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# The Role of People Involvement in Applying Total Quality Management (TQM) in Sudanese Oil and Gas Sector

دور مشاركة العاملين في تطبيق إدارة الجودة الشاملة في قطاع النفط  
والغاز السوداني

A Dissertation Submitted as Partial Fulfillment for Master's Degree in Total Quality  
Management and Excellence

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## Initiation

استهلال



قال تعالى:

{ أَقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ (1) خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ (2) أَقْرَأْ وَرَبُّكَ الْأَكْرَمُ  
(3) الَّذِي عَلَّمَ بِالْقَلَمِ (4) عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ (5) }

سورة العلق-الجزء الثلاثون-الآيات من (1-5)

## **Dedication**

I dedicate this research to all those who had a role in my achievement of this research from the beginning to the last. I also dedicate it to the most precious people, my father, my mother and my brother who were always beside me. And also to every passerby seeking the knowledge of this research.

## **Acknowledgments**

I first and foremost thank Allah almighty who guided me to the journey of science I also would like to thank Sudan university for Science and Technology that provided me with all concerned information to the degree and I would like to thank my supervisor Dr. Mohannad Hassan Ismaeil for his guiding me to complete the formulation of my research to the fullest. As well as Employees in oil and gas corporations because they were supported me with all the necessary materials to completing the research and helping me in the extraction of information to reach the results and finally my friend Hayate Mohammed, and Dr. Elham Nassim for helping me in the selection of my research field.

## **Abstract**

This study aims to determine the role of people involvement in applying TQM in oil and gas sector with problem statement of not involving people in decision making and strategies formulation about applying TQM , the researcher used the analytical descriptive method and used questionnaire as data collection tool from sample included the employees in the applicable companies for the TQM in oil and gas sector, the sample (357) was randomly selected from the total of population (4720), data was analyzed statically by using SPSS software, the researcher concluded that:

- People involvement in TQM affect positively in the organizational performance and Top management commitment.
- HRM strategies have significant role in support people involvement.

Based on these findings the researcher recommends with:

- Enhancing the awareness of employees with the TQM application and their responsibilities
- Enhancing the process of decision making for people whom dealing with the implementation process.

## المستخلص

هدف هذا البحث إلى معرفة دور العاملين في تطبيق إدارة الجودة الشاملة في قطاع النفط والغاز، حيث تناول مشكلة عدم إشراك العاملين في صنع القرار وتكوين الإستراتيجيات فيما يتعلق بتطبيق إدارة الجودة الشاملة واستخدمت الباحثة المنهج الوصفي التحليلي، واستخدمت الإستبانة كأداة لجمع البيانات من عينة العاملين في الشركات المطبقة لنظام إدارة الجودة الشاملة في قطاع النفط والغاز السوداني حيث بلغت العينة (357) تم اختيارهم عشوائيا من المجتمع الكلي حيث بلغ (4720)، تم تحليل الإستبانة باستخدام برنامج الحزمة الإحصائية للعلوم الإجتماعية . توصلت الدارسة إلى أن:

- إشراك العاملين في تطبيق الجودة الشاملة تؤثر إيجابيا في الأداء المؤسسي.
- التزام الإدارة العليا وإستراتيجيات إدارة الموارد البشرية يلعبان دورا كبيرا في دعم إشراك العاملين في القطاع.

وبناءً على هذه النتائج كانت التوصيات:

- بتعزيز توعية العاملين بتطبيق إدارة الجودة الشاملة ومعرفة مسؤولياتهم تجاه ذلك .
- تعزيز عملية إشراك العاملين في صنع القرار في عملية التطبيق لنظم إدارة الجودة الشاملة.

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# Chapter One

## General Framework

### 1.1 Introduction

Over the last few decades several holistic management philosophies, involving intensive change process (total quality management, business reengineering, lean management), have been emphasizing employees role, thought an increased participation in the process for change. In fact, the influence of employees involvement in firms, changing process has been extensively reported in both academic and practitioner journals which strongly highlight its importance and potential an organizational changes through personal involvement on problem solving and decision making .

TQM may be defined as a management philosophy based on people with a strong emphasis on continuous improvement seeking to achieve total quality through full participation of every one in organization.

Deming and other quality gurus have characterized human resource management as a significant driver of total quality management implementation, emphasizing its implication in quality continuous improvement; it's defined as a model focused on total customer satisfaction, through model employee's high involvement in decision making.

Employee's involvement may provide the foundation for quality efforts and strategy development and insure that practices implemented conform to quality requirements that are followed by everyone in the organization, more organization apply employee involvement initiatives, the more positive results they will gain and the more profitable they will become .

Employees are in the best position both to recognized problems and to find improvements if they are interested and sufficiently empowered to take steps to make improvements and awareness about quality challenges facilitate their participation toward continuous quality improvement.

People based strategies requires more than cosmetic changes , implying high commitment in doing things differently , such as training employees in multiple skills , organizing workers in teams , instituting suggesting systems, organizing problem solving mechanisms like quality circles and so forth.

Human resources management reinforces the interpersonal relationship of employees and organizational consciousness, improve employee's abilities and help to change the organizational culture.

The strategic plan of human resources management of oil and gas oil in Sudan works to plan, develop, and retain people in order to achieve commitment and professionalism, responsibility, belonging, leadership and excellence in performance. The strategic outputs were deployed to ensure the commitment of people in the organization and they are:

- **The working forces and their needs:**

Is the main stepped in attracting and developing a qualified people to achieve goals of the sector, the requirements were identified as follows: plan of action, plan of humanization and retirement program and pension.

- **The plan of establishing training and development systems:**

Aims to prepare and develop professional and functional tracks and survey the training needs of the functional categories.

- **Human resources management systems and programs:**

Develop HR systems and programs by creating an integrated human resources management system.

- **Sudanization:**

This defines as replacement foreign workers with Sudanese workers with maintaining a good performance and thus can lead to people empowerment.

## **1.2 Problem Statement**

People involved as an input in organizational change toward productivity and long term financial performance without participation in strategy formulation and decision making. The spirit of good attitude towards work by people can be reduced if people involvement in decision making is not taken into consideration. The debate on human resources management policies and practices focused on hard and soft versions of human resources management. The hard version emphasized on resource and adopted the rational approach to managing people as any other economic factor. The soft version involves treating people as valued assets, a source of competitive advantage through their commitment, adaptability and high quality of skills, performance and so on.

## **1.3 Test Hypothesis**

1. Involving people in strategy formulation will enhance TQM application.
2. Participation of people in decision making helps in empowering people in contribution to their consequence in responsibilities and solving problem.
3. Empowerment encourages commitment and creates a working environment.
4. Communication flow between people encourages awareness of quality.

## **1.4 Objectives of the Study**

1. Determine the role of people involvement in applying TQM in oil and gas sector.
2. Examine whether people involvement in TQM affected business performance.
3. Identifying whether HRM policies support people involvement in TQM application.
4. To investigate the effect of people satisfaction in their involvement.
5. To make recommendations on how to improve the TQM practices employed in the operations of petroleum industry.

## **1.5 Research Questions**

1. How could people involvement affect business performance?
2. To what extent top management supports people involvement?
3. What are the factors that contribute to the people satisfaction in the organization?
4. What is the role of leadership in efficiency and effectiveness of TQM implementation?

## **1.6 Purpose of the Study**

The purpose of this study is to draw attention to the importance of human resources management in the application of TQM and makes human resources an essential function not only on the organizational level but also on strategic level. Applying human resources management on strategic level enables more options for dealing with multiplex issues caused by changes in business nature, worker variety, customer requirements and globalization.

## **1.7 Importance of the Study**

Petroleum is one of the most important natural resources discovered as it provides the greatest return to the country and turn this return to the benefits of permanent, therefore , it was necessary provide workforce of aqualified,stable and developed with positive behaviors and self motivation to achieve the overall objectives of oil and gas sector efficiently and effectively.

- This research examines the role of human resources in the application of TQM to improve the performance of the organization which preserves its continuity in the labor market. The study will also enhance the employee's awareness of quality concept and relate them to the objectives of the study .
- It will also link the relationship between human resources management and achieve the outputs of the quality concept.



