

EFFECT OF TOTAL QUALITY MANAGEMENT AND CUSTOMER SATISFACTION ON PROJECT MANAGEMENT: A CASE OF NAKURU WATER SEWERAGE AND SANITATION SERVICE COMPANY-NAWASSCO

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Abstract: The purpose of the study was to investigate on the effects of total quality management on customer satisfaction; a case study of Nakuru water sewerage and sanitation company limited (NAWASSCO) situated in Nakuru county in Nakuru town. The background of the study outlined the evolvement of TQM and how different TQM Gurus viewed quality and gives different definitions of quality by these Gurus. It goes further to explain the demand by customer for superior quality of products and services and the global market becoming competitive. Statement of the problem outlined the justification of carrying out the study. The specific objectives of the study were; to find out effect of supplier evaluation processes on customer satisfaction, to examine the impacts of inspection of receivables on customer satisfaction, to find the effect of quality assurance practices on customer satisfaction and to find out the effect of continuous improvement on customer satisfaction. Objectives of the study showed how the factors outlined by the researcher have an effect on total quality management for customer satisfaction; research questions of the study seek to find out how the factors outlined by the researcher affect total quality management on customer satisfaction, limitations of the study showed the problems that limited the study. The scope of the study outlined what the research covered and what the study was all about. The study outlined details of literature review, theories of what scholars have said on TQM; the study also outlined details of critical review and gaps to be filled where the literature review is criticized; and a conceptual frame work that showed the relationship between independent variables and dependent variable. The researcher used descriptive research design for the study design; used questionnaires to collect primary data. The researcher outlined details of data analysis methods. Primary data was collected using questionnaires and presented using bar graphs, tables and pie charts, a summary of data analysis was given. A summary of the finding according to key research questions was given in chapter five; the researcher concluded that supplier evaluation, inspection of receivables, quality assurance and continuous improvement affected greatly the end result of the products and services hence having an effect on customer satisfaction; and recommended ways that would improve the quality of products and services for customer satisfaction; the researcher gave suggestions for further studies and finally gave all the references used in the study.

Keywords: Nakuru water sewerage and sanitation company limited, customer satisfaction, TQM.

1. INTRODUCTION

Background of the Study:

Many organization faces myriad challenges in attracting and retaining of customers, this is so because many customers due to their increase awareness and demand of superior quality tend not to tolerate any decrease in quality of the product they procure hence shifting to suppliers who goods will meet the expected need of the customer. Due to the increase in

technological advancement in methods of producing goods and services there has been an increase in competition among organizations. These create a need for organization to adopt TQM in order to ensure that the goods and services they procure are of the right quality. Thus satisfying the customer needs, (Singh, 2006). Quality management has a specific meaning within many business sectors. This specific definition, which does not aim to assure 'good quality' by the more general definition, but rather to ensure that an organization or product is consistent, can be considered to have four main components: quality planning, quality control, quality assurance and quality improvement. Quality management is focused not only on product or service quality, but also the means to achieve it. Quality management therefore uses quality assurance and control of processes as well as products to achieve more consistent quality, (Mady, 2008).

Total quality management is a management system for a customer focused organization that involves all employees in continual improvement of all aspects of the organization. TQM uses strategy, data and effective communication to integrate the quality principles into the culture and activities of the organization. There are many definitions of the word quality According to ISO 8402 which defines the fundamental terms relating to quality concept – “quality is the totality of features and characteristics of the product that bears on the ability to satisfy the stated or implied needs” That’s the ability of the product to meet the need of the customer so as to create customer satisfaction, (Gummesson, 2002). Westbrook & Reilly (2009), defined customer satisfaction as an emotional response to the experiences provide by and associated with particular product as or service purchased, retail outlets or even modular patterns of behavior such as shopping and buyer behavior. Features and characteristics of products imply the ability to identify what quality aspect can be measured or controlled or consolidate an acceptable level. The ability to satisfy a given needs relate to the value of the product or service to the customers including economic value as well as safety reliability, maintainability and other relevant fitness.

