AN EXPLORATORY STUDY ON EMPLOYEE'S PERCEPTION TOWARDS LEAN MANUFACTURING SYSTEMS

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Abstract:
Lean deals with generating more value for customers by eliminating factors that are merely considered waste. Lean Manufacturing is a systematic approach to identifying and eliminating waste through continuous improvement. Lean Manufacturing uses less of everything and attains its set objectives by excellent teamwork, communication, and competent use of available resources & continuous Improvement. The present paper is an attempt to study employee's perception towards lean manufacturing systems in gear industry.

Keywords: Lean, management, system, elimination, waste

Introduction

Many companies who implement Lean do not adequately take advantage of the improvements. Highly successful companies will learn how to market these new benefits and turn them into increased market share. Lean techniques are applicable not only in manufacturing, but also in service-oriented industry and service environment. In the era of globalization, all organizations try to improve productivity and quality using all industrial engineering techniques. Lean manufacturing is a dominant tool which is proven globally as one of the best tool available to improve overall operating efficiency.

Rationale of Study

The rationale of the present research is to study employee's perception towards lean manufacturing systems in gear industry. The broad objectives are to:

- Highlight importance of training in learning LMS and analyze Employees awareness towards LMS training programme.
- Recognition of impediments that encounter while implementing LMS.
- Assist manufacturers to improve their company's operations.
- Suggest effective measures for LMS implementation.

Literature Review

Womack and Jones (1994) state lean manufacturing requires that not only should technical questions be fully understood, but existing relationships between manufacturing and the other areas of the firm should also be examined in depth, as should other factors external to the firm. Liker and Wu (2000) define lean as a philosophy of manufacturing that focuses on

delivering the highest quality product on time and at the lowest cost. Motwani (2003) views that LM implementation requires time, money, energy and fulfill company commitment. Hines, Holweg & Rich (2004) highlight that lean has undergone a significant evolution and development and has attracted more attention to be applied in the service sector. Dennis (2007) says that the foundation of the lean system is stability and standardization. Kosuge, Holm, Modig, & Ahlstrom (2009) explain that lean has its own uniqueness as an initiative for improvement. Wilson (2010) reveals that lean system strives to make one piece at a time; this is true one piece flow.

Research Methodology

The detailed information is available from the plant visit. The information obtained during discussion with, managers, production in charge, Q.C. manager, Q.C. engineers, supervisors, workers, etc. Information is collected regarding the identifying area and lean which include system of 5S, kaizen, JIT, Quality management. This project report is based on data analysis.The information was made available through company records; documents etc. This study is based on data based analysis In Gajra Gears Dewas.

Data Collection

The questionnaire - based survey methodology is applied to meet the set objectives of the study. The primary data is collected on the response received from the given questionnaires as the project conduct questionnaire sessions at the office of the company. The respondents include officers, engineers, managers and senior managers from planning production, purchase, quality control, sales, marketing, maintenance, research and development, human resources, store, supply chain, and material department of the Company. Primary Data has been collected from the Gajra Gears Ltd.110 respondents were approached, out of this 106 returned the questionnaires. 100 questionnaires were duly / properly filled up. So, it has been selected as a final sample. A questionnaire having alternatives / close ended questions was prepared and administered. The answers were recorded by a notebook & question papers for analysis purposes. The fundamental background of the Lean Manufacturing process and consultant's work execution procedure was learned by information gathering from academic books, the Internet, and various academic journals.

Sample Size

The sample size of the study was 100 respondents. The method used for sample technique was random sampling method. This method was used because it was not known previously as to whether a particular person will be asked to fill the questionnaire. Considering the constraints, it was decided to conduct the study based on sample size of 100 respondents.

Sample Technique

The method of sampling here is the convenient sampling. Sampling is the part of statistical practice concerned with the selection of individual lean manufacturing practices observations intended to yield some regarding their perception about lean strategies of gear manufacturing company.

