

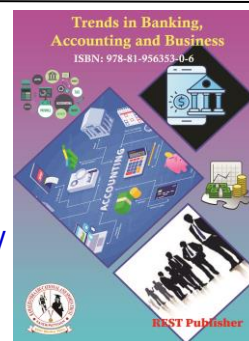


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A Study on Lean Manufacturing with References to Sungwoo Hitech India Pvt Ltd

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Abstract. This paper explores an overview of a study on Lean Manufacturing with references to Sungwoo Hitech India Pvt Ltd. The systematic approach to manufacturing that focuses on reducing waste and increasing efficiency to create value for customers. It involves the continuous improvement of processes, the elimination of non-value-added activities, and the use of a pull-based system to ensure that only what is needed is produced when it is needed. By implementing lean manufacturing principles, companies can improve quality, reduce lead times, and lower costs. From this study the objectives as follow a reducing waste, lean manufacturing aims to increase efficiency and productivity, leading to higher profitability and customer satisfaction. Increasing production agility and capacity allows companies to respond more quickly to changing market demands, while improving the workplace environment can boost employee morale and retention. Finally, minimizing business expenses through lean manufacturing techniques can lead to greater competitiveness and long-term sustainability. The scope of study as follows highlights the key benefits of implementing lean manufacturing practices in a company, which include reducing wastage, increasing production agility and capacity, improving the workplace environment, and minimizing business expenses. By adopting lean principles, companies can improve their efficiency, quality, and competitiveness in a constantly changing market. The research methodology as follows this study is about the lean manufacturing of the tools and the improvement in the industry. This study allows to understand how the industry works by using practical tools for manufacturing their cars. Here in this study, we have seen percentage and chi-square analysis to reduce wastage, increase production agility and minimise business expenses in the industry It also shows how actually the implementation of the lean manufacturing in the industry has undergone and shows the improvement of the industry. The finding as follows a study investigated lean manufacturing techniques in the automobile industry. Lean manufacturing reduces wastage and inventory levels, leading to cost and space savings. Continuous improvement through team work improves lead time and product flexibility. The project provides knowledge to maintain product level and aid overall development.

1. INTRODUCTION

Lean manufacturing is a production philosophy and system that focuses on the elimination of waste and maximization of value for customers. It aims to optimize processes and minimize resource usage, resulting in improved efficiency and profitability. This approach involves continuous improvement, standardized processes, and employee empowerment, creating a culture of constant improvement. Lean manufacturing has been widely adopted across industries and has proven to be an effective tool for increasing productivity and reducing costs while improving product quality and customer satisfaction. Objectives: To study the process of reducing wastage of resources in company. To study the process of increasing production agility and capacity in company. To study the process of improving the workplace environment in company. To study the process of minimizing business expenses in company. Scope: We can reduce the overproduction, waiting, excess inventory, unnecessary motion, defects, overprocessing, and unused talent, and implementing techniques to eliminate them. The current capacity of the production process, identifying bottlenecks that limit capacity, and implementing techniques such as Just-In-Time (JIT) manufacturing and Lean production scheduling to increase production capacity. The physical workspace, employee morale, safety and health standards, and communication and collaboration among employees. Techniques such as 5S workplace organization and Lean communication and collaboration can be implemented. The importance of reducing inventory levels, which can help to minimize storage and handling costs.

2.LITERATURE REVIEW

Cadden et al. (2020) UK Survey The effect of organizational culture on the relationship between LM and organisational performance Layout of equipment, Kanban, batch size reduction and order release timeframe Large enterprises and SMEs The organizational culture practices such as employee orientation, open structures, market orientation and tight structures have a positive relationship with LM, while LM is negatively associated with organizational culture tools such as pragmatic cultures and resultsoriented practices . El-Khalil (2020) The Middle East and Northern Africa (MENA) region Survey Assessment of the interactions and correlations of the LM practices and their relationship with organizational performance in developing countries in the MENA region Standardization, workstation satisfaction, direct run loss, 5S, visual management, JIT, quick changeover, poka-yoke, PDCA, problem-solving, teamwork, TPM, training, VSM, production levelling and master planning Large enterprises Organizations in the MENA region had significantly implemented LM and the LM bundles had a direct relationship with organizational performance Saengchai and Jermittiparsert (2019) Indonesia Survey The effect of supplier network and flexible resources on the association between LM and organizational performance VSM, waste elimination, takt time and JIT Undisclosed The supplier network tool acted as the mediating variable between the association of LM and organizational performances. 4Abu et al. (2019) Malaysia Survey The effect of implanting LM in the Malaysian wood and furniture industry 5S, quality control, preventive maintenance, TPM, poka-yoke, Jidoka, takt time, training, zero defects, TQM, visual management and kanban Undisclosed Implementation of LM improves efficiency space utilization and organizational workplace.

