



## A STUDY ON QUALITY CONTROL AND ASSURANCE IN MANUFACTURING COMPANIES

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### ABSTRACT:

*The significance of quality assurance and control is emphasized in this abstract in some of the different industries, including manufacturing, healthcare, information technology, and services. It draws attention to how diverse these fields are and how they can foster both client loyalty and company effectiveness. Adopting quality assurance and control is still essential for attaining sustainable growth and success as industries change. In a time of intense international rivalry and quick technical development, businesses who put a high priority on quality assurance and control have an advantage. Businesses may fulfil present market demands and adjust to evolving client wants by investing in strong quality management systems. Adopting quality control and assurance principles also promotes an organizational culture of transparency, accountability, and ongoing development.*

**Keywords:** Quality control, Quality assurance, Quality standards, Customer satisfaction

## 1. INTRODUCTION:

Quality control involves the systematic identification and correction of defects or discrepancies in products, services, or processes. It encompasses activities such as inspection, testing, and monitoring to detect and rectify issues, preventing outcomes and ensuring that deliverables align with predefined specifications. By implementing effective quality control measures, organizations can reduce costs, minimize waste, and enhance overall operational efficiency.

Quality assurance, However, there is a proactive approach focused on the establishment of rigorous standards and procedures to prevent defects from occurring in the beginning. It

involves comprehensive planning, systematic implementation, and continuous evaluation of processes to maintain high degree of quality. Quality assurance encourages a culture of continuous improvement, risk management, and compliance with industry regulations and standards. A company's quality control system needs to have both quality control (QC) and quality assurance (QA), which work in tandem to guarantee that goods and services continuously meet or surpass consumer expectations and legal requirements. Whereas quality assurance creates proactive steps to sustain and raise the Caliber of a product or service over time, quality control reacts to issues as they arise. Quality assurance, on the other hand, sets proactive steps to sustain and raise the Caliber of goods and services over time.

## 2. LITERATURE REVIEW

According to Pusiak, R. J., Cox, C., & Harris, C. S. (2021) QC/QA standards are a crucial component of product safety that may help customers make educated decisions and give them the knowledge they need about diverse cannabis products. QC/QA measures are important to ensuring that Canada accomplishes its goal of supplying Canadians with a safe supply of cannabis as it continues to advance its cannabis policy.

The research paper by Ward et al (2020) highlights on resins and commercialized links that there have utilized, as well as other things for the tickets for the cities of London and Paris' underground transportation systems. We also show that evaporation rate transients the capacity to detect erroneous solvent usage, making is it feasible to employ this measurement to lessen the results of human factors on the link manufacturing process.

Romero et al (2019) conducted an exploratory to study the process of appraisal methods is followed on product quality before outlining its main characteristics and supporting characteristics. Second, we survey critical elements affecting design environments that rely on crowd sourcing, conventional design environments, quality assurance guidelines, and distinct methods to and philosophies of quality control. Third, the issues regarding the quality of product design are compared in traditional and crowd sourcing-based design environments, with special attention paid to the numerous factors influencing the standard of product design activity.

## 3. OBJECTIVE OF THE STUDY

- To study employee perceptions about quality control
- To identify the level of satisfaction of quality control assurance process at Yuken India Limited
- To study the areas of focus in quality control improvement

## 4. HYPOTHESES

**H<sub>01</sub>:** There is no significant difference between age and value product qualities

**H<sub>02</sub>:** There is no significant difference between gender and quality standards in the manufacturing

**H<sub>03</sub>:** There is no significant difference between focused area of improvement in the quality control assurance and continuous improvement culture regarding quality control assurance.

## 5. METHODOLOGY

This research uses descriptive research design. The sampling unit of this study consists of workers from different departments engaged in manufacturing, quality control, and assurance in addition customers who have experienced product quality issues. The study aims to collect responses from approximately 100 workers and clients from different departments engaged in through surveys. The selection technique hired for this study will be convenient sampling using a structured questionnaire. Workers and clients will be selected considering their relevance to the research objectives and their availability to participate while studying.