Profile of Nakuru Water Sewerage and Sanitation Company (NAWASSCO):

Nawassco is a corporate entity that was incorporated in September 2003 under the companies Act CAP 486 of the laws of Kenya. The company is located in Nakuru county about 160 km southwest to the capital city of Nairobi in Nakuru town, (Gordon 2008). The company deals with the provision of water and sewerage services to the residents of Nakuru town and its environment Nawassco has three major departments that is the technical, commercial and financial department. The mission of the company is to provide Quality, Reliable, Adequate, Sustainable Water and Sanitation services to the delight of the customers. The organization uses mostly open tendering method and request for quotation methods of procurement, (Nwabueze, 2001). When arranging for all its procurement activities. Thus due to this the organization should consider implementing TQM principles as this will help to ensure that the quality of goods they procure are of the right quality.

Statement of the Problem:

Recently due to the growth of technological advancement in methods of producing goods and services, there have been an increase in level of competition among business organizations, Therefore posing a need for business organizations to adopt TQM in order to ensure the quality of the products they purchase are of superior quality and they provide value for their money. TQM implementation in this company has provided numerous benefits in this organization which are; to generate improved product and services, more satisfied customers and employees, reduced cost, improved financial performance, improved competitive advantage and increased productivity, (ZU 2009; Kaynack 2003; Deming 2008).

This study focuses on effects of TQM on customer satisfaction in NAWASSCO. NAWASSCO has established TQM mechanisms to ensure that the goods and services that they procure are of the right quality and thus ensuring that there needs are satisfied. Despite the fact there are numerous benefits associated with TQM implementation, there have been numerous circumstances where the user department express dissatisfaction that the goods being procured have failed to meet the standard they require. This was found to be attributed by laxity on the part of employees on the process of continuous improvement, lack of supplier evaluation (assessment) Failure of the organization to inspect the receivables after receiving them and lack of knowledge on quality assurance on the part of employee. These led to poor quality goods which failed to meet customer satisfaction.

None of these studies have evaluated Total quality management on customer satisfaction in the context of NAWASSCO. Thus this study seeks to investigate the existing quality control mechanism at NAWASSCO with the aim of determining its effectiveness and uncovering its shortfall in ensuring customer satisfaction.

2. LITERATURE REVIEW

Deming's Theory:

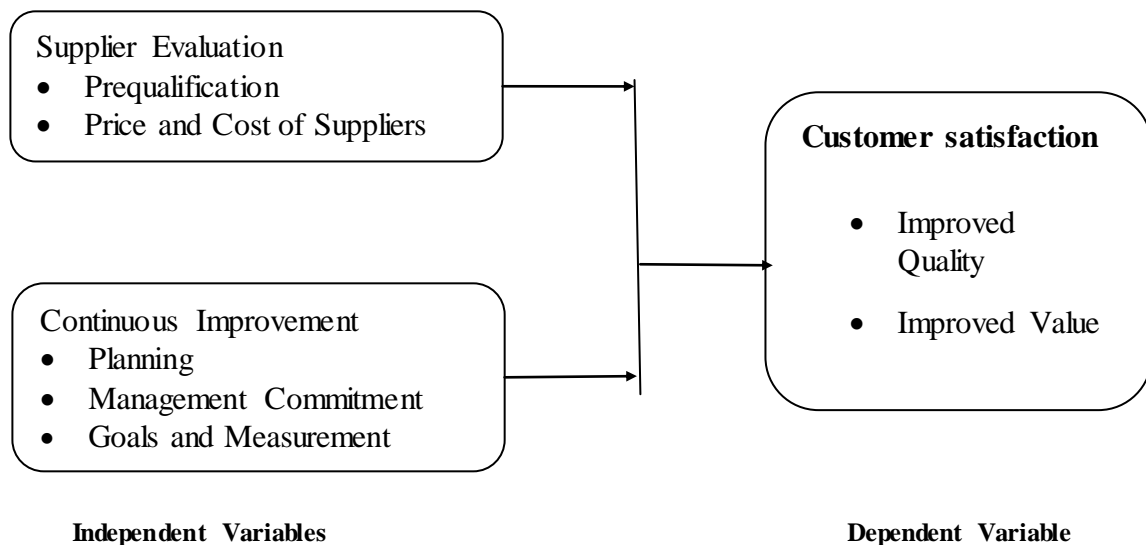
Deming's theory of TQM rests upon fourteen points of management he identified, the system of profound knowledge, and the shewart cycle (Plan-Do-Check-Act) PDCA. He is known for his ratio-Quality is equal to the results of work efforts over the total cost. If a company is to focus on cost, the problem is that cost will rise while Quality deteriorates (Deming 2008). Deming system of profound knowledge consists of the following points, System appreciation- this is an understanding of the way that the company's processes and system works, Variation knowledge- this is an understanding of the variation occurring and the causes of the variation. Knowledge theory this entail the understanding of what can be known, psychology knowledge-this is an understanding of human nature. By being aware of the different types of knowledge associated with organization, then quality can be broached as a topic.

