

## Total Quality Management in the Energy Sector in Ghana

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### Abstract

*This research seeks to address the impact of Total Quality Management on customer satisfaction with particular reference to Electricity Company of Ghana limited. The study aims to identify the impact of Total Quality Management (TQM) on customer satisfaction in both the public and the private sectors. The intention of management is also drawn on the essence of developing effective procedures in order to suit the ever rising customer's demands of services. The research led to a number of findings of which certain conclusion and recommendations were made. Until the introduction of total quality management (TQM) concept in Electricity Company of Ghana (ECG) there has been several problems like faults not properly attended to, incorrect billings, unannounced power outages, unannounced disconnections were very rampant. Bills paid by customers were not reflecting on their bill sheet early or not at all. The planned load schedules were not adequately and timely published. Most of the customers who attempted to get faults rectified have unpleasant stories to tell not mention illegal connection. Not to mention this few problems, facilities were not enough to meet the ever rising demand for electricity consumption. These problems continuous to increase resulting in heavy losses to the company. The study was conduct to achieve the following objectives. To ascertain whether the new management principle is in full and effective application in the company. To ensure the degree of awareness and understanding among customers and employees of the company about Total Quality Management Programme. Investigate what account for customer's complaint about the introduction of the new management programme. Offer useful recommendations to some identified problems in the light of the findings, which might contribute to the achievement of customer's satisfaction.*

**Keywords:** Total Quality Management, TQM in Energy Sector, Management on TQM

### I. INTRODUCTION

For an organization to survive, grow, be profitable, offer employment to others and be perceived well in perspective fields there is the need to adopt a policy and practice of meeting the needs of their customers and achieving customers and achieving a continuous improvement. Here quality as a determining by the customer is a major strategic issue. Commitment to quality is essential if companies are to succeed in a commercial environment which will be virtually unrecognizable in less than a decade. Changing attitudes, changing perspectives and changing priorities will revolutionize the structure and philosophy of future business practice and total quality management will be at the heart of metamorphosis. Understanding thoroughly the principles underpinning such a radical concept is vital. Companies are already failing with their total quality management programmes because they have adopted them too hastily, without examining the fundamental changes in corporate attitudes necessary for success. Total quality management has the power to bring positive change and progression but only if you know how. From the 1980s total quality management was adopted by a number of organizations. Total quality management requires the whole of the organization to adopt the culture of quality. In a total quality management organization quality will dictate the decisions, tasks, and processes. A total quality management organization is committed at all levels within every department or function to continuously improve quality. In order to fulfill this commitment every single employee in the organization will need to accept the change of continual quality improvement. According to Lyson and Farrington in their book "procurement principles and management" defines Total Quality Management as a comprehensive and structured approach to organizational management that seeks to improve the quality of products and services through ongoing refinements in response to continuous feedback. According to Lyson and Farrington despite quality management long history, there are still organizations in which total quality management is regarded as a routine clerical functions or services function concerned mainly with spending public fund.

Total quality management as a term has several definitions. In general total quality management is expressed in term of way of life for organizations as a whole committed to total customer satisfaction through a continuous process of improvement, and the contribution and involvement of people. This top management driven philosophy is conceded as a way of organizational life. In a sense, total quality management as a terminology of chartered institute of management and accounting (CIMA) is viewed as the continuous improvement of quality, productive and

effectiveness obtained by establishing management responsibility for process as well as output. In this, every process is seen as a king and every person in an entity operates within a process and contributes to the improvement. Gavin expresses this definition in more pragmatic and well understood terms as companywide program that empowers workers and managers to solve problems scientifically with an eye to customally improving customer's satisfaction. Garvin emphasizes that total quality management should be seen as people oriented bottom up way of running a business. The effective implementation of total quality management concept has a bearing on the success or otherwise of a business especially in the area of vigorous competition where organizational survival depends on how well the customer is served

## **II. LITERATURE REVIEW**

It attempts to find out the various documented information on the subject under review. The different or various writers in their documents had different perspectives and as a result gave their views to what they perceived to be the meaning and scope, aims, types, etc of TQM.

