accordingly, it will enhance customer satisfaction. Furthermore, these approaches will help managers to bring down or remove waste, inventory reduction, diminishing lead time, less rework and financial savings. It is recommended for all the organizations likewise manufacturing or Services industries to adopt lean management practices in the light of tough global competition and growing cost on the local environment.*

Keywords: Lean Management, Continuous improvement, Leadership, Quality, Efficiency, Lean, lean manufacturing, Lean thinking, service sector, Manufacturing and Service Industry, implementation, work flow, process improvement, Just-In-Time (JIT).

I. INTRODUCTION

This concept of lean was developed by the Japanese in 1950s to resolute and normalize the work processes so that the condemnatory problems become distinctly apparent and the manpower prosper critical thinking in order to solve recognized complications in an organization and enhance comprehensive work flow. Lean management practices have been productively put to use in manufacturing industries for the previous two decades in Japan. Lean management practices arisen in Japan and it has manifested effectual in serving industries to enhance their organizational performance. The execution of lean management has been very much fortunate in the manufacturing sector. Due to its high effectiveness, it has been passed on to other sectors in Japan [1].

Womack et al [1] in their book “The machine that changed the world” clearly defined the ideology, which spelled out the evolution of lean manufacturing practices in the automobile industry in Japan. “Lean” manufacturing practices derived predominantly from the Toyota Production System in the 1980s and it has been seen as a sign of coherence and adequate performance. Lean manufacturing process put forward more cost advantage over the mass production approaches that are primarily practiced. The approach of lean management helps organizations in decreasing cost cycle time and removing all waste through continuous improvement.

II. RESEARCH METHODOLOGY

This Literature review explores and investigate the academic literature regarding the utilization of Lean management in manufacturing and non-manufacturing sector. The results were limited to peer reviewed journals, books, eBooks with Years ranging 2011-2021. The article title, subject and key words were reviewed and where required the abstract was appraised for relevance. Review of relevant literature is done.

III. LITERATURE REVIEW

- (a) Thiele et al. [2] study in the title of “Using kaizen to improve employee well-being: Results from two organizational intervention studies”. The objective of this research was to explore the role of Kaizen- a lean tool for continuous improvement. Data was collected using questionnaire. Cluster randomization was done. Data was analyzed using multi group structural equation modelling. Findings showed that Kaizen helps in increasing the level of awareness and capacity for managing psychological issues which improves job satisfaction and mental health. It was concluded that Kaizen is the effective tool which enables the employees to interact and engage in psychological risk management and integrating employee and organizational objectives and improves their well-being.
- (b) Prattana [3] studied in the title of “The Impact of Lean Practices and Organizational Commitment on Operational Performance in Hospitals”. The objective of this research was to explore how Lean management practices are adopted by hospitals in Thailand, to investigate how lean practices and organizational commitment affecting operational performance in hospitals. Data was collected using questionnaire survey

from the hospitals implementing lean projects. Data was analyzed using factor analysis, correlation analysis and multiple regression analysis with the help of SPSS. Findings showed that there was a significant relationship between human resource management, patient flow and social capital to operational performance. It was concluded that employees should receive appropriate training to perform multiple tasks which is important for successful implementation of lean project.