Crosby's Theory:

Philips is another person credited with starting the TQM movement. In his theory he made the point much like Deming's, that if you spend money on quality, it is money that is well spent. Crosby based on four absolutes of quality management and his own lists of fourteen steps to quality improvement. Crosby four absolutes are: we define quality as adherence to requirements prevention is the best way to ensure quality Zero defects (mistakes) is the performance standard for quality. Quality is measured by the price of non-conformity. The fourteen steps to continuous improvement as indicated by Crosby are: Attain total commitment from management Form a quality improvement team. Create metrics for each quality improvement activity. Determine cost of quality and show how improvements will contribute to gains. Train supervisors' appropriately encourage employees to keep fixing defects and keeping issues logs.

Conceptual Framework:

Conceptual framework is used to make conceptual distinctions and organize ideas. It gives a depiction on how the variables are related to one another.



Research Gap:

Customer satisfaction is considered to be the key success factor for every profit oriented organizations as it affects company's market share and customer retention in addition satisfied customers tend to be less by competitors, less price sensitive, and stay loyal longer (Oakland, 1986). Despite of the many benefits that accrue from instituting and implementing TQM in order to achieve customer satisfaction, there are other many factors which are presumed necessary in ensuring customer satisfaction were; Establishing and maintain contacts with customers, Focus on and analyze process for successful customer orientation, Promote a cultural empowerment, leadership and customer care, Develop a commitment of trust, confidence and commitment to customers. Develop the product or service system to meet customer's needs, provide education and training to the employees and honor the promises made to the customers, encouraging face to face approach with customers, responds to message promptly and keep the clients informed. Also the study identify the gap that future researcher should study to identify the challenges encountered in its implementation. Therefore this study shows some other gaps that ought to be filled so as to ensure maximum customer satisfaction.

3. DATA ANALYSIS AND DISCUSSION OF FINDINGS

Response Rate:

A total of 90 questionnaires were distributed out of which 81 questionnaires were returned giving a response rate of 77%. This response was considerable and representative of the population. This response was good enough and representative of the population and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 70% and above is excellent.

Table: Response Rate

No of Questionnaire	Frequency	Percentage
Issued	90	100%
Returned	81	90%
Not returned	9	10%

Effects of Supplier Evaluation:

The researcher observed 11.1% of the respondent strongly agreed that supplier evaluation has the effect of reducing cost, 39.5% of the respondent which were majority said they agreed that supplier evaluation reduced cost, 37% of the respondent were neutral, 9.9% of the respondent said they disagree while 2.4% strongly disagreed on supplier evaluation reducing cost.