## **1.8 Data Analysis and Procedure Method**

The quantitative data and descriptive statistics will analyzed by using of statistical package for social sciences and results will reported in the tables showing percentages ,frequency distribution, mean and standard deviation.

## **1.9 Ethical Issues in the Study**

A permission study was obtained from sudan university for science and technology (college of graduated studies and scientific research) to carrying out the study in ministry of gas and oil .The letter was approved by the ministry.

## **1.10 Pilot Test**

In order to obtain the required information from respondents, the identification of respondents must be done. A pilot test must be prior to actual study, Questionnaire will administrated to a few number of selecting employees who responding positively to determine validity of the research.

## **1.11 Validity and Reliability**

Validity will guaranteed by reviewing questionnaires to ensure that they adequately addressed the research objectives. Validity will also enhance through the collection of data from appropriate respondents .Language used on the questionnaire was kept simple to avoid any ambiguity and misunderstanding. On the other hand to ascertain the reliability of questionnaire, T test t method will employed, limited quantity of respondents will chosen for the pilot test to ascertain the reliability of the questionairs.After they complete the questionnaires, the data then will collected and the questionnaires will repeated by reforming and will send to the same number of respondents, the consistency in their results made the will make the research instrument highly reliable. Also Cronbach's alpha test for reliability of internal items of questionnaire.

## **Chapter Two**

### **Literature Review and Previous Studies**

#### **2.1 Overview**

Today's business environment is rapidly changed with increasing turbulence and uncertainty. Such external circumstances do not allow reliable prediction of the future and creating long term plans. Companies are under pressure to seek new strategies and to make quick decisions to overcome the changes. As the rate of change increases, so does the need for fast and immediate response, which implies higher organizational flexibility. Such conditions increase the importance of the involvement of talented employees and their input into management process. Employees who possess knowledge, skills and abilities gain wider strategic importance. Involving employees in decision making and problem solving primarily is due to the need of the organization to develop cross functional relationships and exploiting the total potential employee (Chatleska, 2013, P.31).

Total quality management (TQM) has both a hard and soft side. The hard side concerning on systems, precise data collection, measurements and involving arrange of production techniques. The hard TQM is more quantifiable and deliverable due to the hard cash evidence or return on investment that can be associated with its success. Although TQM is considered as a cultural change and attitude change, the soft side of its getting much less attention than the hard side. The soft side refers to employee attitudes and behaviors in which HRM comes to play. Emphasis and implications on the workforce began to emerge as people began to view management of human resources as an essential part in the success of TQM implementation and the organization as a whole (Hussin, 2010, P.9).

Employee participation can take the form of a variety of management practices such as for example participative management, employee involvement programs, empowerment or workplace or democracy. Each of

these practices attempts in some way to involve employees in the sharing of information or making of decision (Cabrera et al, 2003, P.3).

Involving employees improves quality and increases productivity. It becomes obvious that there is a need for employee involvement in any change process including quality management practices. (Islam et al, 2011, P.134)

### **2.1.1 What is People Involvement?**

Employee involvement means that every employee is regarded as a unique human being, not just a cog in a machine, and each employee is involved in helping the organization meet its goals. Each employee's inputs is solicited and valued by his/her management employees and management recognizes that each employee is involved in running the business (Apostolou, 2002, P.2).

Employee involvement is a process for empowering members of an organization to make decisions and to solve problems appropriate to their levels in the organization. To be included in the business, employees must be empowered .Empowerment implies delegation of various responsibilities and granting certain power to employees. If employees are not sufficiently empowered or have not enough power, employee involvement is useless for accomplishing continuous improvements and shall be restricted to a simple suggestion making option (vladavic ,2014,P.52).

Employee involvement defined as a conscious and intended effort by individuals at higher level in an organization to provide visible extra-role or role-expanding opportunities for individuals or groups at a lower level in the organization to have a great voice in one or more areas of organizational performance (Phipps, 2013, P.110).

Employee involvement has been conceptualized as a process of developing a feeling of psychological ownership among organizational members and has been implemented via the participation of employees in information processing, decision making and /or problem solving (Quagraine, 2010, P.14).

Involving employees means sharing knowledge, encouraging and recognizing their contributions. It also entails utilizing their experience and operating with integrity (Mukonyo, 2014, P.22).

Employee involvement at the strategic and collective bargaining /personal level usually is in the form of indirect participation ,That is employees are involved in decision-making through representatives .This form of employee involvement includes collective bargaining and joint labor management committees (at the collective bargaining /personal level) ,and employee representatives on the company board (at the strategic level).Direct form of people involvement which allow direct employee input (employee participation through a formal and group meeting ).Formal (direct programs are variously labeled quality circles, quality of work life program or simply employee involvement programs (Richer ,1991,P.5).

### **2.1.2 Types of Employee Involvement Initiatives**

Employee involvement techniques are often categories according to a continuum of the degree to which employees are involved in decision making process, from (a) information to (b) consultation to (C) joint decision making to (d) employee control. **Information:** The aim here to enhance down ward communication from management by systematizing the information received by the employees. **Consultation and joint decision making:** Both aim to enhance decision making processes by drawing upon employees' expertise and considering their interests. These forms of employee involvement can occur through suggestion schemes, quality circles, problem solving groups, total quality management daily briefings and consultation committees, depending on preference and the type of information sought. **Discretion:** Here there is a transfer to employees of duties that would normally be the remit of management or other employees. The aim can be to maximize the contributions of employees according to their existing proven abilities or to develop a higher skilled more innovative or more flexible workforce. The main mechanisms for initiating high levels of discretion are (1) Autonomous work groups, high level of discretion normally coupled with job rotation and multi-skilling. (2)Team working: Here discretion lies solely with the team leader (Gifford et al, 2005, P.6-8).

### **2.1.3 Stages of People Involvement**

In the experience of the authors and according to reports from numerous organizations which have employed high-performance work systems such systems must evolve. This evolution is carefully managed, step by step, to prepare team members for the many new skills and behaviors required from them. The directive command is the form most people learn in the military ,a command not to be questioned but to be followed(it usually result in compliance).The first stage in involvement is the consultative environment, in which the manager consults the people involved ,ask their opinions, discussed their opinions, then take unilateral action. More advance state of involvement is the appointment of special team or project team to work on specific problem. The special quality teams can focus sharply on specific problems, the success of such a team depends on assigning to the team people capable of implementation solutions quickly. Team management is the use of teams to manage every day business and the continuous improvement of the business. It represents an extension of the authority and responsibility of the natural team. The next improvements in TQM will be wide-spread introduction of empowered work systems including teams variously labeled as high –performance teams, self managing teams, self-directed teams, empowered teams, natural work groups and self-regulating teams, Empowered work systems are designed so that the teams are empowered (having capability, authority, desire, and understanding of their purpose) and thus positioned to meet the needs of customers, business and employees (Juran et al, 1999, P.433, 434).

### **2.1.4 Empowerment**

Empowerment begins with an examining of people abilities to control their actions toward change to achieve organizational goals (Lord et al, 1993, P.3).

Enhancement involvement (empowerment) is a basic need in promoting performance for empowered organization. Organization must utilize intrinsic drivers in empowering process (e.g. motivation) in keeping up with higher levels of employee satisfaction (Huq et al,no date, P.3).

The concept of empowerment is a term beyond "Distributing responsibility" or another definition of management. Empowering employees enable them to become more powerful. This reinforcement does not mean strengthening in organization hierarchy or in a material sense. It is rather strengthening through personal development (Kitapci et al, 2009, P.1).

The empowerment process is designed to raise employees' awareness of their strengths and potential and to provide them with the opportunity of running the company and at the same time enable them to grow and develop by helping them identify the best way to meet customer needs (Raza et al, 2016, P.12).

Employees empowerment and involving at all levels is important to gain competitive advantages and business overall success, employees empowerment and involvement is crucial to problem solving and therefore to quality continuous improvements ,since employees involved and focused in their job at their level are in the best position to make decisions to have control over processes improvements (Mendes,2012,P.6982).