- (c) Haddach et al. [4] studied in the title of “Role of Lean, Environmental and Social Practices to Increasing Firm’s Overall Performance”. The objective of this research was to show the impact of lean, environmental and social practices on firm financial, environmental, social, and overall performance. This was an action research and research methodology were based on a qualitative method. Findings showed that combination of these three practices- Lean, environmental, and social practices leads to best overall performance. Performance outcomes and implementation level of LES Practices was influenced by firm size and age. It was concluded that Lean practices has a significantly positive effect on organization overall performance.
- (d) Oláh et al. [5] studied in the title of “The Impact of Lean Thinking on Workforce Motivation: A Success Factor at LEGO Manufacturing Ltd.” The objective of this research was to present the practical use of Lean approach in the LEGO manufacturing Ltd. Plant, to present the current state of behavioral structures that indicate the motivational level within an organization, to assess the level of motivation of the employees of LEGO Manufacturing Ltd.’s towards the Lean attitude, to find the factors which affect this motivation. Data was collected using questionnaire and interviews. Data was analyzed using descriptive statistics, SPSS, Levene’s Test for Equality of Variances, Two-independent T-test for Equality of Means, Spearman’s rho. Findings showed that Employees do not experience the benefits of lean thinking in order to improve competitiveness during their work because they do not know the positive factors which can contribute to the existence of lean thinking. It was concluded that Workers are happy to help each other and also happy to ask for help from each other and their superiors.
- (e) Ciano et al. [6] studied in the title of “The link between lean and human resource management or organizational behavior: a bibliometric review”. The objective of this research was to analyze the relation between Lean and Human resource management or organizational behavior. Data was analyzed using bibliometric analysis, main path analysis and citation network analysis. Findings showed that there is a need of cross-fertilization between the fields. It was concluded that Lean has a strong relation with Organizational Behavior and Human Resource Management.
- (f) Bayat et al. [7] studied in the title of “The Impact of Organizational Factors on Implementation Outcomes of Lean Manufacturing”. The objective of this research was to examine the correlation between organizational factors, organizational structure, and job design with implementation outcomes of lean manufacturing that impact quality, waste, and delivery. Cross-sectional research design was used. Data was collected using questionnaire. Data was analyzed using pearson correlation, multiple regression analysis, factor analysis, cronbach’s alpha reliability with the help of SPSS. Limitation was that the study sought participation of individuals who are in different levels of managerial position and engineers with good experience with lean manufacturing who were willing to spend time to answer 60 questions. Due to busy schedules and time unavailability of this type of individual, the participants sample population was limited to 84 individuals. This study relied on the perception of participants and results are only generalized to this type of occupation. Findings showed that lack of attention to formalization affects companies’ ability for continuous improvement due to the lack of specific and commonly understood methods to carry out every important step in every process. It was concluded that all organizational activities affect quality, waste and delivery [8].
- (g) Beale et al. [9] studied in the title of “Employee Motivation to Adopt Lean Behaviors: Individual-Level Antecedents”. The objective of this research was to explore the impact of various individual-level factors (job-related, personality-related and demographic) on employee willingness to adopt Lean behaviors or Lean methodology. Data was collected using interviews, survey questionnaire, focus groups. Data was analyzed using multiple regression analysis. Findings showed that motivation for lean is directly influenced by employee attitudes, perceived ability and the perceived social pressures to adopt Lean behaviors. Indirect antecedents include self-efficacy, job satisfaction, organizational commitment and organizational level. It will be possible to manage employee motivation for receptiveness to Lean through proper training programs and designed communication. It was concluded that Training could boost employee motivation for lean through increased commitment. Training is a type of reward which increases organizational commitment.
- (h) Belekokias [10] studied in the title of “The impact of lean methods and tools on the operational performance of manufacturing organizations”. The objective of this research was to investigate the impact of five essential lean methods on contemporary measures of operational performance. Data was collected using survey questionnaire. Data was analyzed using Linear regression analysis, structural equation modelling and correlation analysis. Findings showed that Just in Time and automation have the positive significance on

operational performance. Kaizen, VSM, TPM have lesser or negative impact on operational performance. It was concluded that the prevention and elimination of quality defects has a positive impact on the quality, speed, dependability and cost performance of organizations. Future research should be carried out with a focus on not only the manufacturing industry but also on other industries where the lean strategy can also be beneficial. Future empirical studies can also follow a mixed method approach involving quantitative and qualitative data sets that could be tested through rigorous statistical methods, including the conduction of a non-response bias test in order to ensure a higher confidence in the data collected. A higher response rate and a mixed quantitative-qualitative approach with strong statistical analysis method may allow the generalization of the findings in similar studies. Finally, an analysis of results and drawn of conclusions from a more specific level's view point (i.e., considering industrial sector, company size, length of time of the lean initiative) could also be carried out [11].