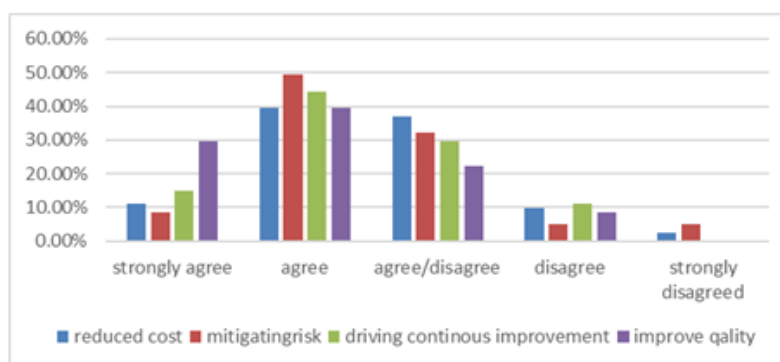
On mitigating risk, the researcher observed that 8.6% of the respondent strongly agreed on it, 49.3% of the respondent agreed, which were the majority, 32.1% of the respondent were neutral on this, 4.9% of the respondent disagree while another 4.9% also strongly disagreed, this indicates that majority of the respondent believed that supplier evaluation has an effect on mitigating risk.

On driving for continuous improvement 14.8% of the respondent strongly agreed on this, improvement, 44.4% of the respondent agreed that supplier evaluation leads to driving for continuous 29.6% were neutral on this, 11.1% of the respondent disagreed on this effect of supplier evaluation while there were no respondent who strongly disagreed. This indicates that majority of the respondent agreed on this effect of supplier evaluation.

On improving quality 29.6% of the respondent strongly agreed on this, 39.6% of the respondent agreed on this, 22.2% of the respondent were neutral on this, 8.6% Of the respondent disagreed, while there were no respondent who strongly disagreed on this impact of supplier evaluation. This indicates that most of the employees agreed that supplier evaluation has the impact of improving quality.

Effects of Supplier's Evaluation:

Effect	Strongly agree	Agree	Disagree/agree	Disagree	Strongly disagree	Total
Reduced cost	9 (11.1%)	32 (39.5%)	30 (37%)	8 (9.9%)	2 (2.4%)	81 (100%)
Mitigating risk	7 (8.6%)	40 (49.3%)	26 (32.1%)	4 (4.9%)	4 (4.9%)	81 (100%)
Driving continuous improvement	12 (14.8%)	36 (44.4%)	24 (29.6%)	9 (11.1%)	0	81 (100%)
Improve quality	24 (29.6%)	32 (39.6%)	18 (22.2%)	7 (8.6%)	0	81 (100%)



Effects of Supplier's Evaluation

Effects of Inspecting Receivables :

The researcher observed that: on the effect of inspecting receivables on reduction of errors and enhancement of quality, 22.2% of the respondent strongly agreed on this, 51.9% which was the majority said they agreed on this, 14.8% of the respondent were neutral on this, 9.9% disagreed on this while 1.2% of the respondent strongly disagreed. This indicates that majority of the employees agreed that inspecting the receivables had the effect of reducing errors and enhancing quality.

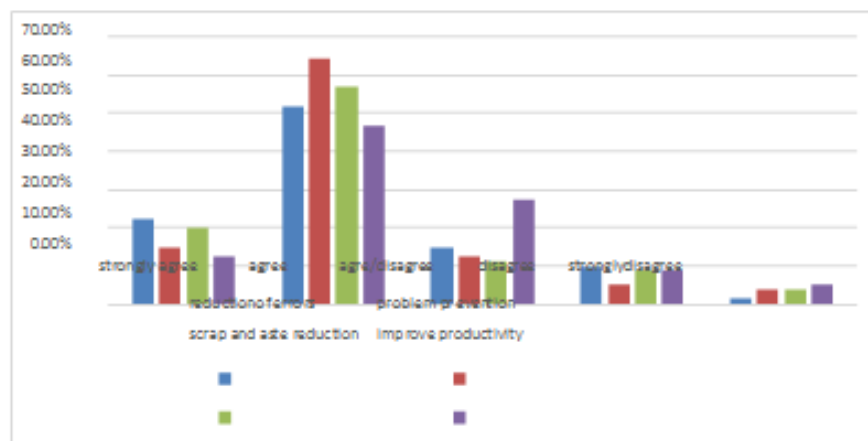
On the effect of problem prevention, 14.8% strongly agreed on this, 64.2% of the respondents which were majority agreed on this, 12.3% of the respondent were indifferent on this, 4.9% of the respondents disagreed on this while 3.7% strongly disagreed on this effect. This was an indication that most respondent agreed that inspecting the receivables had an effect of preventing the problem.