The process of employees empowerment have several steps:(1)Acquire empowerment: Upper management starts the empowerment process, they must be willing to relinquish authority and decision making power to lower level of the organization.(2)Choose employees to empower: Employees must want to be empowered, they need skills to make correct decisions and accomplish additional responsibilities.(3)Provide role information: Upper management defines employees role and assigns responsibilities, authority and decision making power to meet organization goals. (4)Share organization information: Organization must help employees to understand the need for change, share good and bad information and view mistake positively.(5)Provide training to employees: Organization must train new employees ,current employees with experience and knowledge also need training(training should be continuous).(6)Inspire individual initiatives: Organization must build on the belief of the individual a sense of ownership, develop self-discipline, establish clear standards and expectations and provide a supportive environment (Hamed, 2010, P.10).

Performance management is linked to employee empowerment in two ways: First, through goal setting. The more an employee understands his or her job and how the job contributes to the overall organization, the better they will be able to make decisions on their own informed and expert decisions. Second, empowerment implies accountability along with the freedom to make decisions. The performance management process helps to ensure that accountability results and the outcomes decisions the employee makes through ongoing communication and the performance review process (Nzuve et al, 2012, P.4).

Employee empowerment not only has a positive impact on employee's efficiency work satisfaction, quality and customer satisfaction, but also helps in to increase the demand and efforts to create innovation by authorizing employees and increase their competence. Giving employees enough time, education and resource makes appositive impact on the perception of employees, self-sufficiency, work satisfaction, confidence and the meaning fullness of work (Uzunbacak, 2015, P.6).

### **2.1.5 Employee Involvement in Practice**

The participative structure of TQM is made up of three separate but integrated elements: The educative elements; changes in the work process itself and the various teams set up to solve problems. The educative element: This is concerned with increasing customer awareness within the organization, informing employees of product market conditions and the importance of each individual's contribution to the quality of the final product. Changes in the work process: This could mean just removing inspectors from the production line as workers take on the responsibility for quality or it may involve the more significant restructuring of work units into cells and/or the creation of semi autonomous work group. The various teams set up to solve problems: These take the form of quality circles, quality action teams, problem solving groups. Employee involvement within each of these elements can take different forms; with the degree of employee involvement varying greatly, each of these forms can they be implemented o a different extent by management, further increasing the variation in employee involvement which is found in practice (Wilkinson et al, 1997, P.13, 14, 15).

### **2.1.6 The Relationship between TQM and HRM (Human Resources Management)**

Human resources are differentiated from hard assets (Money, Machinery, etc) by several characteristics, including a warm spirit which can be a multiplier for continuous as people learn to work effectively (Juran et al , 1999, P.423).

The relationship between TQM and HRM in relation with business excellence or performance of the organization is the concerned area for many researchers. There are some common practices described by many authors that contribute and leads to business excellence (TQM practices): Leadership, training, involving and participation of employees, co-operation and customer focus. These practices can also be described as HRM practices or activities (Jain,no date,P.1).

Total quality management and human resources management both approaches have potential to affect organizational and employees desired outcomes. Human resources management plays a central role in developing quality across the entire organization. Company-wide HRM can implement TQM in two fundamental ways: First, by including TQM philosophy and principles within its departmental operations. Second, HRM department can arrange long-term training and development program company-wide for successfully implementation of TQM system (Singh, 2014, P.1).

The involvement of HR function in quality improvement efforts usually is materialized in three ways (a) by participating in the design, introduction and maintenance of various quality initiatives. (b) by changing traditional personal practices in order to support a total quality culture and (C) by establishing a quality orientation within the function itself. Quality efforts should be based on a long-term perspective and be part of the overall business strategy including people-related issues such as education and training ,performance appraisal ,employee involvement ,recognition and improving quality of work life (Vouzas,2011,P.3).

Employee involvement has also been extensively studied in association with TQM and human resources management, self managing work teams typically produce positive results in terms of quality and costs.TQM should



be supported by human resources practices such as employee involvement. Human resources are the major assets of empowerment that allows team members to recognize their own responsibilities for achieving company goals. Having the capability to problem-solve leads people composing the teams to seek more opportunities to complete their tasks and to sustain preparation of status reports important to management (Swamy et al, 2013, P.5, 6).

### **2.1.7 Role of People Involvement in Implementation of TQM**

Effective implementation of TQM requires not only hard dimensions like statistical control systems, operational management but also soft dimensions involving human skills and functions .TQM emerged as a philosophy to implement quality systems with focus more on soft issues as well (Singh et al, 2011, P.529, 530).

To achieve the ideals of TQM, employees have to understand it as a corrective and developmental strategy for the good for all stakeholders in the organization. This will involve the employee's participation in processes of reengineering, new ways of doing things and communicating their ideas to management. Employees also have the responsibilities to identify quality defects as well as to pro actively recognize threats to quality and continuous improvements. Individuals within the organization also set goals for themselves that coincide with Organizational goals, so that employees can be motivated by them (Matlhape, 2002, P.11, 12).

Support and commitment of top management is essential for TQM implementation and its effectiveness in the organization. To establish and maintain the quality culture is the prime responsibility of top management. Commitment from management should facilitate employees and acts as catalyst role in involve them in quality implementation programs. Besides this, top management improves firm performance by training and facilitating employees, assigning sufficient resources and providing new technologies for work organization (Malik, 2013, P.5, 6).

The ability of top management (leadership) to establish a practice and lead a long –term vision for the firm, driving by changes customer requirements .The roles of top management identified as: Establishing quality policies,

establish and deploy quality goals, provide resources, provide problem-oriented training and improvement. Therefore there is very strong evidence that the leadership factor is relevant in equality management such as Top management accepts quality responsibility evaluated on quality, participation in quality improvement efforts, makes strategies and goals for quality, considering market demands and customer needs and organizational performance and profitability. Leadership is important in influencing groups of people and mobilizing resources. Effective leadership promotes the strategic direction of the company to achieve customer satisfaction and business results (Jaafreh et al, 2013, P.5).

Employee engagement can increase the understanding of organizational policies .It involve processes such as lower levels of decision making, adopt the experience, knowledge and the ideas for the advancement of organization. Involvement also enables employees to share the resulting performance and member understanding of the employees will work goals (Zakuan et al, 2012, P.28, 29).

An underlying a assumption of TQM is that quality is ultimately the responsibility of top management and hence top management commitment and support is a precondition for the success of TQM. Therefore, a top down approach to the implementation of TQM is required where by "both education about TQM and implementation of TQM practices typically tack place in cascading fashion, with each layer carrying the massage to the next lower level of the organization. In organizational change, change is assumed to occur in a straightforward manner throughout the managerial hierarchy culminating with first line supervisors involving employee's in TQM. The importance of the first line supervisor in the adoption of quality circle, supervisors who encourage participation may feel more comfortable with QCs and hence more likely to choose the installation of QCs in their work area. As TQM requires greater involvement from employees regarding quality and improvement issues. Supervisors who operate along participative lines may be more likely to involve employees in a TQM intervention. These employees would be accustomed to having more say in decisions in their work area. Supervisors would have greater confidence in their employees' ability and more positive view of employee desire and

commitment to greater involvement in decision making (Shapiro, 1999, P.5, 6).

### **2.1.8 TQM**

The name "Total Quality Management" was coined by the U.S. Navy in 1985. Since then, TQM has been widely used in various organizations, particularly in the manufacturing industry. Today, a variety of models are available to transform a current enterprise into an organization focusing on TQM (Metri, 2006, P.36).

TQM is an art of managing of the whole to achieve excellence .Total Quality Management (TQM) is 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. It's an application of quantitative methods and human resources to improve all the processes within an organization and exceed customer needs at present and in the future. Analyzing the three words we have: Total (makeup of the whole), Quality (degree of excellence of a product or service provides) and management (act, art or manner of handling, controlling, directing etc) (RTU, n.d, P.21).