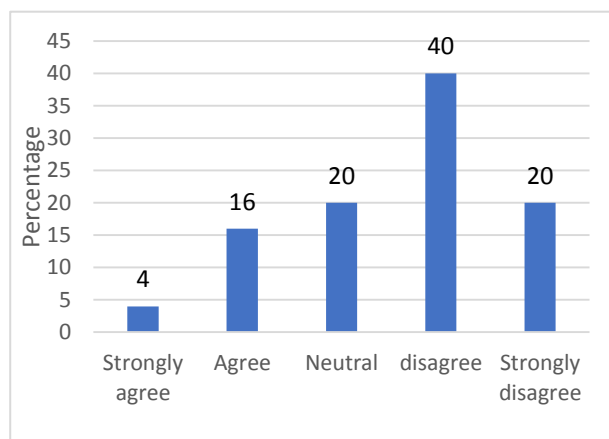
## 6. RESULT ANALYSIS AND DISCUSSION

**Objective 1:** To study the perception of employees towards quality control.

**Table 6.1**  
**Perception of Employees**

Response	Frequency	Percent
Strongly agree	4	4
Agree	16	16
Neutral	20	20
Disagree	40	40
Strongly disagree	20	20
Total	100	100

**Graph 6.1**  
**Perception of Employees**



From the table above, it is evident that 40% of respondents agree and 20% strongly agree that Yuken India Limited prioritizes and values product quality. While conversely, 16% disagree and 4% strongly disagree with this statement. Additionally, 20% of respondents remain neutral regarding the company's commitment to product quality.

**H<sub>01</sub>:** There is no significant difference between age and value product qualities.

**Table 6.2 ANOVA Output**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	105.440	4	26.360	164.750	<.001
Within Groups	15.200	95	.160		
Total	120.640	99			

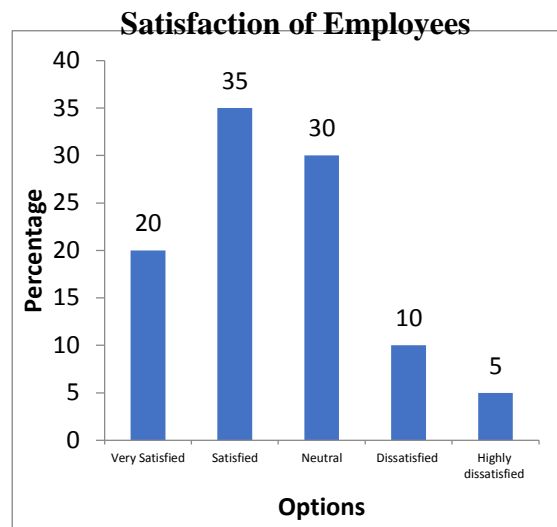
The above table demonstrate null hypothesis rejected as p value less than 0.05 and alternative hypothesis is accepted. Hence there is a significant association between experience and quality of control.

**Objective 2:** To identify the level of satisfaction of quality control assurance process at Yuken India limited

**Table 6.3: Satisfaction of Employees**

Response	Frequency	Percent
Very Satisfied	20	20
Satisfied	35	35
Neutral	30	30
Dissatisfied	10	10
Highly dissatisfied	5	5
Total	100	100

**Graph 6.2 Satisfaction of Employees**



From the table above, it can be inferred that most of the respondents are satisfied with the quality control and assurance processes at Yuken India Limited, with 35% indicating they are satisfied and 20% being very satisfied. A considerable proportion, 30%, remained neutral, while a small percentage expressed dissatisfaction (10% dissatisfied and 5% very dissatisfied).