On the effect of scrap and waste reduction, 19.8% strongly agreed on this, 56.9% of the respondent agreed on this effect, 11.1% of the respondent were neutral on this effect, 8.6% disagreed on this while 3.7% of the respondent strongly disagreed. This indicates that majority of the respondents agreed on this effect.

On the effect of improve productivity, 12.3% of the respondent strongly agreed on this effect, 46.9% of the respondent agreed on this effect, 27.2% of the respondent were neutral on this effect, 8.6% Of the respondent disagreed on this effect while 4.9% of the respondent strongly disagreed on this effect. This indicated that most employees agreed on this impact of inspecting the receivables.

Table: Effects of Inspection Receivables

Effect	Strongly agree	Agree	Agree/disagree	disagree	Strongly disagree	Total
Reduction of errors and enhancement of quality	18 (22.2%)	42 (51.9%)	12 (14.8%)	8 (9.9%)	1 (1.2%)	81 (100%)
problem prevention rather than detection	12 (14.8%)	52 (64.2%)	10 (12.3%)	4 (4.9%)	3 (3.7%)	81 (100%)
Scrap and waste reduction	16 (19.8%)	46 (56.9%)	9 (11.1%)	7 (8.6%)	3 (3.7%)	81 (100%)
Improve productivity	10 (12.3%)	38 (46.9%)	22 (27.2%)	7 (8.6%)	4 (4.9%)	81 (100%)



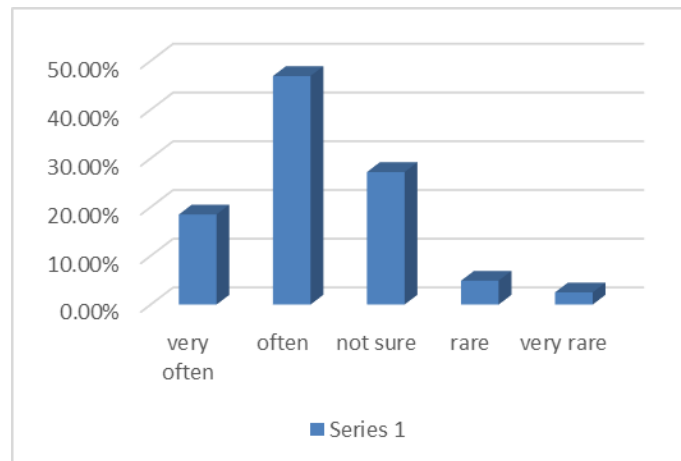
Effects of Inspecting Receivables

Extent to which Continuous Improvement affects Customer Satisfaction

The researcher observed that 18.5% of the respondent said that continuous improvement affect customer satisfaction to a very high extent, 46.9% said that it affects customer satisfaction to a high extent, 27.2% of the respondent said that It effect on a moderate extent, 4.9% said that it affects to a low extent while 2.5% of the respondent said that it affects on a very low extent. This shows that continuous improvement affects customer satisfaction.