Total Quality Management is an evolving system of practices, tools and training methods for managing companies to provide customer satisfaction in a rapidly changing world. The use of the word "Total" when coupled with the term "Quality Management" provide recognition of the fact that total quality management (TQM) is not an activity or even philosophy that can be restricted to certain organizational processes. It's essential that TQM is adopted on a holistic basis (Karimi & Kadir, 2012, P.208).

Total Quality Management is a description of the culture, attitude and organization of accompany that strives to provide customers with products and services that satisfy their needs. The culture requires quality in all aspects of the company's operations with processes being done right the first time and defects and waste eradicated from operations (Isac, 2004, P.187).

TQM combined with effective leadership, results in an organization doing the right things right, first time. The core of TQM is the customer-supplier

interfaces both externally and internally, and at each interface lie number of processes. This are must be surrounded by commitment to quality, communication of the quality message and recognition of the need to change the culture of the organization to create total quality. These are the foundations of TQM, and they are supported by the key management functions of people, processes and systems in the organization (DTA, n.d, P.1).

TQM emphasizes a clear customer orientation – internal and external .The needs of the customer have to be satisfied.TQM is not limited to the quality department but involves all departments within the business organization. Top management has to lead by example and to demonstrate actively that they are serious about quality.TQM involves everyone within the company, every employee should contribute his ideas of how to improve the work processes (Kruger, 2001, P.154).

TQM can be viewed in one of two ways. The first approach conceptualizes TQM as a limited set of technical tools while the second approach views TQM as part of broader change to human resources. Soft TQM actually plays a numbers of roles ,ones is to create an environment where seamless diffusion and implementation of hard TQM can take place, and the other is to directly affect organizations performance in the same way that traditional human resource management practices can impact on an organization. There are three factors of soft TQM (executive commitment, open organization and employee empowerment) which significantly correlated with overall corporate performance, also three items workforce commitment, shared vision and customer focus have a significant positive association with quality and performance (in term of product quality) is highly correlated with elements of soft TQM, such as employee empowerment, employee training and employee involvement. Three out of six criteria of the Malcom Baldrige National Quality Award (MBNQA) framework are all elements of soft TQM (Leadership, HRM and Strategic Quality Planning) (Rahman & Bullock, 2003, P.73, 74).

### **2.1.9 TQM Principles**

Learning the principles of total quality management will help achieve outstanding results and enlist the support of top management in advancing this concept within the organization enabling area managers or supervisors to create a work environment that gets the best from its workers. The proof will be reflected in the results deliver to the customer. Quality Management Principles provide understanding of and guidance on the application of quality management (Abohmed,2001,P.30).

TQM aims to establish quality enhancement as an organizational dominant priority and improve organizational effectiveness through eight principles which include: 1) Leadership, 2) Customer management, 3) People management, 4) supplier management, 5) Quality information management, 6) Process management, 7) Learning, 8) Continual improvement. Customer satisfaction is the key principle of TQM. All goods and services should fulfill the customer needs .For this purpose, communication and feedback processes on the customer concerns and satisfaction should be developed (Polat et al, 2011, P.1116).

Common guiding principles of TQM can be grouped into three areas: (1) Those focusing on customer satisfaction, (2) Those stressing continuous improvements and (3) Those that treat organizations as total systems. Hard TQM has a strong relationship with clusters (2) and (3). Elements of hard TQM (measures of Statistical Process Control, use of Benchmarking, Six Sigma processes, Seven Simple Tools, QFD) have profound impact on organizational performance( optimal product design process of cost reduction) (Rahman & Bullock ,2003,P.75).

### **2.1.10 TQM Practices**

Most of the previous studies report that over all TQM practices have positively been related to productivity and manufacturing performance, quality performance, employee performance, innovation performance, customer satisfaction results, competitive advantage, market share and financial performance (Sadikoglu & Olcay, 2014, P.4).

A comparison of the practices of TQM in many empirical studies leads to the identification of nine practices that are commonly cited as part of a TQM program. These practices are cross-functional product design, process management, supplier quality management, customer involvement, information and feedback, committed leadership, strategic planning, cross-functional training and employee involvement. Quality management frameworks typically stress the importance of cross-functional product design and systematic process management. Furthermore, they emphasize the involvement of customers, suppliers and employees to insure quality products and processes. Finally, quality management programs all emphasize the importance of management commitment and a well-established strategy (Cua et al, 2001, P.676).

The most successful transitions to full TQM occur in three progressive phases. Each phase builds capabilities and knowledge, within an organization that will support the following phases: Foundation (bringing senior management and labor together to learn about TQM and to jointly set a course of actions. This solid form of cooperation established momentum for TQM), Momentum (through the activities in this phase, organization will create living examples of the generic TQM values of customer focus, employee involvement, continuous improvement and leadership. Through these examples, the people in organization will begin to understand TQM and believe that it can work for them) and Commitment (activities in this phase help change the organization formal structures, systems and accountabilities. This phase provides the greatest payoff in increased ridership, improved productivity and reduced cost and also helps ensure ongoing organizational improvements (Macdorman et al, 1995, p.3.4).

Companies can achieve superior organizational performance by designing quality into products and services, assuring in- process quality through the use of defect prevention methods and control tools , as well as through judicious use of quality information such as customer feedback, benchmarking and charts. To implement these strategies successfully, organizations have to be customer focused, maintain competent, reliable and flexible suppliers and promote employee participation in decision making process through training and empowerment. It important to note

that upgrading technology and promoting hard TQM practices may not necessarily increase competitive advantage. Attention to process, product and information technology may yield quality improvements, but ultimately it is people that make quality happen. Quality management strategies tend to act in synergy to affect product quality and require effective human resource utilization, while also in cooperating suppliers (Rahman & Bullock, 2003, P.75).

### **2.1.11 TQM Implementation**

Due to large success of TQM in manufacturing companies, service organizations have started to follow in their footsteps and consider the application of TQM. In order to apply TQM to a service sector, its important to decide on how to evaluate the quality of service. Service can be evaluating according to cost, flexibility, acquirability, totality and response time (Shobaki et al, 2010, P.304).

According to (Jalahma & Gallear, 2010, P.122) they stated that TQM implementation is based on three core elements: (1) The TQM philosophy that comprise a set of TQM principles, (2) The organizational culture-the present and desired state of culture that will be reached when the TQM philosophy is realized and (3) The implementation strategy-the approach to realizing the philosophy, that will specifically include the activities to identify and offset TQM implementation barriers.

Organizational culture is an important aspect in the successful implementation of TQM and in particular, within the context of organizational performance, the cultural process of the organization, managers might better understand the influence of cultural factors that already operating when a quality improvement program is implemented and as a result, will have better success in quality improvements efforts. Implementation of TQM programs varies considerably according to the culture of the organizations in which it's being implemented. This is consistent with the view that it's not so much management action that determines culture, but rather its culture that determines management action (Karimi & Kadir, 2012, P.209).

(Madar, 2015, P.126) argued that the advantages of implementing TQM are: (1) Improving the company's reputation-faults and problems are identified quickly, (2) Significant improvement in quality of products and services, (3) Customer satisfaction increase, which leads to additional sales, (4) a significant decrease of resources waste, (5) Increased productivity because the staff use the time more efficiently, (6) Increasing the market share on the long term, (7) The work force is motivated by additional responsibilities, teamwork and involvement in decision making on TQM, (8) Lower costs, (9) Focus on continuous improvement.

Understanding critical factors for successful implementation of TQM is very important for any organization, any organization has different critical area and determining critical factors must be based on the business activity of the company. In fact critical successful factors is those action and managerial decision that must be set and manage and control by top management of any organization to be ensure that any quality management effort will be successful in the organization. TQM implementation in service organization is different from implement TQM in industrial organization because of intangibility of service offered and measurement of quality in service organization. CSFs for TQM are based on human and behavioral factors such as employee satisfaction, customer satisfaction and job stress and so on. The most important critical factors for TQM implementation: (1) Top management commitment, (2) Customer satisfaction, (3) Employee involvement, (4) Training, (5) Organization quality culture (Fatemi et al, 2016, P.255, 257,259).

