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DESIGN OF QUALITY MANAGEMENT SYSTEM USING STATISTICAL PROCESS CONTROL SYSTEM

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ABSTRACT

The road to a quality organization is paved with the commitment of management. If the management is not totally behind this effort, the road will be filled with potholes, and the effort will drag to halt In manufacturing, management is an area of business that is concerned with the production of goods and services, and involves the responsibility of ensuring that business operations are efficient and effective. quality improvement process developed the use of FMEA and QFD was piloted in areas such as new product and service development

Keywords — Statistical Process Control scheme, Failure Mode and Effect Analysis scheme & Quality Function Deployment scheme.

1. INTRODUCTION

In manufacturing, Quality management is an area of business that is concerned with the production of goods and services, This often results in a need for more thought, skill and training to use techniques effectively. Viewed simplistically, techniques can be thought of as a collection of tools. [1]. SPC is also a way of thinking about variability. It should also be concerned with the initiation, development, implementation, and maintenance of the quality system. [3]. Graphical methods are easy to understand and provide comprehensive information The most successful application of tools and techniques was during the quality improvement team meetings & increasing awareness of the total quality. [4].

2. EXISTING SYATEM

Firstly Amy J.C. Trappey and David W. Hsiao [5] have presented that traditional product lifecycle management (PLM) solutions focus mostly on the product data management and design house-keeping aspects to maintain complete and consistent product information during product R&D .Second Jorn-Henrik Thun and Daniel Hoeing [6] investigate the empirical analysis of supply chain risk management practices. The analysis is based on a survey with 67 manufacturing plants conducted in the German automotive industry.

Disadvantages of Existing System:

First the procedure is to combine the results of both samples and make a final decision based on that information.Second is It is used as a screen to stop any defective products from escaping

	Application				
Tools	Data collection	Problem solving	Customer/supplier relationship	New product introduction	Quality awareness
Cause and effect	✓				
Pareto analysis		✓			
SPC		✓			✓
Quality costing	✓				✓
Departmental purpose analysis			✓		
Q-mapping/ flowcharting		✓		✓	
FMEA	✓			✓	
QFD	✓		✓	✓	
Check sheet	✓				
Histogram		✓			
Scatter plot		✓			
Graphs				✓	✓
Mistake proofing		✓			

Figure 1: Analysis of Application of Tools and Techniques.

3. PROPOSED SYSTEM WORK

Implementing a Quality Management System (QMS) within an organization needs to be a decision by top management. The objective of the quality system needs to be clearly defined so that the system can be effective.

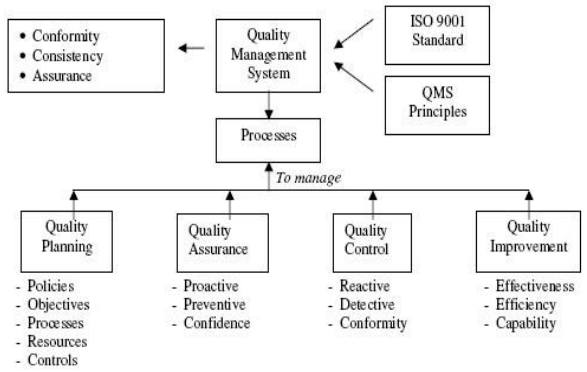

Figure 2: Quality Management System with coordinated activities.

A Quality Management System will assist a
Review and approval of the process.

1.Review And Approval Of The Process.

2.Approval Of The Equipment Used,

3.Competency Of The People Who Operate The Process, Specific Methods

4.Ongoing Assessment Of Procedures Used,

5.Records To Be Kept,

6.The Process Validation

audit criteria are being met. Audits must be objective, impartial, and independent, and the audit process must be both systematic and documented [10].

There are three types of audits: first-party, second-party, and third-party audits. First-party audits are internal audits. Second and third party audits are external audits. Organizations use first party (internal) audits to audit themselves for internal purposes. However, you don't have to do them yourself. You can ask an external organization to carry out an internal audition behalf of your organization. You can also use first party audits to declare that your organization complies with an ISO standard (this is called a self-declaration) [6].

Audit findings result from a process that evaluates audit evidence and compares it against audit criteria. Audit findings can show that audit criteria are being met (conformity) or that they are not being met (nonconformity). They can also identify improvement opportunities. Audit findings are used to assess the effectiveness of the quality management system and to identify opportunities for improvement [8].