Table : Extent to which Continuous Improvement affects Customer Satisfaction

Extent	Frequency	Percentage
Very high	15	18.5%
High	38	46.9%
Moderate	22	27.2%
Low	4	4.9%
Very low	2	2.5%
Total	81	100



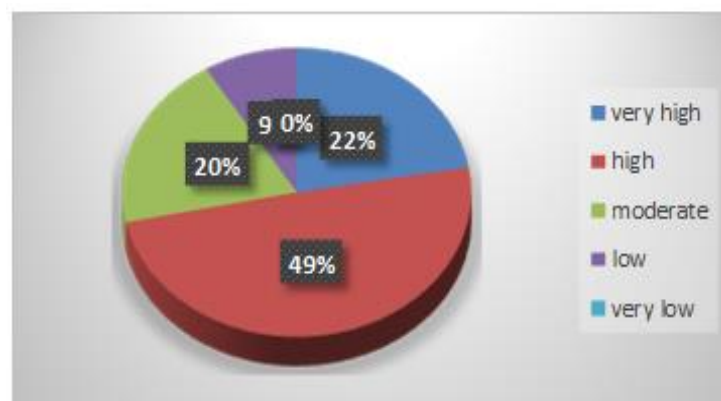
Extent to which Continuous Improvement affects Customer Satisfaction:

Efficiency of Continuous Improvement in Ensuring Customer Satisfaction:

The researcher observe that 22.2% of the respondent said the efficiency of continuous improvement is very high,49.4% said that its efficiency is high, 19.6% of the respondent rated the efficiency of continuous improvement as average,8.7% said that its efficiency is low, while there were no response on those that rate it as very low. This shows that the efficiency of continuous improvement is high.

Table: Efficiency of Continuous Improvement on Customer’s Satisfaction

Rate	Frequency	Percentage
Very high	18	22.2%
High	40	49.4%
Average	16	19.6%
Low	8	8.7%
Very low	0	0
Total	81	100%



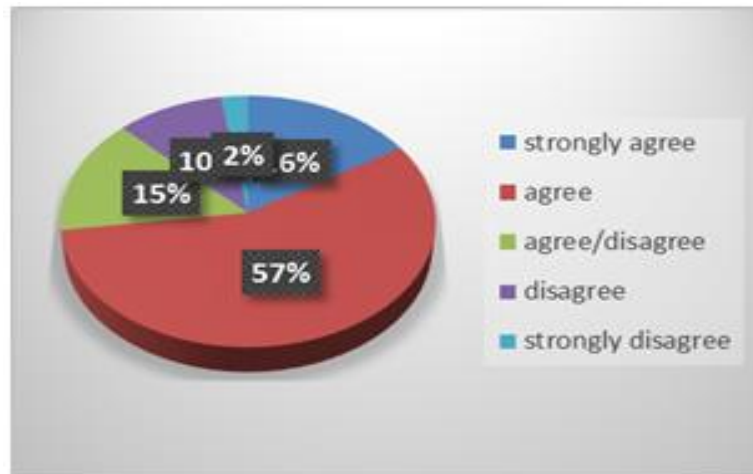
Efficiency of Continuous Improvement on Customer’s Satisfaction:

Employees Possess Experience on Continuous Improvement:

The researcher observe that 16% of the respondent strongly agreed that employees possess experience on continuous improvement, 56.8% of the respondent agreed that employees possess experience on continuous improvement, 14.8% said were not sure ,9.9% disagreed while 2.5% strongly disagreed employees possesses experience on continuous improvement. This shows that most employees possess experience on continuous improvement.

Table: Employees Possess Experience on Continuous Improvement

	Frequency	Percentage
Strongly agree	13	16%
Agree	46	56.8%
Not sure	12	14.8%
Disagree	8	9.9%
Strongly disagree	2	2.5%
Total	81	100



Employees Possess Experience on Continuous Improvement:

Challenges Encountered in Trying to Ensure Quality of Products and Services:

The researcher observed that on the challenge of non-response from user department, 34.6% of the respondent strongly agreed that this challenge affects quality of goods and services being procured 4.4% said that they agree to this challenge 9.9% were neutral on this challenge,6.2% said they disagreed on this challenge while 4.9% of the respondent strongly disagreed on this challenge. This shows that most employees agreed that non response from user department affects quality of goods or services being procured by the organization.