There are two kind of methodology in TQM implementation: Sequential approach (step by step approach in TQM implementation, including the necessity of cultural alignment before implementing TQM and TQM implementation roadmap) and Determinants of TQM (the implementation started on the factors of TQM practices itself). There is no single universal approach to TQM implementation in organization, a general sequence of four implementation phases for successful implementation. These phases include: Exploration and commitment, Planning and preparation, implementation and sustaining. Exploration and commitment phase: ( top management becoming aware of a need for change in the way the organization is run, developing a plan for organization wide-training, top



management investigating modern QI philosophy, engaging a consultant to provide basic education concerning the selected QI approach and basic training of the upper most tier of management ), Planning and preparation phase: ( Developing a strategic quality deployment process which the TQM process will be pursued, continuing top managements training into QI tools, extending training to middle managers and the workforce with quality awareness training given first at each level followed by QI tools), Implementation phase: ( continuing to realign the reward system to support the desired behavior, training teams, as teams in the skills and techniques needed to perform their assigned QI practices, top management rolling out the TQM process by implementing the results of the pilot practices teams, publishing the attendant success stories and extending the QI effort to teams and practices throughout the organization) and Sustaining phase: ( continuing planning for long-term quality improvement, continuing and intensifying focus on the improvement of the work processes of the organization with the objective of increasing customer satisfaction, continuing management commitment to the internal working of the process, continuing action in the training, teamwork, empowerment and participation of the workforce across the full spectrum of TQM activities, continuing study and implement action of advanced training and leadership practices, continuing active oversight by management of the TQM process) (Giri, 2014, p.6-20).

## **2.2 Previous Studies**

1. Study of (jules, 2004) in Participation of Employees in Decision Making in Public Enterprises: A Case Study of Rwandan communication Enterprises. The objectives of this study were: map out the degree of employee participation in the decision making process in the public enterprises of communication, identify whether employees desire to participate in decision making, find out the forms of participation being used in the communication enterprises, determine obstacles to the participation of personnel in decision making and identify whether there is difference between the hierarchical level of an employee and the extent of participation in decision making. A survey was performed in this research. It was administered to 96 employees and only 82 employees filled in and returned the questionnaire, a total

of 85%. Probability sampling and in particular stratified random sampling was used in this study. Data was gathered from the selected sample using self-administered questionnaires. Descriptive statistics were used to perform a set of statistical analysis including frequencies, percentages and cross tabulation. The results reveal that the extent of participation in the public companies of communication in Rwanda is very low, and this was justified by the fact that in the public enterprises of communication in Rwanda, the participative prerogatives are exclusively reserved for senior managers, whereas the subordinates like lower managers and ordinary workers implement the decisions already adopted by those at a higher level without any direct input. The majority of employees do not personally participate in the decision making procedure, they greatly desire to influence decisions adopted in their firms. The findings have revealed that the impediments to the participative process within the public enterprises of communication are: a lack of interest, initiative and support for the participative procedure from government, an authoritarian management approach, managers particularly general director who are unwilling to share decision making power with employees, managers enterprise hesitates to accept employees as valuable partners in making decisions and an inadequate understanding of employees concerning their new roles in the management of their enterprises.

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3. Study of (Ali et al, 2007) in HRM Issues in Quality Initiatives Malaysian Universities. The aim of this study to provide evidence on the importance of human Resources HR related factors in total quality management TQM implementation. The qualitative research approach permits the researcher to gain in depth and detailed insights into the subjective aspects of complex social and organizational information. The interviewing approach employed for this study. There were eight interviews carried out altogether in the seven participating Malaysian Public universities, where in one, two separate interviews were concluded to obtain more information. Results from the qualitative surveys suggest that performance of effective communication, visionary leadership, congruent objectives and recognition and motivation as the four most critical HR factors in TQM implementation. Quality HRM demands that the management of an organization consider the factors required to produce excellent

performance. The soft aspect is always suggested theoretically to be important to ensure successful TQM implementation.

4. Study of (Deros et al, 2008) in Role of Senior Management in TQM Implementation in Malaysian Small and Medium Enterprises. This study attempted to investigate the SMEs senior management perceptions and practices that believed to be critical for managing TQM implementation in an organization. A survey is considered the most economical among methods available for data collection due to its ability in performing quick efficient data collection and analysis. The sample for the full survey consisted of 150 SMEs, which were randomly selected from the Malaysian automotive industry vendors list. Questionnaire was sent by postal mail to senior management of each SME. Descriptive Statistics was used in data analysis. The authors concluded that the most significant TQM implementation critical success factors are the SMEs senior management perception and practices in setting realistic TQM objectives, providing TQM related training to their employees, making decision based on fact, enhancing teamwork effort, giving priority and attention to the internal and external customer. Comparing the perceptions of importance and actual practices reveal the similarities and consistencies between what SMEs senior management's perception of importance and actual practices on TQM. SMEs senior management have the least perception of importance and practice to quality commitment.
5. Study of (Kuye et al, 2011) in Employee Involvement in Decision Making and Firms Performance in The Manufacturing Sector in Nigeria. This study examines the relationship between employee involvement in decision making and firm's performance in the manufacturing sector in Nigeria. Data was gathered by means of questionnaires to 670 manufacturing firms on employee involvement in decision making and performance variables. Responses from the survey were statistically analyzed using descriptive statistics, product moment correlation, regression analysis and Z-test. Across sectional survey design was employed by collecting data from a defined population. A simple random sampling technique was used in selecting the participating manufacturing firms. The results of the study indicate a statistically significant relationship between employee involvement in

decision making and firms performance as well as reveal a significant difference between the performance of firms whose employee involvement in decision making are deep and the performance of firms whose employee involvement in decision making are shallow. The findings also reveal the involvement of participating firms in employee involvement in decision making.

6. Study of (Idris, 2011) in Total Quality Management and Sustainable Company Performances: Examining the Relationship in Malaysian Firms. This study investigates the relationship between total quality management elements and sustainable company performances. The study employed a large –sample cross sectional mail survey as a method of data collection. 400 questionnaires were sent to the CEO of companies listed in the SIRM directory containing ISO 9000 certified companies. Using exploratory factor analysis, it's found that the items clearly fall into six factors: leadership, best practices, customer focus, community focus and productivity focus. The study proceeds with the multiple regression analysis to test the leadership between the dependent sustainable company performances and the independent factors, the dimension of TQM. Leadership within the TQM constructs is the most influencing factor, while to impact on company performance, best practices and stakeholders focus must be implemented.
7. Study of (Sofijanovska and Chatleska, 2013) in Employee Involvement and Organizational Performance: Evidence from The Manufacturing sector in republic of Macedonia. This study explores the relationship between employee involvement decision making and problem solving and perceived organizational performance. Data were collected from surveys of 36 companies belonging to the Macedonian manufacturing industry. A hypothesis testing was carried out with a quantitative method and statistical analysis of data; questionnaire was used in data collection. The results of this study were: The effective use of employee involvements is positively related to perceived organizational performance, employee participation and empowerment programs and the use of self-managing teams have a direct and statistically significant correlation to the managerial perception of the organizational behavior.

8. Study of (Arshida and Agil, 2013) in Critical Success Factors for Total Quality Management Implementation within the Libyan Iron and Steel Company. This study investigates critical success factors for TQM implementation in Libyan Iron and Steel Company in order to improve the performance and identify the main impediments of implementing TQM successfully. Questionnaire survey and semi-structured interviews has been applied to achieve the aim of this study. The study combines two qualitative and quantitative methods. Data collected was analyzed by using SPSS program version 12.0. Sample size was 85 working employees within company. The finding of this study revealed that critical success factors for implementing total quality management in Libyan Iron and Steel Company are: education and training, supplier quality management, employee empowerment, vision and plan statement, recognition and reward and customer focus. This study has further identified three impediments that prevent Libyan Iron and Steel Company from implementing TQM successfully these impediments are: government influence poor vision statement, lack of a detailed plan towards implementation of TQM, lack of top management commitment.
9. Study of (Malik et al, 2013) in Investigating the Role of HR Focused TQM Practices in Employee Satisfaction and Loyalty: Financial Sector of Pakistan. This study examines the role of TQM practices which are based on HR, to assess the loyalty and satisfaction of the employees in financial sector of Pakistan. The methodology of this study is based on survey. Various organizations from this sector were selected. The method through which data was collected was on-site survey in which survey questionnaire were distributed in the organizations. To analyze the collected data, statistical software SPSS was used, regression analysis was run to find out the effect and correlation was made. The findings of the research indicate that the HR based TQM practices such as employee empowerment, training, teamwork, appraisal systems and compensation have a significant positive impact on employee satisfaction that result in a higher level of employee loyalty. Moreover, employee compensation and appraisal systems found most significant and positive impact on employee satisfaction.