### **A. Explanation of the Term Quality**

The word "quality" is used more often in companies, whether in the food, industrial or service sectors, and especially in the IT sector. This is the definition and explanation given by Peter Senge et al.(2007) The fifth discipline fieldbook: "Strategies for building a learning organization" tries to explain quality as a transformation in the way we think and work together, in what we value and reward, and in the way we measure success. All of us collaborate to design and operate a seamless value adding system that incorporates quality control, customer service, process improvement, supplier relationships and good relations with the communities we serve and in which we operate all optimizing for a common purpose.

ISO 8402\_94 defines quality as the set of characteristics of an entity that give the ability to satisfy expressed and implicit needs. The ISO 9000:200 standard defines it as the ability of a set of intrinsic characteristic to satisfy requirements. In practice there are two types of quality. External quality, which corresponds to the satisfaction of clients. Achieving external quality requires providing a product or service that meet clients expectations in order to establish customer loyalty and therefore market share. The beneficiaries of external quality are a company's clients and external partners. Internal quality, which corresponds to the environment of a company's internal operation. The purpose of internal quality is to implement the means that make it possible to best describe the organization and to spot and limit dysfunction. The beneficiary of internal quality is the company's management and employees.

### **B. The Definition of Quality**

Quality is much more complicated than it appears therefore there are various definitions that tries to explain quality into its deeper form. Juran (2000) in his book "Overcoming resistance to organizational change" defines quality as fitness for intended purpose or use. This definition basically says that quality is meeting or exceeding customer's expectation. Robert Peach, ISO 9000 handbook: defines quality as the totality of characteristics of an entity that bears on its ability to satisfy stated or implied need. Armand Feigenbaum (1961) in his book entitled "Total Quality Control"p.105 defines quality as "Quality is a customer's actual experience with a product or service, measured against his or her requirements stated or unstated, conscious or merely sensed, technically operational or entirely subject and always representing a moving target in a competitive market. American Society for Quality (ASQ) "Quality denotes an excellence in goods and services, especially to the degree they conform to requirement and satisfy customers". ISO 8402\_1986 standard define quality as the totality of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs.

(Garvin(2007) in his book "managing Quality" also expresses that quality should be seen in eight dimensions thus:

- **Performance:** Performance refers to a products primary operating characteristics. This dimension of quality involves measurable attributes. Brands can be ranked objectively on individual aspect of performance.
- **Features:** features are additional characteristics that enhance the appeal of the product or services to the user.
- **Reliability:** Is the likelihood that a product will not fail with a specific time period. This is a key element for users who need the product to work without fail.
- **Conformance:** Is the perception with which the product or service meets the specified standards.

- **Durability:** Durability measures the length of a products life. When the product can be repaired, estimating durability is more complicated. The item will be used until it is no longer economical to operate it.
- **Serviceability:** Is the speed with which the product can be put into service when it breaks.
- **Aesthetics:** Aesthetics is the subjective dimension indicating the key of response a user has to a product. It represents the individual's personal performance.
- **Perceived Quality:** Perceived quality is the quality attributes to a good or service based on indirect measures.

### *C. The importance of Quality*

Quality management is centered on the management and control of producing fantastic products, and business environment that will facilitate their production. Customer satisfaction is very important part of quality control and this is an aspect of business that should definitely receive due consideration. It's all about quality management, control, and improvement. When these three aspects are met products can be manufactured with value in mind that will benefit both customer and the company in a major way.

Control and improvement can be distinguished from the following manner. Quality control is an ongoing effort to maintain the integrity of a process that will also help in maintaining the reliability of achieving a certain outcome. Quality improvement on the other hand, is the purposeful change of a process that is designed to improve the reliability of achieving a specific outcome. Assurance is another important aspect and can be defined as the planned or systematic actions that are necessary to provide the confidence that a product or service will satisfy the given requirements that have already been set forth.

Quality management is used in all areas of a company from the products that are manufactured to the customer services provided by the employees. Team members often work on projects design to improve the overall company's value. It is an ongoing process and is importance to the success of the company. It can be implemented on several different levels. Companies must test the quality control of their products to make sure they are on par with what is expected. Customers who have purchased products or services from a given company for a period of time will expect a certain level of quality. That is why value management is a continual process that must be adhered to on a regular basis. It has also become a part of everyday operations for any businesses and is implemented on their normal agendas. The idea is that if product or services can continuously be improved upon, the longer the company who makes those products or services will remain in business.