- (i) Iranmanesh et al. [12] did study in the title of "Impact of Lean Manufacturing Practices on Firms' Sustainable Performance: Lean Culture as a Moderator". The objective of this research was to examine the effect of lean manufacturing practices on firms' environmental performance by considering lean culture as a moderator. Data was collected using survey questionnaire. Data was analyzed using partial least squares technique. Findings showed that process and equipment, product design, supplier relationships, and customer relationships have a positive impact on sustainable performance. It was concluded that sustainable performance of manufacturing industries can be improved by implementation of lean manufacturing practices.
- (j) Marshall et al. [13] Studied in the title of "Impact of Human Resource Management on Lean Success". The objective of this research was to investigate the relationship between human resource performance management and lean transformation success by conducting a survey of diverse organizations in various stages of lean transformation. Data was collected using interviews and web-based survey questionnaire. Data was analyzed using Partial Least Squares path analysis. Findings showed that investing in training and development of human resources will lead to long term economic value. It was concluded that there is a significant relationship between selective hiring practices, employee development, and the first-order constructs of lean transformation success.
- (k) Khan et al. [14] studied in the title of "Impact of Continuous Improvement on Organization Performance Insight from Pakistan: An Empirical Study". The objective of this research was to identify the impact of continuous improvement on organization performance. A survey method was used for empirical investigation and online survey questionnaire & interview technique were used to collect data. This was an exploratory research survey and cluster sampling technique was used. Factor analysis and multiple regression using descriptive statistics were used for data analysis. This study concluded that competitive advantage can be gained by organizations that implement continuous improvement. The outcome of the study was that innovation, increasing efficiency, reduced defect rate has greatest influence towards continuous improvement. One should take care while generalizing results, as there were limited number of respondent's cities.
- (l) Salim et al. [15] studied in the title of "The Role of the Lean Management in Promoting the Creativity of Jawwal from the Point of View of Its Employees". The objectives of this research were to identify the impact of Lean management in achieving creativity among the employees of Jawwal organization, to determine the employees' ability to achieve creativity in different dimensions like decision making, problem solving, accepting risk, to demonstrate the availability of the use of Lean management tools, to identify the creative factors availability. Descriptive analytical method was used. Data was collected through questionnaires and secondary sources. Single sample T test was used to analyze the questionnaire. It was found that there was an impact between flexible management tools and achieving creative elements through Six sigma. The culture of creativity and waste reduction should be developed among employees through continuous improvement, more attention should be given to Six sigma tool for avoiding deviations, promote standard work, create good organizational climate for encouraging innovation among employees. It was concluded that Lean management plays an important role in enhancing the creative factors. The study was limited to workers in Jawwal.
- (m) Parv et al. [16] studied in the title of "Continuous improvement processes using Lean management tools: A case study. The objectives of this research were to know how Lean management can be applied in the university setting to improve the management process, to evaluate the implementation of Plan, Do, Study, Act cycle in the University. Questionnaire based survey tool was used to collect the data. Improvements were mapped through Standard Lean tools. The improvements were centered on the PDSA Improvement cycle and aligned with the students' needs. It was concluded that standardizes the good practices towards continuous improvement. Positive results were obtained through strong academia-industry relationship, project-based learning, internships, capstone project and by providing students and faculty with real life projects.
- (n) Khan et al. [17] studied in the title of "Application of continuous improvement techniques to improve

organization performance". The objective of this research was to analyze, study and implement continuous improvement techniques in an interior design case company. Data was collected using interviews and questionnaire. Problems were identified and analyzed using Pareto chart and cause and effect diagram. Identified problems were improved using Continuous improvement tools like kaizen, 5S, pareto methods. Findings showed that habit of organized, tidy and clean workplace has been developed among workers. Findings showed that successful implementation of continuous improvement methodology reduced project in pipeline time from sixteen weeks to nine weeks, profit margin has been increased from 25 to 27 percent, sales win ratio increased from 11 to 32 percent and better financial forecasting. It was concluded that the implementation of continuous improvement methodology contributed significantly to time and efforts saving in accomplishing different tasks in the case company, proposed solutions were feasible and practical. Limitation of the study was that the results of this study cannot be generalized to the other industries and sectors. Another limitation faced during the study was that the Employee training to work in Continuous Improvement environment required both time and money, in addition to the costs of training to perform the main job.