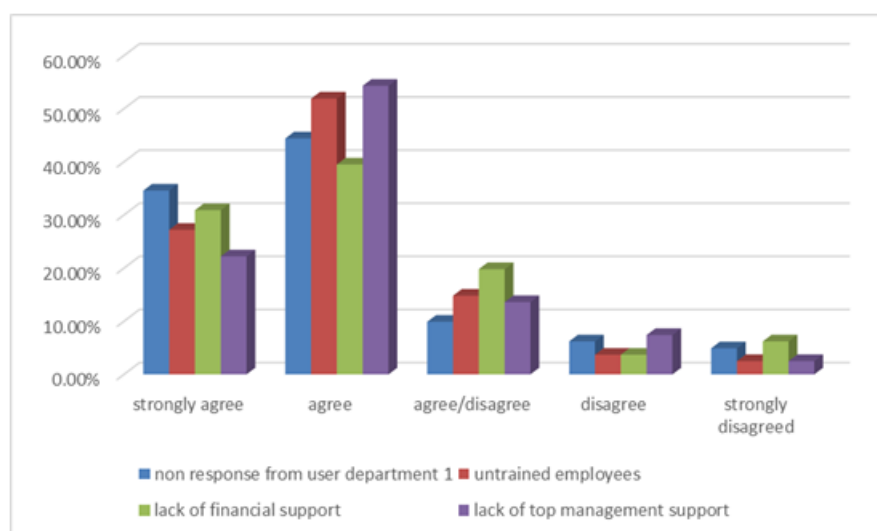
On the challenge of untrained personnel, the researcher found out that 27.2% strongly agreed to this challenge 51.9% agreed on this challenge 14.8% of the respondent were neutral on this challenge 3.7% said they disagreed on this challenge while 2.5% of the respondent they strongly disagreed on this challenge. This shows that most respondent agreed that untrained personnel affects quality of goods and services being procured

On the challenge of lack of financial support, the researcher found that 30.9% of the respondent strongly agreed to this 39.5% said they agreed on this challenge 19.8% of the respondents said they were neutral on this challenge 3.7% said they disagreed on this challenge while 6.2% said they strongly disagreed on this challenge. This shows that most of the respondents agreed on this challenge.

On the challenge of lack of top management support, the researcher found that 22.2% of the respondent strongly agreed to this 54.3% said they agreed on this challenge 13.6% of the respondents said they were neutral on this challenge,7.4% said they disagreed on this challenge while 2.5% said they strongly disagreed on this challenge. This shows that most of the respondents agreed on this challenge of lack of top management support.

Table: Challenges Encountered in Trying to Ensure Quality of Products and Services being procured.

Challenge	Strongly agreed	agreed	Agree/disagree	Disagree	Strongly disagree	Total
Non response from user department	28 (34.6%)	36 (44.4%)	8 (9.9%)	5 (6.2%)	4 (4.9%)	81 (100%)
Untrained personnel	22 (27.2%)	42 (51.9%)	12 (14.8%)	3 (3.7%)	2 (2.5%)	81 (100%)
Lack of financial support	25 (30.9%)	32 (39.5%)	16 (19.8%)	3 (3.7%)	5 (6.2%)	81 (100%)
Lack of support from top management	18 (22.2%)	44 (54.3%)	11 (13.6%)	6 (7.4%)	2 (2.5%)	81 (100%)



Challenges Encountered in trying to Ensure Quality of Products and Services being procured:

4. SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of the Major Findings:

The following observation were observed from data analysis

The research was successful since there was a respond rate of 90% from the questionnaires that were issued that is total number of questionnaires issued were 90 but 81 of them were returned fully filled. There was an element of gender disparity in the organization. The organization was largely dominated with male population with a percentage of 72% while the female were 28%.

In regard to academic qualifications, the researcher observed that 3.7% of the respondent had KCPE qualifications, 13.6% of the respondent had KSCE qualifications, 39.5% had qualifications of up to diploma level, and 34.6% of the respondent had acquired the undergraduate degree while 8.6% had acquired post graduate degree. This therefore indicates that the employees of Nawassco possesses the qualification necessary of implementing TQM to ensure customer satisfaction.