Aristotle once said "quality is not an act, it is a habit". In mostly every part of business, from the products and process to the human resource, and the whole management team, quality is always a big issue. And why not quality affects your success or failure in business. When your quality is so you expect so business. But when you have the best quality there is, you know the drill. The following are the importance of quality.

Quality is associated with consistency. A client who is satisfied and happy with the first buying experience needs and wants to be equally happy on each further occasion or even happier. The only time when consistency is welcome is when quality improves. Going below the standards is unacceptable and may take your business to ruins. Most clients who really care about quality are willing to pay a bit more to obtain it and see the extras as worth the additional expense.

Quality helps your business. In large companies like Electricity Company of Ghana quality is so important that they may have a separate quality assurance department, this is to make sure that the company's product and services meet the required quality standards. These large companies give a lot of attention to quality because they know that the quality of the product or service that they provide ultimately impacts their brands.

Quality brings strong brand reputation: The extent to which the general public (or organizations target is able to identify a brand by its attributes. Brand recognition is most successful when people can state a brand without being explicitly exposed to the company's name but rather through visual signifiers like logos, slogans and colours.

As the product perceived to be better value for money, may command a premium price and will become more price inelastic. Clients want to spend their income on valuable items so when they get to know that what they are spending on represent the amount of satisfaction derived from the product, they will patronize it. There will be fewer returns and complains: Customers are considered to be the saving arms of a company so, when there are little returns and complains from them it means that the product is of quality

*D. The Requirement of Quality.*

The requirements of quality are:

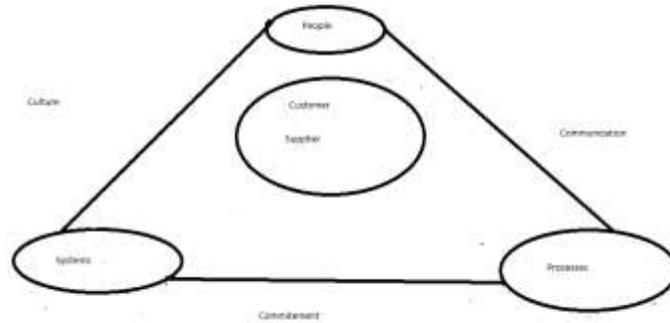
- **Correct:** Each requirement must accurately describe the functionality to be derived. The reference for correctness is the source of the requirement, such as an actual customer or a higher level system requirements specification.
- **Feasible:** It must be possible to implement each requirement within the known capabilities and limitations of the system and its requirement. To avoid infeasible requirements, have a developer work with the requirement analyst or marketing personnel throughout the elicitation process.
- **Necessary:** Each requirement should document something the customers really need or something that is required for conformance to an external requirement, an internal interface, or a standard. Another way to think of “necessary” is that each requirement originated from a source you recognize as having the authority to specify requirements.
- **Unambiguous:** The reader of the requirement statement should be able to draw only one interpretation of it.
- **Verifiable:** See whether you can devise test or use other verification approach, such as inspection, to demonstrate, to determine whether each requirement is properly implemented in the product.

*i. The Concept of Total Quality Management.*

Total quality management is a method by which management and employees can become involved in the continuous improvement of production of goods and services. It is a combination of quality and management tools aimed at increasing business and reducing losses due to wasteful practices. TQM defined as management philosophy that seeks to integrated all organizational functions (marketing, finance, design, engineering, and production, customer service, etc) to focus on meeting customer needs and organizational objectives. TQM views an organization as a collection of process. It maintains that organization must strive to continuously improve this process by incorporating the knowledge and experience of workers. The simple objective of TQM is do the right thing” right the first time, every time.” TQM is infinitely variable and adaptable. Although originally applied to manufacturing operations, and for number of years only used in that area, TQM is now becoming recognized as a generic management tool, just as applicable in service and public sector organizations. There are a number of evolutionary strands from different sectors all emirates from TQM.

- ❖ Commitment by senior management and employees.
- ❖ Meeting customer requirements.
- ❖ Reducing development cycle times.
- ❖ Just in time or demand follow manufacturing.
- ❖ Improvement teams.
- ❖ Specific incorporation in strategic planning.

This shows that TQM must be practiced in all activities, by all personnel, in manufacturing, marketing, engineering, R&D, sales, purchasing HR etc.



The core of TQM is the customer; supplier interfaces, both externally, and at each surface lies a number of process. This core must be surrounded by commitment to quality message recognition of the need to change the culture of the organization to create total quality.