10. Study of (Wairimu and Theuri, 2014) in Factors That Influence the Level of Staff Involvement in the Strategic Planning Process in Public Institutions. The study set to establish the factors that influence the level of staff involvement in the strategic planning process in public institutions with specific reference to the department of immigration in Kenya. The study has explored literature on strategic planning both public and private sector. The target populations were senior, middle – level management and junior staff at the department of immigration. The study used a sample of 80, using the stratified sampling technique where the different strata are the different job groups. Questionnaires were used to collect data from the respondents and analyzed using the SPSS statistical tool. Less effort is made by the department of immigration to sensitize junior staff members on the process of formulation and implementation of the strategic plan, especially employees at lower levels. It's concluded that senior and middle level managers are fully involved in the process and contributed toward the formulation of the plan. It became evident that staff members at low ranking position have less exposure to the process.
11. Study of (Zubair et al, 2015) in Employees' participation in Decision Making and Managers Encouragement of Creativity: The Mediating Role of Climate for Creativity and Change. This study aims to examine the relationships among employees participation in decision making (PDM), managers encouragement of creativity (MEOC) and employees creativity (CTY) and the role of climate for creativity and change (CLT) as possible mediator among the relationships. Across sectional research methodology was adopted. Data was collected from different organizations and groups of people at one particular time. Data was collected from individual working in telecommunication, textile and FMCG sector using questionnaires. Data was collected from 206 employees and 34 managers personally during work hours by administering questionnaires. Data was analyzed using SPSS employing process procedure (a regression based approach). The results indicated that employee's participation in decision making and manager's encouragement of creativity were positively related with employee's creativity. Support was also found for the role of climate for creating and changes as a partial mediator. Findings suggested that employee's

creativity was positively related with employee's participation in decision making and manager's encouragement of creativity through climate for creativity and change.

12. Study of (Mildred, 2016) in Effect of Employee Involvement on Job Performance at the Kenya Medical Research Institute (Center for Global Health Research Kisumu). The objective of this study was to determine the effect of employee involvement on job performance. This study adopted a descriptive surveys study design. The population was the entire staff of Kenya Medical Research Institute who was 867 in total. The sample size for this research was 174 (20% of population). The primary data collection instrument of this study was administered to the selected employees on a drop and pick later method. The data obtained was analyzed using descriptive analysis approach. The results indicate that employee involvement enhances job performance and there is a strong positive and significant relationship between employee involvement and job performance. Based on the results from data analysis, it can be derived that granting employees' freedom to participate in decisions that affect their work life enhances job performance, job satisfaction, increases efficiency which result in achievement of organizational goals.

As we notice all of dates are recent which means that the concept of people involvement has been recently discovered in field of organizational performance. The discovering was found by tracing the root of change in successfully companies with high effective TQM implementation policies, the change is mainly in HRM strategies toward a strong efficiency and effectiveness relationship between soft and hard aspect of TQM implementation.



# **Chapter Three**

## **Research Design and Methodology**

### **3.1 Overview**

This chapter deals with research procedures, and explains and describes the research strategy, the design of the study, and the research instruments used in order to achieve the purposes of this study in considering the research questions and hypotheses. In addition, other considerations such as targeting and sampling, ethical considerations, data validity and reliability are also discussed in detail in this chapter.

### **3.2 The Research Design**

The research design of this study is descriptive but starts with exploratory research based on secondary data to provide a clear insight on the dynamics and relationship between people involvement and TQM implementation. Also the use of the descriptive survey allows the collection of large amount from a sizeable population in a highly economical way.

### **3.3 The Research Strategy (Methodology)**

There are two main types of research strategies: quantitative and qualitative.

This research used Quantitative (human problem based on testing a hypothesis measured with numbers and analyzed with statistical procedures in order to determine whether the hypothesis holds true. Questionnaires were used as primary data collection method in this study.

### **3.4 The Research Method**

The methods and the procedures of the research translate the methodology or the approach into practice. The Following sections explain in detailed the research methods and how and why the researcher applied each specific method.

### 3.4.1 Data Collection Methods

As indicated earlier in this chapter, survey questionnaires were used as the basic tool in this study. The quantitative survey consisted of questionnaire contain ten hypotheses that cover the research question and hypothes which distributed for employees included managers both have the same questionnaire. The survey was cross sectional and self administrated throughout the research sample.

Table (3-1) represents the correlation between the research hypotheses and the data collection method (s) for each.

**Table (3-1): Correlation between the Research Hypotheses and the Data Collection Method.**

Number	Test Hypotheses	Data Collection Method
1	Involving people in strategy formulation will enhance TQM application.	Survey Questionnaire
2	Participation of people in decision making helps in empowering people in contribution to their consequence in responsibilities and solving problem.	Survey Questionnaire
3	Empowerment encourages commitment and creates a working environment.	Survey Questionnaire
4	Communication flow between people encourages awareness of quality.	Survey Questionnaire

#### 3.4.1.1 Questionnaire Design

The following five steps of questionnaire design process were followed by the researcher:

- Determined information to be drawn from the research objectives, questions and hypotheses with consideration to who will be able to supply the information.

- Determined the structure and the length of the questionnaire. The questionnaires were self-administrated and thus the researcher gave clear instructions with direct and simple questions.
- Prepared a draft questionnaires considering the content, format, layout ...ect.
- Pre-tested and revised the questionnaire as explain later in the data collection procedures section, and
- Assessed reliability and validity of the questionnaire

Based on the above mentioned steps, the questionnaire was divided into 3 sections:

Section 1: Company profile questions which fulfilled by manager of quality department, the questions contain facts about company in people involving concept with TQM application, this section was contained in one questionnaire of the total for each company because it was facts and did not have effect the result.

Section 2: General information (biographical questions), this section provided biographical information of the participants in terms of age, gender, range of experience and qualification

Section 3: Questionnaire statement in order to obtain a numerical measure of employees towards the actual aspects in the concept of people involvement, the researcher used a five response categories likert's scale (agreement scale), the five items were (strongly agree, agree, neutral or undecided, disagree, strongly disagree) and each participant had to read the statements and select only one item that represent his\her opinion. Any additional comments about the study were included after this section.

### **3.5 Research Population and Samples**

The following sections provide a full description of the populations and samples involved in this study and explain the sampling methods and procedures.

### 3.5.1 The Research Population

The population of this study was six companies in oil and gas sector: Sudanese oil corporation, Sudapet, Sudanese petroleum Pipeline Corporation, Nile petroleum, Greater Nile, Petro energy. All The employees of these companies were representing the population. The selection of these companies was based on many factors:

- All of these companies are applying TQM forms.
- Sharing the same policies and practices of TQM.
- Having aware about people involving concept and its effect on TQM implementation.

Table (3.2) shows the population for each company, total numbers of the population and the sample size of entire population.

**Table (3-2): The Population for Each Company, Total Numbers of the Population and the Sample Size**

Name of company	Population	Sample
Sudanese petroleum corporation	1088	82
Sudapet	300	23
Sudanese pipeline corporation	783	59
Nile Petroleum	196	15
Greater Nile	1200	91
Petro energy	1153	87
Population (N) 4720		
Sample size(n)357		

### 3.5.2 The Research Sample

The sample of this research was divided into 6 parts according to the number of employees from each company. To obtain truly quantitative data, maple size was serving this purpose.

