International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

Automotive Quality Management System

Deepti Chandok[1], Om Prakash Tiwari[2]

[1]M. Tech Student, Department of Mechanical Engineering, Goel Institute of Technology & Management, Lucknow, India
me.1005640040[at]gmail.com

[2]Assistant Professor, Department of Mechanical Engineering, Goel Institute of Technology & Management, Lucknow, India
omprakashtiwari15[at]gmail.com

Abstract: ***In supplying products and services, there are three fundamental parameters which determine the sale ability (Price, Quality and Delivery). Customers have need of goods & service of given quality to be supplied by or be accessible by a specified time and to be of a worth that reflects value for money. These are requirements of customers. An organization will continue to exist only if it generate and retains pleased clients and this will only be achieved if we proffer the sale of product to the client, meeting its desires and prospect as well as requirements. While price is function of cost, profit, margin and market force. Delivery of the product determines the Organization Efficiency but QUALITY is determined by the extent to which the product or service successfully serve the purposes of the user during usage (not just at the point of sale).Price and Delivery of the product are transient features but the impact of quality is sustained long after the attraction or the pain of price and delivery have subsided. The expression of this paper describes the IMPROVEMENT of a quality of a product with company Standard of Procedure (SOP) to improve PRODUCTION and QUALITY.***

Keywords: QMS (Quality Management System), IATF 16949, Customer specific requirement, Audits

1. Introduction

Quality management is important aspect in every field. Automobile sectors also keep improving their quality and efficiency in today's competitive environment. This becomes a strategic issue for the organizations to use management tool. The quality of project can be evaluated in different terms. It is important to consider who assesses the quality and the base of evaluation. However, customer requirements are important parameter to consider. Companies can improve their performance and satisfy the customers by choosing and applying the best management tools. Quality management system in automobile sector is based on the ISO/TS quality standard which is kept upgrading as per the advance methodology that focuses mainly on processes. Figure.1 shows the ISO standard Process approach.

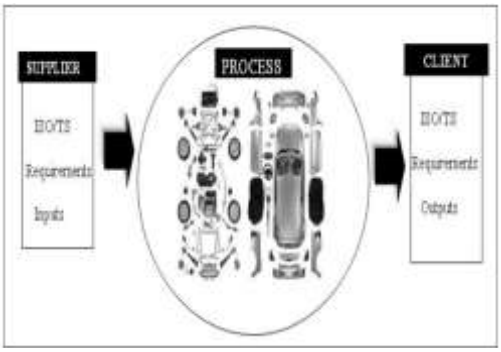

Figure 1: ISO Standards Process Approach

As shown in Figure 1, the whole automotive industry uses the quality standards but in practice, it is very difficult to choose what standards should follow to fulfill the requirements.

1.1. Quality Management System

The ISO/TS 16949 international standard establishes the particular requirements of the implementation of ISO 9001:2000 in the automobile production. This is very fruitful to get the planning of the quality of the product, the PRP. These are most vital parts of the standards. Broadening the concepts of project management, it is to be required to establish a protocol for PRP measurement via some specific milestones. This can also include the corresponding management revision. The parameters which should be considered are quality, risks, costs and deadlines. Numerous companies of other sectors have adopted this management and have tried to apply it and adapt it to them. They use these results to control the process. If the results are within the limits established for each process, the process is called controlled. Then Corrective measures will be needed to be applied to it. The only interest is to see the results of a process with a graphical representation. There are counting of ways (some of them complex) to;

- Control a process
- Find failures
- Improve systems
- Analyze risks

The automotive sector is controlled by the MAM like Volkswagen etc…

2. Literature Survey

After referring the ample of data and journals it was analyzed that implementing standards of quality with their clauses can effectively improve the organization quality and process which in turn increase the production capacity and why company should go for recertification.

According to the authors **Goicoechea, I. & Fenollera**, **M** et al, the automotive production has always been an exemplar in the field of Project Management and Leadership and in quality domain. A customary tactic is followed from product expansion through production. The aim of this exploration is to set up a bond between the different stages of the Product Realization Process (PRP) and the most suitable QTs for them.

The fascinating article by author **Victor Löfgren"** states "As a manufacturer of vehicles it is vital to have control over the processes in the company." There are some set of laws from authorities which states an standard vehicle manufacturer should be talented to produce vehicles according to conformance.

