

## A STUDY ON ROLE OF INSPECTION IN PRODUCT QUALITY AT AST INDUSTRIES, TRICHY



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### Abstract

Total Quality Management is an effective management tool to ensure continued customer satisfaction, which leads to the achievement of company growth and the principle of product quality control and inspection is essential for the future development of any business and is to increasingly important to a company's survival under growing circumstances a competitor and a constant demand for a more consistent and dependable product. Progressive production industries are realigning the contribution of quality control to the quality of purchased materials. Hence, it is essential to check the quality of the material supplier as it greatly helps in increasing the profitability of the business. Indeed, if the materials supplied do not conform to the desired specifications and if the defects are not detected before feeding them to the reproduction industries, this will affect the quality of the materials produced by the company. This will not only mean waste of money, but also interruption of manufacture lines, decrease in sales. Decreasing the reputation of the concerned company and the required items may run out of sellers, this will manifestly affect the company unfavorably. Quality control and physical checking of materials are becoming of vital importance in the manufacturing industry, which has become the financial hurdle of material sourcing today. This research guides an approach for forecasting the future plan and optimizing quality controls in a multi-step production process based on quality costs and the added value to the production process from controls.

**Keywords:** Quality, Control, material, buyer, Manufacturing process.

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## 1. Introduction

Quality control concerns the post-production control of products and this is not influenced the direct process of production. The quality of products check by the quality inspector and that verification t won't to allow the poor quality of products should not be sent for sales. In this process after the quality inspection the feedback loop in quality test information and the failure and the causes of poor quality products details shall not inform to the employees and the manager of the organization. In this cases this cannot be improved. employees for the improvement of their products in the future. Quality Management system is an effective management instrument to ensure continued buyer gratification, leading to the achievement of organizational progress. It is a efficient way to ensure that prearranged accomplishments go as planned. Propagating TQM values in an organization is a way to push the whole organization towards higher performance standards. Quality in all spheres of activity must start with a quality consciousness within an organization, but also outside it.

In an organization the quality inspector check the quality of the products features and they will test to certify that the product meets its pre-established standards. Quality inspectors check the manufactured goods beside the selected qualifications to encounter a number of necessities, which includes that the compliance with global standards of the target market. Through the use of scrutiny lists that we can select virtual and adapt to the needs of the quality control development can be consistent and the key quality issues transferred to all the members those who involved in the inspection process.

### Statement of the problem

The fundamental pillars of any organization to achieve continuous improvement is the quality inspection process. In the manufacturing cycle the products will be checked through the policy based plans and also it helps the particular monitoring necessities and workflows.

The inspection process giving a result of the process of inspection of the products through receipt of products, process, transporting the goods, and returning products pave a way of combined assessment of scrutiny norms and outcome of inspection to the organization. Generally, quality check is to find out the latent problems or awaiting happenings though reviews report the basis reasons of those issues. These critical processes will help to simplify and maximize the worth of the organization. In this article, we attempt to examine the role of inspection in product quality at AST, Trichy industries

## Objectives of the study

- i. To determine the effect of TQM on organizational performance and sustainability
- ii. To identify a set of TQM practices followed by the AST industries, Trichy.
- iii. To determine the role of inspection in product quality.
- iv. To Expand the excellence of its own operations and achieve, maintain, and continuously improve the quality of products

## 2. Research Methodology

The relationship between the employees and the quality inspector is to c

Research methodology is the precise processes or systems used to recognize, select, process and analyze the information about a research. Search in everyday language discusses to examine for acquaintance. This Study can also be defined as the systematic and methodical examination for appropriate information on a specific topic. Therefore, the researcher chose the role of production quality as a specific topic. It is a systematic effort to acquire new knowledge.

### Research design

The research will be exploratory as well as descriptive and analytical in nature as it will use both primary and secondary data.

### Data Collection

In this study, the primary data were collected through the structured questionnaire.

### Secondary Data

The secondary data will be collected from company policies, net, Journals etc.

### Sampling method and size

Convenience sampling method was used .The sample size of the study is 60 respondents.

### Statistical Tools

Percentage analysis, chi – square test was used this analyse.

### Scope of the Study

Management should identify the purpose of scrutiny of quality of the products, it's improve the process and decrease the costs. For the most part, mass examination is expensive and unreliable. If so, it should be replaced with infinite improvement using statistical techniques. Statistical evidence is required from oneself and from the supplier. Every effort should be made to decrease and thereby eradicate acceptance sampling. Mass inspection is failure management and defect prevention is success management

## Review of Literature

**Garcia-Alcaraz, J.L., Flor-Montalvo, F.J., Avelar-Sosa, L., Sanchez- Ramirez, C., & Jimenez-Macias, E. (2019)** Concluded in their article that human resources play an important role in the process of implementing TQM, which ensures operational benefits measured by product quality indices, continuous process improvement,

cost and waste reduction and better safety at work for employees.