### 3.5.2.1 The Survey Sampling Method and Size

The Researcher had to select specific number of participants from each company, for this reason the researcher used Stratified Random Sampling method which presents a process of selecting different numbers from different groups.

As the sample size strongly affects the validity of the results, the researcher used the sample size table which uses as reference to determine the sample size from total population.

For a population of 4720(which is the total number of employees of all departments in six companies under investigation), The table suggested 357 as the sample size of participants.

### 3.5.3 Sample Profile:

The following tables represent the sample profile and the initial statistical description of sample.

#### 3.5.3.1 Sudanese Oil Corporation Profile

Table (3-3) shows the frequency distribution of Gender in Sudanese Oil Corporation.

**Table (3-3): Frequency Distribution of Gender in Sudanese Oil Corporation.**

Statement	Frequencies	percentage
male	61	76.3%
female	19	23.7%
Total	80	100

The analysis shows that 76.3% of the sample was males, while only 23.7% was females. Which means a mostly of them was males.

Table (3-4) shows the frequency distribution of age Sudanese Oil Corporation

**Table (3-4): Frequency Distribution of age Sudanese Oil Corporation**

Statement	frequencies	percentage
21-30	6	7.5%
31-40	38	47.5%
41-50	19	23.8%
51-60	17	21.2%
Total	80	100

We found that 7.5% of sample ranged in age between 21-30,47.5% of sample ranged in age between 31-40,23.8% of sample ranged in age between 41-50 and 21.2% of sample ranged in age between 51-60.The range of age 31-40 was almost observed.

Table (3-5) shows the frequency distribution of Administrative level in Sudanese Oil Corporation

**Table (3-5): Frequency Distribution of Administrative level in Sudanese Oil Corporation**

Statement	Frequenci es	Percentage
Senior administration	13	16.3%
Intermediate Administration	40	50%
Supervisory Administration	27	33.7%
Total	80	100

We found that 16.3% of sample from senior administration, 50% of sample was intermediate administration and 33.7% of sample was supervisory administration. Which means sample was most in intermediate administration level.

Table (3-6) shows the frequency distribution of Years of Experience in Sudanese Oil Corporation.

**Table (3-6): Frequency Distribution of Years of Experience in Sudanese Oil Corporation.**

Statement	Frequencies	Percentage
0-5	8	10%
6-10	15	18.8%
11-15	26	32.6%
16-20	15	18.8%
More than 21	16	20%
Total	80	100

We found that 10% of sample was ranged between 0-5 years, 18.8% of sample was ranged between 10-6 years, 32.6% of sample was ranged between 11-15 years, 18.8% of sample was ranged between 20-16 years, 20% of sample was ranged over 21 years. Which means most of sample was in range between 11-15 years of experience.

Table (3-7) shows the frequency distribution of Basic qualification in Sudanese Oil Corporation.

**Table (3-7): Frequency Distribution of Basic qualification in Sudanese Oil Corporation.**

Statement	Frequencies	Percentage
High Secondary School	3	3.8%
Diploma	2	2.4%
Bachelor	75	93.8%
Total	80	100

We found that 3.8% of sample with secondary certification, 2.4% of sample with diploma and 93.8% of sample with bachelor. This means most of sample with bachelor.

Table (3-8) shows the frequency distribution of Additional qualification in Sudanese Oil Corporation.

**Table (3-8): Frequency distribution of Additional qualification in Sudanese Oil Corporation.**

Statement	Frequencies	Percentage
High Diploma	3	3.8%
Master Degree	31	38.8%
Doctorate	5	6.3%
Does not answer	41	51.3%
Total	80	100

We found that 3.8% of sample with high diploma, 28.8% of sample with mater degree, 6.3% of sample with doctorate, 51.3% of sample with no answers. This means most of sample with no additional qualifications.

Table (3-9) shows the frequency distribution of Professional specialization in Sudanese Oil Corporation.

**Table (3-9): Frequency Distribution of Professional specialization in Sudanese Oil Corporation.**

Statement	Frequencies	Percentage
Engineering	25	31.3
Technical	15	19.8
Administrative	19	23.8
Financial	18	22.5
Others	3	3.8
Total	80	100

We found that 31.3% of sample specialized in Engineering field, 19.8% of sample specialized in technical field, 23.8% of sample specialized in administrative field, 22.5% of sample specialized in financial field and 3.8% of sample specialized in other fields. This means most of sample was in engineering field.



### 3.5.3.2 Sudapet Corporation Profile

Table (3-10) shows the frequency distribution of Gender in Sudapet Corporation.

**Table (3-10): Frequency Distribution of Gender in Sudapet Corporation.**

Statement	Frequencies	Percentage
male	20	90.9
Female	3	9.9
Total	23	100

We found that 90.9% of sample was males while 9.9% of sample was females. This means most of sample was males included.

Table (3-11) shows the frequency distribution of Age in Sudapet Corporation.

**Table (3-11): Frequency Distribution of Age in Sudapet Corporation.**

Statement	Frequencies	Percentage
21-30	7	31.8
31-40	11	50
41-50	3	9.1
51-60	1	4.5
More than 60	1	4.5
Total	23	100

We found that 31.8% of sample was ranged in age between 21-30 year,50% of sample was ranged in age between 31-40 year,9.1% of sample was ranged in age between 41-50 year,4.5% of sample was ranged in age between 51-60 year and 4.5% of sample was over 60 year. This means most of sample was in age between 31-40 year.

Table (3-12) shows the frequency distribution of Administrative level in Sudapet Corporation.

**Table (3-12): Frequency Distribution of Administrative level in Sudapet Corporation.**

Statement	Frequencies	percentage
Senior Administration	3	13.6
Intermediate Administration	15	63.6
Supervisory Administration	5	22.7
Total	23	100

We found that 13.6% of sample was occupied by senior administration,63.6% of sample was occupied by intermediate administration and 22.7% of sample was occupied by supervisory administration. This means most of sample was occupied by intermediate administration.

Table (3-13) shows the frequency distribution of Years of Experience in Sudapet Corporation.

**Table (3-13): Frequency Distribution of Years of Experience in Sudapet Corporation.**

Statement	Frequencies	Percentage
0-5	3	13.6
10-6	9	36.3
11-15	5	22.7
16-20	4	18.2
More than 21	2	9.1
Total	23	100

We found that 13.6% of sample was ranged in experience between 0-5 year,36.3% of sample was ranged in experience between 6-10 year,22.7% of sample was ranged in experience between 11-15 year,18.2% of sample was ranged in experience between 16-20 year and 9.1% was ranged in experience over 21 year.This means most of sample was ranged in experience between 6-10 year.

Table (3-14) shows the frequency distribution of Basic qualification in Sudapet Corporation.

**Table (3-14): Frequency Distribution of Basic qualification in Sudapet Corporation.**

Statement	Frequencies	Percentage
Diploma	2	9.1
Bachelor	21	90.9
Total	23	100

We found that 9.1% of sample with diploma while 90.9% of sample with bachelor. This means most of sample with bachelor.

Table (3-15) shows the frequency distribution of Additional qualification in Sudapet Corporation.

**Table (3-15): Frequency Distribution of Additional qualification in Sudapet Corporation.**

Statement	Frequencies	Percentage
High Diploma	2	9.1
Master Degree	6	27.3
Does not answer	15	63.6
Total	23	100

We found that 9.1% of sample with high diploma, 27.3% of sample with master degree and 63.6% of sample with no answers for other additional qualification. This means most of sample with no additional qualification.

Table (3-16) shows the frequency distribution of Professional Specialization in Sudapet Corporation.

**Table (3-16): Frequency Distribution of Professional Specialization in Sudapet Corporation.**

Statement	Frequencies	Percentage
Engineering	11	45.5
Technical	3	13.6
Administrative	4	18.2
Financial	4	18.2
Others	1	4.5
Total	23	100

We found that 45.5% of sample specialized in engineering field,13.6% of sample specialized in technical field,18.2% of sample specialized in administrative field,18.2% of sample specialized in financial field and 4.5% of sample specialized in other fields. This means most of sample was specialized in engineering field.