Instrument Development

In this research both primary & secondary data has been used. Primary data has been collected from the Company. Primary data has been collected through survey method. The researcher has used a structured questionnaire. Keeping in mind the objectives of the study, the questionnaire (self-administered questionnaire containing closed-ended questions) was designed on an

extensive review of the literature, research papers and relevant thesis on Lean Manufacturing Processes. After each stage, feedback was obtained and the questionnaire was modified. Majority of the feedback from the experts gave positive remarks and certify that the questionnaire was acceptable for data collection. During the questionnaire session, respondents were given a direction to response the questionnaire. The questions in the survey were kept small. Also length of questionnaire was kept optimized to retain interest of sample and to avoid incompleteness. The questions in the survey were of general type and not to be specific or personnel to avoid personal inconvenience of sample. This also helps in finding un-manipulated data.

Table 1

Awareness about LMS Training Programme

S.No.	Response	Result	Result %
1	Yes	70	70%
2	No	30	30%
	Total	**100**	**100%**

Source: On the basis of questionnaire

Data Interpretation and Analysis

A close study of Questionnaire reveals that 70% employees are very much aware about the process & function of LMS which is prevailing in the organization. On the other side, only 30% employees are appeared to be less informed or unaware about such system. It is very striking to note that even in the age of modern technology & globalization some employees are not aware about a system that can be handy for there professional growth and betterment of working environment.

Table 2

Importance of Training in learning LMS

S.No.	**Response**	**Result**	**Result %**
1	Yes	85	85%
2	No	15	15%
	Total	**100**	**100%**

Source: On the basis of questionnaire.

Though LMS is not a very old technique to strengthen the quality & production in any organization, yet it requires a deep understanding, knowledge and skills to apply it successfully in a given frame work. The study unfolds that 85% respondents consider that special training is required to master LMS whereas 15% do not think training as a necessary factor to understand the concepts of LMS.

Table 3

Is training for LMS a costly affairs?

S.No.	**Response**	**Result**	**Result %**
1	Yes	25	25%
2	No	75	75%
	Total	**100**	**100%**

Source: On the basis of questionnaire.

Training provides employees a golden opportunity to hone their latent skills and enable them to become aware about the latest trends & technologies. Since LMS is a new phenomenon so employees require undergoing training seriously. But some times organization thinks that training is an extra financial burden that may reduce their share of profit & of no use for their employees. The study highlights that only 25% employees consider LMS training as a costly affair & 75% employees regard training as a very vital factor & don't think it as a costly affair for the company & find it as a future investment for the organization.

Table 4

Is LMS effective in cost reduction & effective waste management programmed implementation?

S.No.	Response	Result	Result %
1	Agree	65	65%
2	Disagree	5	5%
3	Somewhat Agree	15	15%
4	Somewhat Disagree	10	10%
5	Neither Agree nor Disagree	5	5%
	Total	**100**	**100%**

Source: On the basis of questionnaire.

LMS is considered as a very useful technique in the modern day setting of organization. It is very beneficial in reducing the cost and waste management. The success of LMS heavily depends upon planning and implementation of plans & policies. The study explores that 65% employees agree that LMS will be effective in the case of successful implementation. 5% employees show their disagreements with this view 15% employees seen in dilemma as they somewhat agree and 10% somewhat disagree. 5% employees neither agree nor disagree in this case.

Table 5

Which type of LMS Training Programmed should be preferred for employees?

S.No.	Response	Result	Result %
1	One week	20	20%
2	Two week	50	50%
3	Three week	20	20%
4	Four week	10	10%
	Total	**100**	**100%**

Source: On the basis of questionnaire

Employees like to see their career graph moving. They like to be in constant touch with the latest technologies. They can contribute a lot to their working organization, if they get proper training & guidance along with healthy working environment. There are organizations that take training as a very important aspect for employees' growth. The objectives of LMS can be achieved by providing regular and rigorous training to the employees. Training programmes can be planed as per the requirement of employees and the organization. The study highlights that 20% employees prefer 1 week, 50% prefer 2 week, 20% prefer 3 weeks and rest of 10% prefer 4 weeks LMS training programme to understand the dynamics of LMS.