*ii. The Definition of Total Quality Management.*

TQM can be defined at its simplest term as “The continues process of reducing on eliminating errors in manufacturing, streamlining supply chain management, improving the customer experience and ensuring that employees are up to speed with their training. Total quality aims to hold all parties involved in the production process as accountable for the overall quality of the final product or service.

**Laurie Mullins** in his book “management and organizational behavior” defines total quality management as expressing a way of life for an organization as a whole, committed to total customer satisfaction through a continuous process of implementing, and the contribution and involvement of people. **A glossary definition of TQM.** A core definition of total quality management describes a management approach to a long term success through customer satisfaction. In a TQM effort, all members of an organization participate in improving process, product, service and the culture in which they work. The method for implementing this approach comes from the teachings of quality leaders as Philip B. Crosby, W. Edward Deming, Arnold V. Feigenbaum Kanro Ishikawa and Joseph M. Juran.

*iii. The Main Components of TQM*

Total quality management has four main components and they are:

- Put customers first: A quality product or services satisfies customer’s needs and expectations. Whether a product or service is of high quality or low quality it will be decided by how it made the customer feel and whether customer expectation were satisfied or exceed. If customers are not put first put, then customer expectations will be difficult and consequently quality will be achieved.
- Make continues improvement: The Japanese term “Kaizen” has contributed to this component. Kaizen beliefs that there are no limits to continuous improvement. This means that TQM organizations will continuously strive to improve their product or service and increase the quality standards. A TQM organization will view change positively whether the change involves a process change or a change in customer needs and expectations. This is because change will enable the organization to develop and explore quality.
- Aims for zero defects: There are a number of reasons behind the aims to eradicate defects. Defects are expensive because they will lower the customer’s confidence in the product. Also it is more expensive to rectify defects that it is more expensive to rectify defects that are to prevent them occurring in the first place. Zero defects can be achieved through a combination of quality assurance and quality control.
- Training and development: An organization will need to train their employees to ensure that they understand the principles of TQM organization. Employees will need to understand how TQM is to be achieved or maintained and how they as an employee will ensure that the organization emulates TQM. Unless each employee accepts and believes in TQM it will be difficult for the organization to practice total quality management.

(ISO) technical committee has also set standards on the best practices that quality management should follow. These standards include eight components, outlined here that should be followed

- a) Customer focus: this component conveys the importance of identifying and addressing the customer's needs and going beyond the customers' expectations. This is achieved by ensuring that the needs of the customers are in alignment with the company's goals and measuring customer satisfaction.
- b) Leadership: Leadership is an aspect of quality management that aims to unite employees towards the same overall goals and create a productive environment. This can be achieved by effectively communicating the company's desired future path, setting goals for employees and ensuring that the employees have the resources that they need.
- c) Involvement of people: All members of the company should be involved, regardless of position. Applying this principle has numerous benefits, including an improved sense of responsibility of the staff and employees taking an interest in self-improvement.
- d) Process approach: This principle recommends that management should treat the activities of the organization and all resources as process. Process refers to the planning and execution of an activity. This method leads to the systematic definition of activities in order to meet goals and the identification of the resources needed to improve the activities of the company.
- e) System approach to management: This involves identifying the interdependence of the different processes in the company and managing this process as a complete system. Managing in this way involves creating a system through which the company's goals can be efficiently achieved and providing a better understanding to the employees of how to achieve common objectives.
- f) Continual Improvement: The improvement of the company should be an ongoing process. This is done by establishing goals, measuring performance and providing training for employees.
- g) Factors approach to decision making: Decisions should be based on data analysis and factual information. This approach includes making data available to those who need it and analyzing data using valid methods.
- h) Mutually Beneficial supplier relationship: Obtaining harmonious and beneficial relationships with suppliers involves establishing that address the short and long term goals of both the company and the suppliers. Providing inspiration and giving praise to the supplier is also encouraged.