3. Methodology

3.1. QMS Implementation

A QMS is a dignified system that works like credentials processes, actions, and every day jobs to get quality-policies & agendas. A QMS helps in coordinating and directing an organization's actions to meet customer and dictatorial requirements and develop its efficacy on a unremitting basis. QMSs serve a lot of purposes which are as follows:

- Civilizing processes
- Reducing waste
- Lowering costs
- Facilitating & identifying training opportunities
- Engaging staff
- Setting organization-wide direction

3.2. Continual Improvement

An organization runs effectively by establishing the QMS standards. Before establishment of the QMS, an organization must make out and handle various associated, multi-functional procedures to guarantee customer's pleasure. Establishment of a QMS for an organization, a lot of points should be considered. Among them one main point to be considered is to ensure that it's a tactical option inclined by the changeable agendas, desires, products and jobs provided. This formation is based mostly on the Plan-Do-Check-Act (PDCA) cycle and allows for continuous improvement to product & QMS. For QMS implementation, some essential steps are as given below:

- Design
- Deploy
- Control And Measure
- Review And Improve

4. Result & Discussion

A contemporary QMS takes exposure and analytics to a fresh level. First, intelligence is made from concurrent data. Secondly, the reporting dashboards are vibrant and give multiple views of the data with drill-down capabilities. Computerized QMSs are more supple. They give a tough skeleton that eliminates the requirements to begin from scrape when the business expands and/or when QC procedure evolves by time. Even more Quality can be tracked on a mobile device. Anyone can detain and collect real-time data while on the move. Even more data and subsequent reports can be visible in manufacturing organization. In order to help manufacturers to achieve that aim (and to protect consumers), the federal government requires manufacturers in highly regulated industries to update their Quality Management System to wait in procession with modern set of laws. Current Quality Management Systems have unremitting corroboration built into the organization. These types of systems are idyllic as they set aside manufacturers from the barely credible nuisance of updating the system physically.

Figure 2: Technical Improvements through QMS

To make best use of the probable of designed behavior and reduce the possibility of failures during the growth of fresh programs. IATF- 16949 incorporated a figure of precise risk-related necessities. One of the necessities of IATF-16949 is that everyone companies make sure the fulfillment of all goods, procedures, segments and services, with also that are outsourced. This implies that the company must have a system to moderate the risks of non-conformity throughout the supply-chain. Numerous common manufacturing plants practice that were establish in customers' precise necessities were also integrated into IATF- 16949.The agenda of integrating these practices is to make easy the demand for precise customer necessities in these areas. It is also critical to distinguish the customer's requirements and customer-specific necessities **(TSRs)**. The IATF standards have a totally latest segment called **Product Safety**. This segment requires companies in alteration to have documented manufactured goods safety management procedures related to product and manufacturing procedures. In the new IATF- 16949, the corporation must evaluate whether it has the talent to congregate the time & performance objectives predetermined by clients, recognized as manufacturer feasibility. ISO/TS- 16949 also requisite the identical scrutinies of manufacturer feasibility but precise necessities were not obligatory. A new requisite was added to IATF -16949 on the basis of the escalating significance of warranty management by consolidating IATF- Original Equipment Manufacturer precise client. To authenticate NTF, the warranty management procedures must concentrate on. It incorporates all precise customer necessities and warranty investigation procedures. In addition, where applicable, decisions ought to be decided upon by the customer.

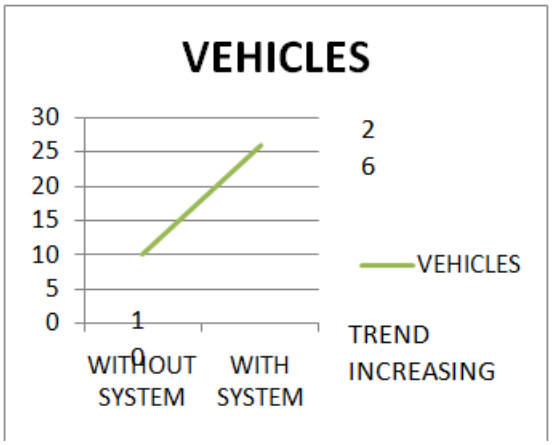

Figure 3: Showing Result

As observed by graph when company is moving with the standards and operating criteria with system the number of vehicle produce will be 26/day without system 10/day as the workers unaware about the process requirements quality level deteriorates so, getting into system is not for money but it's for organization moving forward with quality confidence.

5. Conclusion & Future Scope

Future of QMS system is at a peaked scope as every customer wants a vendor with the quality system leading to the less mistakes and greater direction. Each ISO standards upgraded in three years with new publications and every industry is adapted to get certified which in turn is a compulsion for great environment and working culture for an automobile industry Significantly future of QMS standards will significantly improve implementation of objective and transition of company strategy into actions and implementation with rise in production not with the expense of errors or complaints.

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Author Profile

Ms. Deepti Chandok is a Mechanical Engineer by profession and passed her B.Tech in 2014 with 75.25 percent from AKTU University formerly known as UPTU. She is working currently as a system engineer with AAAPL (Vendor of TATA MOTORS) and an IATF16949:2016 certified company. She was selected as a design and development Engineer for 6 months. She is also pursuing her MTECH from AKTU and also looking after Quality Assurance activities in her organization.

Mr. Om Prakash Tiwari is Assistant Professor in Goel Institute of Technology & Management, Lucknow, India. He had completed his M.Tech in Thermal Engineering from KNIT Sultanpur, UP, India in the year 2014.