Audit evidence includes records, factual statements, and other verifiable information that is related to the audit criteria being used. Audit criteria include policies, procedures, and requirements [2].

Advantages of Proposed System:

1.Enhancing general awareness of the need for the quality.

2.Informal style of working is being replaced working as per defined.

3.Feedback is quick and there is an eagerness to take corrective actions more people are now taking about doing things right first time.

4. MATERIALS AND METHODS

A. Analysis of data

The standard requires the organization to collect information on the functioning of the QMS. This information [5] is then analyzed to evaluate the effectiveness and efficiency of your system and to identify opportunities for continual improvement of the QMS. Information collected and analyzed relates to:

- customer satisfaction,
- meeting product requirements,
- process characteristics and trends,
- product characteristics and trends,
- Supplier performance.

B. Control of monitoring and measuring devices

Any measurement worth taking is worth taking correctly. The standard requires the organization to identify the inspection, test and measurements taken, their required accuracy, and the equipment used to make the measurements. Procedures must describe how measurements are carried out [9].

Measuring equipment must be carefully cared for, including:

1. timely calibration to national standards,

2. identification with a calibration label,

3.preventing adjustments that would invalidate the calibration,

4.Preserving the equipment accuracy during handling, storage and use.

C. Design and development planning

A past oriented strategy that attempts to identify unacceptable output after t has produced & then separates it from the good output [7].To effectively plan the design and development process, the organization must:

1.Clearly define the stages involved in the design and development process.

2.Identify how the review and verification of the design will take place.

3.Describe clear responsibility and authority for the people doing this work.

4.See that design information flows effectively among the various groups having a role in designing, selling, managing, manufacturing, and servicing the products.

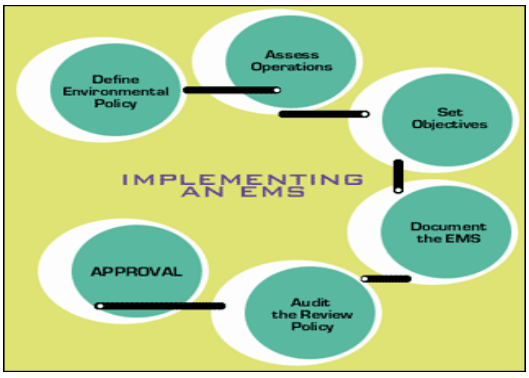

Figure 3: Implementing an EMS

5. RESULTS

1)Acceptance by top management of quality as a vital element in business.

2)Study of the feasibility of establishing a quality system based on ISO 9000 its costs and its anticipated benefits to the companies' long term profitability and growth.

3)Decision by the management board to establish an ISO 9000 quality system and with it, an unequivocal commitment to provide adequate resources for its implementation

4)Discussions with senior managers about training up the ISO 9000 projects & selection of the appropriate model.(ISO 9001, 9002, 9003) to be implemented.

5)Consultations with unions or workers representatives to explain the concepts and benefits if ISO 9000. This is essential because the successful implementation of ISO 9000 requires the active co-operation &involvement of personnel.

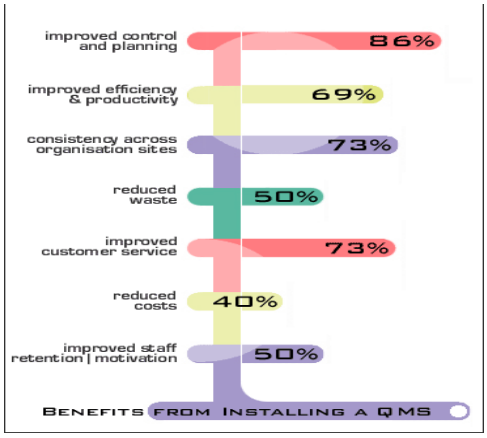

Figure 4: Benefits from installing a QMS

6. CONCLUSION

1. It enables them to identify and plan tasks and their method of performance in order to yield results.

2.It provides the means for identify their recurrence, there by improving conformance.

3. It enables staff to control their own operations, thereby reducing firefighting and freeing managers from constant intervention business operations. This will help to create quality awareness and satisfaction among employees.

4.It provides a means for the company's experience. This can serve as the basis for training staff and thus for improving performance.

5.Productivity increases 2- 5 percent when system implemented continuously.

6.After certification quality tools can se implemented so to increases process control and product control.

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