

Total Quality Management and Its Applications

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ABSTRACT

In the present time, manufacturing industries suffers from the quality problems in products and services. The manufacturing industry gain loss and wastage of resources due to quality problems that results in poor efficiency of manufacturing plant. The quality of products has to regularly upgraded time to time to achieve desire goal in manufacturing industry. The regular upgradation of quality of products and services in the manufacturing sector is known as Total Quality Management. The whole processes, manpower and management are controlled efficiently and maximum output is obtained from resources in the total quality management. The TQM is the art of controlling everything in efficient and better controlled manner in any organization. This is the mostly and widely used quality tool in the manufacturing industry. The TQM is a tool used to increase the quality of product and quality of processes in the manufacturing industry. The implementation of TQM in any manufacturing plant increases the quality and production of plant.

Keywords : Total Quality Management, TQM, Qaulity, Impove Quality, Increase product quality, Increase process quality, Reduce cost.

I. INTRODUCTION

Total Quality Management (TQM) relates to management methods employed to increase quality and productivity in an establishment. TQM is a broad term that works horizontally across a firm; including all the departments and employees. TQM is used to improve the overall quality and efficiecnyn in the all depaprtments of any organization (Kaushik, P., & Mittal, K. 2015).

TQM is a management system which includes three terms:

1. Total – Everything
2. Quality – Degree of Excellence
3. Management – Art, act or way of organizing, controlling, planning, directing to achieve certain goals

TQM has many acronyms but mainly focus on the quality. The other acronym contains SQC (Statistical Quality Control), CQI (Continuous Quality Improvement), QIDW (Quality in Daily Work), QFD (Quality Function Deployment), TQC (Total Quality Control), etc. It is a management approach to long-

period profit through satisfaction of customer (Mittal, K., Kaushik, P., & Khanduja, D. 2012). Like other systems, TQM give a framework for implementing adequate productivity and quality that can advance the profitability and competitiveness an organization (Deepak Dhouchak & Naveen Khatak, 2017).

TQM process divided into four groups: Plan, Do, Check and Act is known as PDCA cycle or Deming cycle or Shewhart cycle or PDSA (Plan – Do – Study – Act) cycle. The Figure 1 explain the phases of PDCA Cycle (Sharma, C., & Kadyan, S., 2016a).



Figure 1: PDCA Cycle

The four phases of PDCA Cycle are:

1. Plan Phase
2. Do Phase
3. Check Phase
4. Act Phase

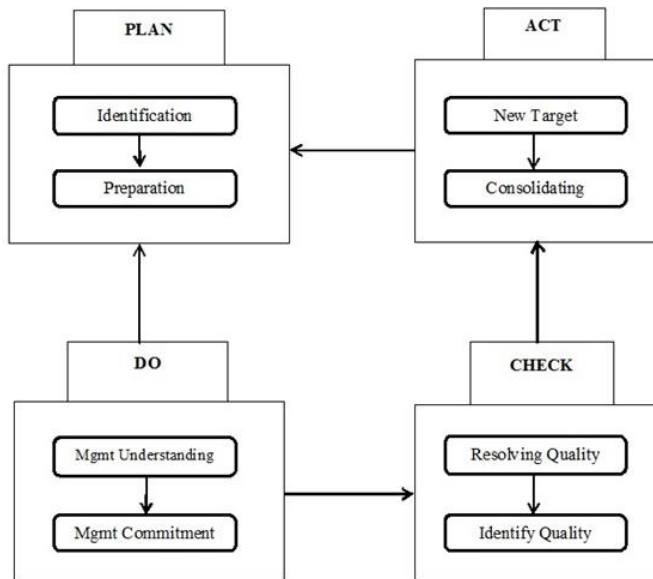


Figure 2: Working of PDCA Cycle Phases

Planning Phase : - Establish the objectives and procedures essential to pay solutions in conformity to expected output. For determining the problem apply the various tools like cause and effect diagram, Drill Down and 5 whys these tools are very useful to find a root of the problem. After gathering the relevant data draw the process map which defining the root of problem (Sharma, C., & Kadyan, S. 2016a).

Doing Phase : - In this phase generate possible solution, then select the best of this solution and implement on a small base, with a small group within a limited field. The PDCA cycle easy to remember, but it's important, what the exact meaning of "Do". Do means "try" or "test" not "implementing fully" (Sharma, C., & Kadyan, S. 2016b). Full Implementation happens in "Act" phase.