*iv. Total Quality Management and Customer Satisfaction*

TQM is defined as a strategy for improving business performance through the committed and involvement of all employees to fully satisfying agreed customer requirements at the optimum overall cost, through continuous improvement of the products and services, business processes and people involved. The concept of TQM can be expressed as achieving success through delighting the customers. Customers may include stakeholders, employees, and suppliers. TQM has a strong focus on customer satisfaction and this depends on participation of all members of the organization to improve processes, products, services and their work culture. There are two types of customer's namely internal customers and external customers. Internal customers are within the organization and they work together for delivering service or product to the external customer. External customer may be individuals or an enterprise that hires or purchases the product or services from another person or business. To get customers satisfied about your organization there are some various steps to take and they are the following:

- Encourage face to face dealings with the customers: If you are not used to this sort of things it can be pretty nerve wracking experience. Rest assured, though it does not get easier overtime, it is important to meet customers face to face once or time during the course of a project.
- Respond to message promptly and keep the client informed: It might not always be practical to deal with all customers queries within space of a few hours, but at least email or call can let them know you have received their message and you are working on it.
- Be friendly and approachable by customers: It's vital that you keep a clear head respond to your clients, wishes as best you can, and at all-time remain polite and courteous.
- Have a clear customer service policy: Clearly defined customer service policy is going to save a lot of time and effort in the long run. If a customer has a problem how is it going to be managed, should they contact different people for billing and technical enquiries?

v. **The implementation of TQM**

For TQM to be effective, the TQM philosophy must begin at the top. From the board of directors to hourly employees, TQM must be supported at all levels if the firm is to realize any real improvement in quality. In addition to commitment from the top, the organization must meet these requirements if TQM is to succeed

- (a) A change in corporate culture about the importance of quality.
- (b) Forging of internal team partnerships to achieve quality, process, and project improvements, and the creation of external partnerships with customers and suppliers.
- (c) Audit to ensure quality techniques.
- (d) Removal of obstacles to successful implementation, such as lack of time or money in the short run.

**E. Shortfall of Total Quality Management**

**Quality is expensive:** Total quality management is expensive to implement. Implementation often comes with additional cost, team development costs, infrastructural improvement costs, consultant fees and the like.

**Take years to show result:** Total quality management is long term process that shows results only after years have passed. It requires perseverance, patient, dedication and motivation.

**Discourages creativity:** Total quality management focuses on task standardization to ensure consistency discourages creativity and innovation. It also discourages new ideas that can possibly improve productivity.

**Not a quick fixed solution:** Many companies in their expensive focus on quality ends up losing financially.

**Demands Planning, time and resources:** A good TQM system often takes years to implement and that occurs only after significant planning, the long term resource allocation and unwavering management commitment.

**F. Procurements Policies**

The electricity company of Ghana has basically two categories' of purchases they make or undertake; these are stationeries and capital investment. This kind of procurement is intended to use the items and services to support the operations of the quality management department of the organization. With stationeries we have cheque books, ledger, correction fluids etc, under these procurement quality management department has little to do about it. But with capital equipments such as computers, printers, generators, fax machines, electricity cables, meters ect, quality control has much to do with these items in order to avoid defects or problems along the line of operation and to see to it that there are of the right standards.

**G. Procedures for TQM Implementation**

There are basically five procedures that Electricity Company of Ghana uses to implement total quality management

- **Commitment and understanding from employees:** this is a key factor that ensures that all employees within that organization knows about total quality management policies and make them a fundamental part of their work. They make sure that the employees know their corporate goals and recognize the importance of these goals to the overall success of the organization. The employees knows what is expected from them and why. It may sound like a no brainer but too often this is not driven home by management. When employees understand and share the same vision as management a world of potential is unleashed.
- **Quality improvement culture:** The organization is structured with a culture that is been modernize on continuous basics to encourage employee feedback. The employees are full of valuable knowledge embrace it !Listen those executing the process that keeps the business moving daily. If employees have an idea to improve operations, they need to know management respect their ideas or they will not share it.
- **Continuous improvement in process:** There is no standing still. You are not moving forward, you are moving backwards. Total quality management is a continuous process and not an improvement in all the related policies, procedures and controls established by management. Do your research. Keep your ear to the market and make an effort to routinely revise all aspects of your operations. There should be a constant effort to improve proficiency which will result in constant scopes for improvement (even if some improvement are small)

- Focus on customer requirements: In today's market, customers require and expect perfect goods and services with zero defects. Focusing on consumer requirements is significant to long term survival and essential in order to build relationships with customers. People do business base on emotion. Competitors will always be a risk, keep your customers close and happy. Make sure precise requirements of all customers are documented and understood by everyone that touches the account.
- Effective control: It is essential to monitor and measure the performance of the business. It is easy to forget how many times in a year an employee that not conforms to control procedure or how many times a piece of equipment was down due to unplanned maintenance. If strict documentation is maintained, you will be able to objectively quantify areas for improvement and focus your effort where they will provide the greatest return on both your time and financial resources. Always remember that TQM is an amalgamation of many steps. Today's ever changing economic market requires organizations to consistently exceed expectations, and workers demand being more than an observer in decision making.