**Pablo Martinez and Rafiq Ahmad (2021)**, in their study entitled “Quantifying the Impact of Inspection Processes on Production Lines through Stochastic Discrete-Event Simulation Modeling” stated that the when the introduction of inspection procedure in a multiple process to be follows like quality, impact of productivity, and supply of the material. The elasticity of discrete-event replication was permits for the manufacturing and inspection topologies in a customized manner and inconsistency in the tasks and investigation schemes were used.

#### Company Profile

AST industries are located in SIDCO industrial estate, valavanthankottai at Trichy, having its industrial plants, office within one roof. It has a total plant area of 4Acers with well equipped

workshop, heavy fabrication machineries, skilled work force supported by an experienced and dedicated engineers with fully electronic designs & processes to handle the engineers with fully computerized designs & processes to handle the engineering feature of the project. AST has a total work force of around 100 plus peoples with the capacity to fabricate 4000 MT/ Annum.

This company continuously seeking a better way to distribute their products and proficiencies and also they expand the scope and research to the customers based on the needs in all over India AST dedication to uncompromising service and maximum delivered value has earned the trust and loyalty of all we serve. They have worked with eminent government like Bharath heavy Electricals limited, Indian space research organization, and national thermal power corporation, National institute of ocean technology Etc.,

#### Data Analysis and Interpretation

Table – 1 OPINION BASED ON COMPANY OPERATE A QUALITY SYSTEM

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	40	67
2	No	20	33
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 67% of the respondents stated that their company operates a quality system

Table – 2 OPINION BASED ON ORDERS REVIEWED FOR ACCEPTABILITY

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	53	88
2	No	07	12
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 88% of the respondents opined that orders reviewed for acceptability

Table – 3 OPINION BASED ON FORMAL SYSTEM FOR DEALING WITH COMPLAINTS

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	49	82
2	No	11	18
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 82% of the respondents stated that their company having good formal system for dealing with complaints

✓

Table – 4 OPINION BASED ON YOUR COMPANY CARRY OUT INTERNAL AUDITS FOR QUALITY

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	55	92
2	No	05	08
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 92% of the respondents opined that their company carries out the internal audit for quality process

Table – 5 OPINION BASED ON TRAINING PROGRAMME CONDUCTED BY THEIR ORGANIZATION

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	32	53
2	No	28	47
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 53% of the respondents opined that they agree that their organization conducted training programs to improve their employees skills

Table – 6 OPINION BASED ON DEFECTIVE MATERIAL PROPERLY IDENTIFY AND SEGREGATED FROM ACCEPTABLE MATERIAL

S.NO	OPINION	NO. OF RESPONDENTS	PERCENTAGE
1	Yes	50	83
2	No	10	17
<b>TOTAL</b>		<b>60</b>	<b>100</b>

✓ 83% of the respondents opined that they agree that the defective materials properly identified and segregated from acceptable material

Table – 7 TO TEST THE DIFFERENCE BETWEEN THE YEARS OF EXPERIENCE AND TRAINING PROGRAM CONDUCTED BY THE ORGANIZATION

Experience	Training Program Conducted		Total	Inference
	Yes	No		
Below 2 years	2	2	4	Calculated Value= 26.934 $X^2_{0.05@3}=7.81$
2 years to 4 years	3	12	15	
4 years to 6 years	4	12	16	
Above 6 years	23	2	25	
<b>TOTAL</b>	<b>32</b>	<b>28</b>	<b>60</b>	

**Null Hypothesis (Ho):** There is no significant relationship between years of experience and training program conducted for improve their skills.

**Alternative Hypothesis (Ha):** There is a significant relationship between years of experience and training program conducted for improves their skills.

#### Conclusion

Since, calculate value of  $X^2$  is greater than the table value. Hence, alternative hypothesis is accepted. So, it concludes that there is a significant relationship between years of experience and training program conducted for improve the skills.

#### Suggestions

The management of the AST sector must implement an organizational culture change in the organization to improve the implementation of total quality management in order to improve the strategy of continuous improvement, open communication and organizational cooperation in the whole organization. Setting a quality standard and ensuring that product quality meets company specifications should not only be the responsibility

of senior management and quality control managers, but also of all members of the company. This will give everyone a sense of responsibility in achieving the quality goals of the organization. Quality is not controlled in the products, but was engineered into them. Therefore, the company must identify errors and correct them at the source where the product is manufactured.

#### 3. Conclusion

The implementation of total quality management facilitates leadership by providing the necessary resources to meet new requirements arising from quality management systems, provided that there is a working environment conducive to employee involvement. in the quality management process. It also influenced the decision to select qualified suppliers and certify suppliers for quality materials, create strategies, plans and systems to achieve superior quality. Quality in the facility and which has inspired staff and management in the effective and efficient use of facility resources and efforts towards quality excellence. Finally the researcher

reveals that the quality regulator system is most essential tool for a success of business, here the applicant of quality regulating techniques which help to ensure that the manufacturing company give a high quality of products for customer satisfaction, it will automatically pave the way for success of an organization. Like all other things, the benefit of quality control and its techniques can only be assured by the effective and efficient application of these techniques.

#### 4. Reference

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