3.RESEARCH METHODOLOGY

Research Methodology is a systematic way to solve a research problem; it includes various steps that are generally adopted by a researcher in studying the problem along with the logic behind them. The word ‘design’ has various meanings. But, in relation to the subject concern, it is a pattern or an outline of research project’s workings. It is the statement of essential elements of a study that provides basic guidelines of conducting the project. It is same as the blue print of architect’s work. The research design is similar to broad plan or model that states how the entire research project would be conducted. It is desirable that it must be in written form and must be simple and clearly stated. The real project is carried out as per the research design laid down in advance.

4.DATA ANALYSIS

TABLE 1. Percentage analysis

Particulars	Respondents	Percentage
Daily	13	16.25%
Weekly	42	52.50%
Monthly	12	15%
Yearly	8	10%
Not sure	5	6.25%
TOTAL	80	100%

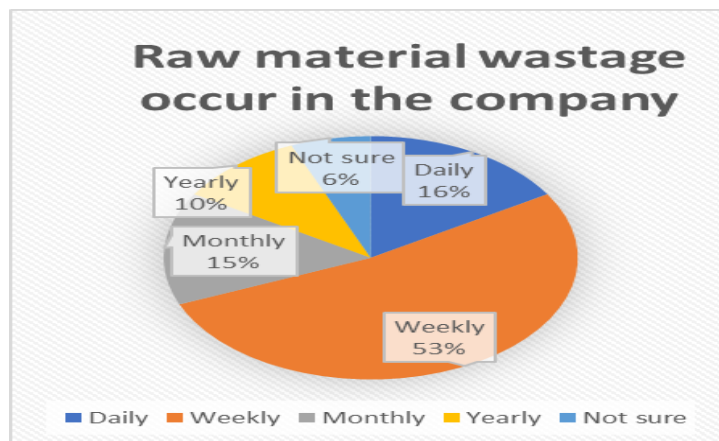


FIGURE 1. Raw material wastage occur in the company

Findings: lean manufacturing can help organizations achieve a more efficient and effective production process by reducing waste, such as overproduction, defects, excess inventory, and waiting time.the application of lean principles can also improve production agility by enabling companies to respond quickly and flexibly to changes in customer

demand, market conditions, and supply chain disruptions. some key practices of lean manufacturing include continuous improvement, value stream mapping, just-in-time production, and employee empowerment and involvement. successful implementation of lean manufacturing requires a cultural shift in the organization, with a focus on creating a learning environment, empowering employees, and encouraging collaboration and teamwork. Suggestion: Conduct a waste audit: Before starting the lean implementation process, it's important to understand where waste occurs in the production process. A waste audit can help identify the types and causes of waste and prioritize areas for improvement. Involve employees: Employees are the ones who know the production process best and can provide valuable insights into how to improve it. Empower and involve them in the lean implementation process to ensure their buy-in and commitment. Start with small improvements: Rather than trying to implement all lean principles at once, start with small improvements and build momentum gradually. This can help avoid overwhelming employees and facilitate the cultural shift needed for successful implementation.

5. CONCLUSION

The purpose of this study was to investigate how the implementation and practical analysis of lean manufacturing techniques and their tools work in the automobile industry. In the project lean manufacturing for manufacturing of the auto components leads to reduce the wastages an inventory level to be maintained which is the mother of the waste. After reducing the inventory level wastage is automatically reduced. By this way the optimum performance on the assembly line and on the inspection and testing line. There is also a tangible benefit in reducing the cost saving, space saving and process improvement.

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