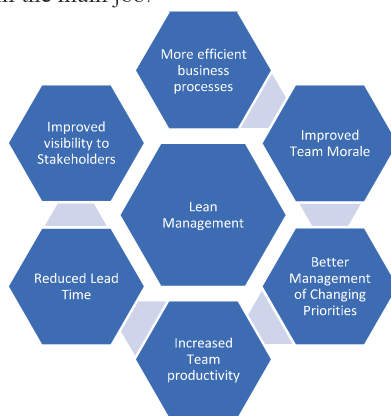


Fig. 1 Conceptual Frame Work

- To perform a review of literature Lean Management.
- To examine the advantages and disadvantages and the issues associated to the adoption of Lean Management Practices in business establishments based on the survey and make conclusion and suggestions.

IV. STATEMENT OF PROBLEM

Due to heavy competition in their respective fields and because of several factors, such as technology change, change in taste and fashion through the arrival of globalization, many organizations are fronting distinct challenges. The dismissive impact of this globalization has led to low performance which by addition had exhausted

customers satisfaction level in these industries. The low performance level provoked by globalization leads to penurious delivery of products to target customers.

To apply the method of Lean Management is one of the manageable methods for communicating the matter of customers' satisfaction. As a result, manufacturing industry and other sectors may attain its set objectives through the adoption of lean management practices to eliminate poor delivery system by eradicating waste and concurrently generating value for service delivery to target consumers and by addition to improve organizational efficacy and coherence. Lean management has fascinated huge interest from both academics and practitioners. The most technical facets of lean management have been largely considered and it has become an omnipresent production method around the globe such as Toyota and other companies have successfully executed it. Nevertheless, lean management commenced in the automotive industry, it has been applied in other disciplines successfully as well. Lean management has become a production method for many organizations to go after due to the intensified provocations from universal competitors.

Furthermore, research on evaluation of lean management applications and its performance in the service sector is bounded. The approach and methodology in which lean management is executed in service sector vary from manufacturing.

Fall down of firms to incapacity to prosper a method such as lean management practice that can keep up organization to reduce cost and wastage. This forms the base of this study which evaluate the abstract foundation that could uncover it to the world business domain.

V. FINDINGS & CONCLUSIONS

The literature survey showed that Implementation of Lean management in manufacturing and non-manufacturing industries improves work productivity.

Survey also showed that when Lean management practices are successfully executed through effectual planning and implementation the subsequent outcomes should be comprehended. These include: diminished lean time, decreased work in progress, enhanced flexibility, minimized transaction, boosted communication, lessened cost, better on-time deliveries, Improved sales, and it upgrades space utilization.

From the literature survey it can be concluded that for every industry and organization, it is required to adopt lean management practices to achieve competitive advantage and remain profit-making worthwhile, and thus enhances customer gratification. Fundamentally, lean management was carried out to decrease waste, inventory depletion, diminished lead time, less rework and financial savings of any industry that endorsed the lean management practices.

Executing Lean Management practices enhances business competitiveness by eliminating wastes while improving quality and customer gratification which include delivery time. Even though, the Lean Management practice surprisingly applied only in the manufacturing sector, but literature has revealed that Lean Management can be implemented in other sectors as well.

In the era of stringent global competition and increasing cost on the local environment, this review suggests that manufacturing organizations and service industries need to adopt lean management practices. To get rid of wastes and enhance organizational productivity, organizations and industries around the world, Just in Time, Heijunka and Jidoka principles which comes under lean management tools are need of the hour.

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