The researcher observed that 10% of the respondent had worked in the organization for less than 5 years.26% of the respondent had been in the organization for between 6-10 years, those who had been working in the organization for a period of between 10-15 years were 34.6% and those respondent who had been working in the organization for more than 16years were 29.4% this was therefore an indication that most employees had the job experience that they can apply in implementing TQM so as to ensure customer satisfaction.

From the research, 37% of the respondent agreed that the organization is committed to customer satisfaction, 33% of the respondent said that the organization commitment to customer satisfaction is moderate, while 10% of the respondent strongly agreed that that the organization is committed to ensuring customer satisfaction, 15% believed that organization commitment to customer satisfaction is low, while 5% were of the view that commitment to customer satisfaction was very low. This indicates that the employees believed that the organization is committed to ensuring customer satisfaction.

To what extent does Supplier Evaluation affects Customer Satisfaction?

Supplier evaluation is a term used in business and refers to the process of evaluating and approving potential suppliers by quantitative assessment. (Sherry Gordon 2008) The purpose of supplier evaluation is to ensure a portfolio of best in class suppliers is available for use. From the analysis of the data, the researcher observed in table 4.7 that majority of the respondent with a percentage of 39.5% said that supplier evaluation affects customer satisfaction in a high extent. Thus this shows that the organization need to properly evaluate the supplier as this will help in ensuring quality of goods being procured thus leading to customer satisfaction.

How does Continuous Improvement affect Customer Satisfaction?

As continuous improvement is an ongoing effort to improve products, services or processes, it ensures that customers are satisfied with the products and services since there will be elimination of defects, reducing variation and cycle times. By implementing the plan-do-check-act (PDCA) cycle, the customers can be contended with the quality of the goods and services. From the data analysis in table 4.15 the research observed that continuous improvement affects customer satisfaction in a high extent with a percentage of 46.9% this indicates that this procedure affects customer satisfaction thus need to be adequately applied in the organization so as to ensure customer satisfaction.

Conclusion:

After analyzing and summarizing data collected during the research the researcher made the following conclusion: TQM can be a powerful vehicle by which companies can achieve excellence in business performance. However, despite the fact that many companies adopt an archetypical TQM framework and its key principles, some of them have not been achieving TQM's potential benefits and have begun to abandon its practices. The TQM framework and key principles should not be blamed for its failure. It is the lack of understanding of what TQM means for each unique organization and how to implement it effectively that has created skepticism on the effectiveness of TQM. In this paper, we have examined several critical issues and provided lessons that may improve the possibility for successful implementation of TQM.

Most of the respondents agreed total quality management has an effect on customer satisfaction. Supplier evaluation, inspection of receivables, quality assurance and continuous improvement are some of key processes an organization should put in place when thinking about total quality management and in order to deliver good customer satisfaction since their products and services they procure will be of high quality. This also bring about competition to other organizations, so every organization should strive to maintain quality products and services for its survival. The success of TQM depends on many variables, controllable and uncontrollable, many of which are specific to the company's culture, customers, capability, and infrastructure. Therefore, each company should tailor its approach to exploit its unique strengths and focus on its particular weaknesses.

Recommendations

From the findings this research recommends that,

Supplier Evaluation:

In order to deliver good customer satisfaction, TQM practices must be considered greatly and taken seriously by top management and all the employees in an organization. There should be financial support on the TQM processes since it will help eliminate waste or reduce waste at all levels possible.

Continuous Improvement:

The study recommends that the company should conducts self-assessment and bench-marking using measures that can provide feedback on whether it is moving to a safer culture. This includes the speed of throughput and the ability of the management to respond promptly to customer quality management requests, with minimal waiting and queuing time

Suggestions for Further Studies:

The researcher suggests that studies be done on challenges faced when implementing TQM practices. In addition research should also be done on how total quality is achieved. That will help to identify how total quality of products or services being procured are achieved

The researcher recommends on further study to be done that on other factors that will seek to ensure customer satisfaction

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