Table 6

Ranking of the obstacles which are often faced while implementing LMS–

S.No.	Response	Result	Result %
1	Lack of top management support	10	10%
2	Failure of past lean project	5	5%
3	Financial benefits not recognized	25	25%
4	Difference in theory and practical	10	10%
5	Lack of time	5	5%
6	Lack of know – how	10	10%
7	Company culture	5	5%
8	Budgeting constraints	10	10%
9	Employee opposition	5	5%
10	Dependence on old ways of working	5	5%
11	Any other	10	10%
	Total	**100**	**100%**

Source: On the basis of questionnaire

Successful implementation of any technique largely looms upon various factors. The application also requires coordination and combination of various tools and techniques without which success of LMS may be doubtful. It is the duty of the management to recognize and prevent obstacles that may create flaws in successful implementation of LMS. The present study is very successful in marking some factors that may mar the effectiveness of LMS. 25% employees consider that organization fail to recognized the financial benefits of LMS. Hence, they appear shaky in the implementation of LMS, 10% employees find less & lack of support top management as an obstacle in implementation LMS, 10% employees think there is a gap in application of theory and practice of LMS and 10% employees view that Lack of knowledge and awareness to implement LMS, is also a big hurdle.10% employees express that budgeting constant are also obstacles in the implementation of LMS. 5% employees consider companies culture. 5% employees are fearful of employees opposition, 5% employees blame lack of time, 5% employees consider dependence on old ways of working as impediments in the successful implementation of LMS.

Conclusions and suggestions

The results of the present study are very striking & revealing. It has been observed that in the application LMS mostly employees are aware & very keen to know the strategies to handle it successfully. Employees consider that LMS is highly beneficial in improving in production and maintaining a balance with employees' growth. Employees also recognized that LMS is very helpful in the elimination of wastage & achieving maximum benefit from the available resources. There are issues which may be area of great concern for the management of the organization. Still there are employees who think that by implementing LMS there is a fear of rejecting other tools & techniques. So, this point should be considered by the organization. Tools & techniques should be applied successfully in order to attain the objective of LMS. This can be achieved with the integrated approaches of LMS. The employees &

employer should developed a better understanding & contribute their share in a healthy environment. Training is a continuous process to keep them the employees updated with the recent & advance level of training & technologies. Some organizations consider training as a future investment and a lifetime learning experience for their employees. Even employees also think that it is not a costly affair in comparison to it advantages to the organization. It is observed in the study that employees prefer two week training program related to LMS.

There is no doubt that LMS is very effective in reducing the cost & managing the waste. The present study also confirms this notion as most of the employees agree that LMS is cost savy & very effective in eliminating waste. At the present scenario, TQM & 6 Sigma is treated as a brand symbol for any organization. To achieve such high quality status, the organization has to adopt tools & technologies like LMS. The study shows that most of the employees agree with the fact that in the successful implementation of TMS & 6 Sigma, LMS is very helpful.

No tools & techniques are flawless. There are certain obstacles in the implementation of LMS. But they can be overcome by successful planning.

Therefore, it is important to address the barriers to implementing lean practices and eliminate them by doing the following:

- Provide executive training
- Create a road map.
- Review metrics and measurements.
- Work with supply chain network.
- Employ a value stream manager.

In the application of LMS, the biggest obstacles appear is the non recognition of LMS as an effective tool. Its financial benefit is mostly not recognized by the organization. It is very necessary to overcome this hurdle. Being systematic about eliminating waste will give the Company a better chance at sustaining the momentum when someone engages and eliminates waste in its work. To reduce the waste of waiting, it should reduce queue size, point of use storage, deployment of visual systems, improving planning and load. There are certain obstacles in the implementation of Lean Manufacturing Practices. But they can be overcome by successful planning.

Future Implications

This study will be helpful in developing case studies on how Industrial design can influence operations strategy. This study will further assist the gear industries to gauge their level of leanness and will serve as a foundation for future research Future research should include multiple organizations with a longer history of lean manufacturing.

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