Check Phase : - In this phase, approve the result before and after data comparison. Measure how effective the solutions have been, and assemble together any learning from it that could get even better. Depending on the success of the solution, the number of areas of enhancement has identified, and the chance of the whole action, may opt to replicate the "Do" and "Check" phase. Once the satisfied result delivered than finally move to the final phase (Deepak Dhouchak, 2017).

Act Phase : - Now implement the solution fully. In this step a new baseline formed because in the DO and CHECK the required solution implemented which lift the baseline to a young criterion. After that document the effects and advise others about implementation, procedure modifications, and pull in a suggestion for the problem to be accosted (Sharma, C., & Kadyan, S. 2016b). This is the final stage of the cycle and these phases repeated over and over because it is a never ending cycle.

The PDCA cycle is the part of total quality management system. The PDCA is used as a tool in the total quality management system. The PDCA cycle is easy to undersatand and use. The TQM is more benifical for any manufacturing industires (Deepak Dhouchak & Naveen Khatak, 2017).

The Figure 2 explain the whole working of all four phases or steps of PDCA cycle in the TQM. The all four phases are related to each other. TQM is a distinctive solution to resolve the problems of industrial sector easily.

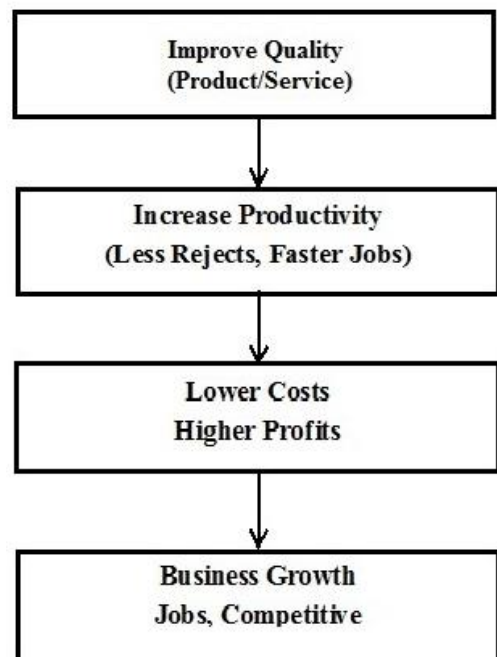


Figure 3. Effects of TQM (Quality Improvement)

Advantages of TQM

1. Improve the quality of product or service.
2. Increase the production in the plant.
3. Reduce the wastage of resources.

4. Reduce the production cost and time.
5. Increase the profit of plant.
6. Reslove the problems easily.

Applications of TQM

1. TQM is widely used in the manufacturing industry.
2. TQM can be used in offices and educational institutes to improve their service quality.
3. TQM can be used in any organization to improve their quality of product or service.

II. REFERENCES

- [1]. Kaushik, P., & Mittal, K. (2015). A General Model for Problem Solving in Manufacturing or Service Organizations. *Journal of Engineering and Technology*, 0(0), 0. <http://doi.org/10.4103/0976-8580.158566>
- [2]. Mittal, K., Kaushik, P., & Khanduja, D. (2012). Evidence of APQP in quality improvement: An SME case study. *International Journal of Management Science and Engineering Management*, <http://doi.org/10.1080/17509653.2012.10671203>.
- [3]. Sharma, C., & Kadyan, S. (2016a). Examine Total Quality Management in Engineering College Libraries : An Evaluative Study. *Pearl-I Journal of Library and Information Science*, 10(4), 215–223.
- [4]. Sharma, C., & Kadyan, S. (2016b). Road Plan to Enterprise TQM from Manufacturing to Library Services. *International Journal of Information Dissemination and Technology*, 6(3), 165–169.
- [5]. Deepak Dhouchak & Naveen Khatak. (2017). 6S Methodology and Its Applications, *International Journal of Research in Mechanical Engineering*, Vol. 4, Issue 02, ISSN: 2349-3860.
- [6]. Deepak Dhouchak, Review of 6S Methodology, *International Journal of Devlopment Research*, Vol.07, Issiue 08, pp.14455-14457, August, 2017.