### **III. SUMMARY, CONCLUSIONS AND RECCOMENDATIONS**

#### *A. Summary*

This study will focus on the discussion of the results from the findings made. In the study, an attempt has been made to determine the strategies for the clear role of Total Quality Management in the energy sector. It must be noted that the respondents to whom questionnaires was administered made up 100% management and staff of electricity company of Ghana Head office. From the research , it was discovered that though electricity company of Ghana had a quality management department, it was focused under one broad sector, being the support service department with a general manager overseeing the work of all other departments under the support service. Some of the department identified under the support services includes stores, purchasing, achieves etc. Also it was identified that the general manager who was not quality management expert also represents the department as its board.

Until recently, the electricity company of Ghana did not have quality control department therefore area managers did monitor the quality of their services themselves and this really cost the industry very much. It also came to light that since the organization was an energy sector the total quality department was not placed at strategic position of the organizational structure but was considered as a clerical activity.

The researcher work further revealed that the quality management manager report directly to the general manager of support services who is not quality management professional. Furthermore it was noted that issues relating to evaluation of projects, such as construction of buildings for staff, is undertaken by the evaluation department and all items needed in the project is being purchased by only the evaluation department without the involvement of quality management department making sure that quality items are procured for the project.

It was realized that the electricity company of Ghana has four (4) quality management officers including the quality management manager who takes care of all issues relating to quality. The research work uncover that the electricity company of Ghana was using a decentralized quality control system which makes it very challenging for the quality management department to regulate all activities through the energy sector to the same standard.

#### *B. Conclusion*

Electricity Company of Ghana is a limited liability company wholly owned by the government. Its mission is to provide quality, reliable and safe electricity services to support the socio economic growth and development of Ghana. Electricity Company of Ghana has focused on building several distribution lines and installation of prepaid metering. The company also focused on becoming a regional power trader to grow the company.

Project (GEDAP)s development objective is to improve the reliability of electricity supply and increase the population access to electricity and this project has four components. Sector and institutional development, transmission improvement, distribution improvement and access expansion. The ECG has undertaken projects of upgrading of

weak and multi jointed cables from industrial area substation to D121 feeder to improve supply reliability to customers.

### *C. Recommendations*

From the research conducted, certain facts indicated as pertaining the role of quality management in electricity company of Ghana to really make the role that total quality management play more effective and efficient, the researcher recommends the following.

- Quality management should be placed at strategic position on the organizational structure; this will make room for clear role formation of the quality management department and enhance the department to be autonomous, where quality control manager shall report directly to the managing director (MD) and not the general manager of support services.
- Also the researcher is of the view that Electricity Company of Ghana (ECG) should introduce an effective budget control system for its created department where Total quality management department prepare a budget so that the quality manager can compare the estimated cost of operation at the end of the period.
- After the electricity company of Ghana has created an autonomous quality management department, the researcher is of the view that, there should be two (2) managers under total quality management where one (1) manager takes care of capital equipments that are about to be procured by the procurement officers and the other takes care of quality issues on the field of operation. This will make room for right quality strategies and techniques to be used and this will result in an efficient and effective total quality management for ECG.
- The researcher is of the view that ECG should employ or hire quality management consultants or expert often to be part of the procurement board to assist in taking decisions on procurement more professionally so that quality is impacted right from the onset. Furthermore, the few Higher National Diploma (HND) Purchasing and supply student should be employed to assist the procurement department in their dealing since the HND graduates are professionally trained for the job market.
- Also the total quality management department should improve their association with other departments to enhance better delivery of services.
- Finally, the researcher is of the view that the electricity company of Ghana should frequently organize training programmes for the staff of quality management department, this will upgrade their knowledge in their profession where some of the training should be on information technology this will help prepare the staff of quality management department in to the fast growing technological world.

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