**H<sub>02</sub>:** There is no significant difference between gender and quality standards in the manufacturing.

**Table 6.4 T -test output**

		F	Sig.	t	df	Significance		Mean Difference	Std. Error Diff
						One-Sided p	Two-Sided p		
Gender	Equal variances assumed	3.429	0.067	12.231	98	<0.01	0.000	1.667	0.136

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	Equal varia nces not assu med			12.458	85.542	<0.01	0.000	1.667	0.134
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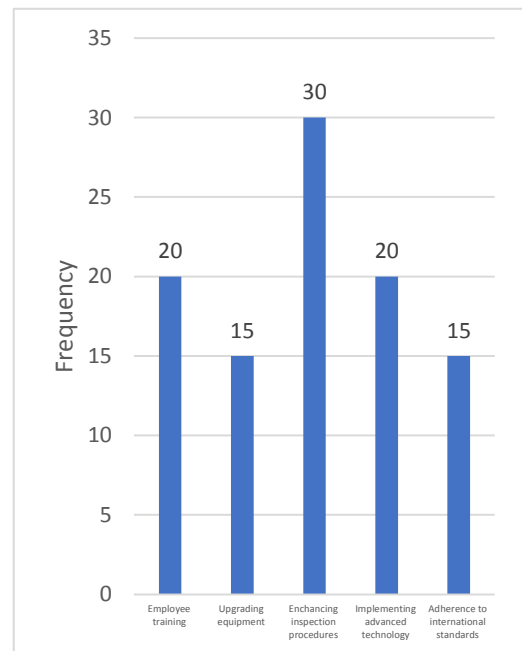
The table above shows that the alternative hypothesis (H1) is rejected and the null hypothesis (H0) is accepted when the P value is greater than 0.05. Thus, according to their null hypothesis (H0), there is no meaningful correlation.

**Objective 3:** To study the areas of focus in quality control improvement

**Table 6.4**  
**Area of focus in quality control**

Response	Frequency	Percent
Employee training	20	20
Upgrading equipment	15	15
Enhancing inspection procedures	30	30
Implementing advanced technology	20	20
Adherence to international standards	15	15
Total	100	100

**Graph 6.3**  
**Area of focus in quality control**



From the table above, most respondents (30%) see the enhancement of inspection procedures being the most essential place for development in quality control and assurance processes at Yuken India Limited. This is followed by both employee training and implementing advanced technology, each with 20% of respondents favouring them. Upgrading equipment and adherence to international standards received the lowest priority, with each gaining the support of 15% of respondents.

**H<sub>03</sub>:** There is no significant difference between focused area of improvement in the quality control assurance and continuous improvement culture regarding quality control assurance.

**Table 6.5 Correlation output**

		Improvement in our quality control and assurance processes	Continuous improvement culture regarding quality control and assurance.
Improvement in our quality control and assurance processes	Pearson Correlation	1	.927**
	Sig. (2-tailed)		<.001
	N	100	100
Continuous improvement culture regarding quality control and assurance.	Pearson Correlation	.927**	1
	Sig. (2-tailed)	<.001	
	N	100	100
**. Correlation is significant at the 0.01 level (2-tailed).			

The table above shows that the alternative hypothesis is accepted and the null hypothesis is rejected because the P value is less than 0.05. As a result, their null hypothesis (H<sub>0</sub>) was rejected, and the quality of control has a high correlation.

## 7. CONCLUSION

In conclusion, the findings suggest that while Yuken India Limited has a generally positive perception of quality control and assurance, there is opportunity for development to improve the further company's commitment to product quality. Most respondents agreed or strongly agreed that the quality control measures at Yuken India Limited are effective, indicating a level of confidence in the existing processes. But there are places that require attention and development.

A significant area for development is enhancing inspection procedures. Investing in advanced inspection techniques and equipment can help ensure thorough and efficient quality checks at different stages of the manufacturing process. This will enable the early identification and rectification of defects, reducing the likelihood of substandard products reaching the market. Employee training is crucial to implementing effective quality control procedures. Providing comprehensive training programs can equip employees with the necessary technical skills and a strong understanding of the importance of quality in order to achieve consistent results. This will empower them to actively participate in maintaining and improving product quality.

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