### **3.5.3.3 Sudanese Petroleum Pipelines Corporation Profile**

Table (3-17) shows the frequency distribution of Gender in Sudanese Petroleum Pipelines Corporation.

**Table (3-17): Frequency Distribution of Gender in Sudanese Petroleum Pipelines Corporation**

Statement	Frequencies	Percentage
Male	26	52
Female	19	38
Does not answer	5	10
Total	50	100

We found that 52% of sample was males,38% of sample was females and 10% of sample was not answer.This means most of sample was males.

Table (3-18) shows the frequency distribution of Age in Sudanese Petroleum Pipelines Corporation.

**Table (3-18): Frequency Distribution of Age in Sudanese Petroleum Pipelines Corporation.**

Statement	Frequencies	Percentage
21-30	11	22
31-40	20	40
41-50	11	22
51-60	5	10
More than 60	3	6
Total	50	100

We found that 22% of sample was ranged in age between 21-30 year,40% of sample was ranged in age between 31-40 year,22% of sample was ranged in age between 41-50 year,10% Of sample was ranged in age between 51-60 years and 6% of sample was over 60 years .This means most of sample was ranged in age between 31-40 year.

Table (3-19) shows the frequency distribution of Administrative level in Sudanese Petroleum Pipelines.

**Table (3-19): Frequency Distribution of Administrative level in Sudanese Petroleum Pipelines.**

Statement	frequencies	Percentage
Senior Administration	16	32
Intermediate Administration	28	56
Supervisory Administration	6	12
Total	50	100

We found that 32% of sample occupied by senior administration,56% of sample occupied by intermediate administration,12% of sample occupied by supervisory administration.This means most of sample occupied by intermediate administration.

Table (3-20) shows the frequency distribution of Years of experience in Sudanese Petroleum Pipelines

**Table (3-20): Frequency Distribution of Years of experience in Sudanese Petroleum Pipelines**

Statement	Frequencies	Percentage
0-5	6	12
10-6	16	32
11-15	8	16
16-20	9	18
More than 21	11	22
Total	50	100

We found that 12% of sample ranged in experience between 0-5 years, 32% of sample ranged in experience between 6-10 year,16% of sample ranged in experience between 11-15 year,18% of sample was ranged in experience between 16-20 year and 22% of sample was over 21 year.This means most of sample ranged in experience between 6-10 years.

Table (3-21) shows the frequency distribution of Basic qualification in Sudanese Petroleum Pipeline.

**Table (3-21): Frequency Distribution of Basic qualification in Sudanese Petroleum Pipeline.**

Statement	Frequencies	Percentage
High Secondary school	2	4
Diploma	11	22
Bachelor	31	62
Does not answer	6	12
Total	50	100

We found that 4% of sample with high school certificate,22% of sample with diploma,62% bachelor and 12% of sample with no answers. This means most of sample with bachelor.

Table (3-22) shows the frequency distribution of Additional qualification in Sudanese Petroleum Pipeline.

**Table (3-22): Frequency Distribution of Additional qualification in Sudanese Petroleum Pipeline.**

Statement	frequencies	Percentage
High Diploma	3	6
Master Degree	7	14
Doctorate	1	2
Does not answer	39	78
Total	50	100

We found that 6% of sample with high diploma,14% of sample with master degree,2% of sample with doctorate and 78% of sample with no answers. This means most of sample with no additional qualification.

Table (3-23) shows the frequency distribution of Professional specialization in Sudanese Petroleum Pipeline.

**Table (3-23): Frequency Distribution of Professional specialization in Sudanese Petroleum Pipeline.**

Statement	frequencies	Percentage
Engineering	8	16
Technical	6	12
Administrative	29	58
Financial	3	6
Others	4	8
Total	50	100

We found that 16% of sample specialized in engineering field, 12% of sample specialized in technical field,58% of sample specialized in administrative field,6% of sample specialized in financial field and 8% of sample specialized in other field. This means most of sample specialized in administrative field.

### 3.5.3.4 Nile Petroleum Corporation Profile

Table (3-24) shows the frequency distribution of gender in Nile Petroleum Corporation.

**Table (3-24): Frequency Distribution of gender in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
Male	8	57.1
Female	6	42.9
Total	14	100

We found that 57.1% of sample was males while 42.9% of sample was female. This means most of sample was males.

Table (3-25) shows the frequency distribution of Age in Nile Petroleum Corporation.

**Table (3-25): Frequency Distribution of Age in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
21-30	4	28.6
31-40	7	50
41-50	3	21.4
Total	14	100

We found that 28.6% of sample ranged in age between 21-30 year, 50% of sample ranged in age between 31-40 year and 21.4% of sample ranged in age between 41-50 year. This means most of sample ranged in age between 31-40 year.



Table (3-26) shows the frequency distribution of Administrative level in Nile Petroleum Corporation.

**Table (3-26): Frequency Distribution of Administrative level in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
Senior Administration	2	14.3
Intermediate Administration	3	21.4
Supervisory Administration	6	42.9
Does not answer	3	21.4
Total	14	100

We found that 14.3% of sample occupied by senior administration, 21.4% of sample occupied by intermediate administration, 42.9% of sample occupied by supervisory administration and 21.4% of sample with no answers. This means most of sample occupied by supervisory administration.

Table (3-27) shows the frequency distribution of Years of Experience in Nile Petroleum Corporation.

**Table (3-27): Frequency Distribution of Years of Experience in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
0-5	1	7.1
6-10	4	28.6
11-15	7	50
16-20	2	14.3
Total	14	100

We found that 7.1% of sample ranged in experience between 0-5 years, 28.6% of sample ranged in experience between 6-10 year, 50% of sample ranged in experience between 11-15 year, 14.3% of sample ranged in experience between 16-20 year. This means most of sample ranged in experience between 11-15 year.

Table (3-28) shows the frequency distribution of Basic Qualification in Nile Petroleum Corporation.

**Table (3-28): Frequency Distribution of Basic Qualification in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
Bachelor	14	100
	14	100

We found that all of sample with Bachelor degree.

Table (3-29) shows the frequency distribution of Additional Qualification in Nile Petroleum Corporation.

**Table (3-29): Frequency Distribution of Additional Qualification in Nile Petroleum Corporation**

Statement	Frequencies	Percentage
High Diploma	1	7.1
Master Degree	4	28.6
Does not Answer	9	64.3
Total	14	100

We found that 7.1% of sample with diploma,28.6% of sample with master degree,64.3% of sample with no answers. This means most of sample with no additional qualifications.

Table (3-30) shows the frequency distribution of Professional Specialization in Nile Petroleum Corporation.

**Table (3-30): Frequency Distribution of Professional Specialization in Nile Petroleum Corporation.**

Statement	Frequencies	Percentage
Engineering	4	28.6
Technical	6	42.9
Financial	2	14.3
Others	2	14.3
Total	14	100

We found that 28.6% of sample specialized in engineering field,42.9% of sample specialized in administrative field.14.3% of sample specialized in financial field.14.3% of sample specialized in other fields.This means most of sample specialized in administrative field.

### 3.5.3.5 Greater Nile Corporation Profile

Table (3-31) shows the frequency distribution of Gender in Greater Nile Corporation.

**Table (3-31): Frequency Distribution of Gender in Greater Nile Corporation.**

Statement	Frequencies	Percentage
Male	45	69.2
Female	20	30.8
Total	65	100

We found that 69.2% of sample was males while 30.8% of sample was females. This means most of sample was males.

Table (3-32) shows the frequency distribution of Age in Greater Nile Corporation.

**Table (3-32): Frequency Distribution of Age in Greater Nile Corporation.**

Statement	Frequencies	Percentage
21-30	10	15.4
31-40	16	24.6
41-50	30	46.2
51-60	9	13.8
Total	65	100

We found that 15.4% of sample ranged in age between 21-30 year, 24.6% of sample ranged in age between 31-40 year, 46.2% of sample ranged in age between 41-50 year and 13.8% of sample ranged in age between 51-60 year. This means most of sample ranged in between 41-50 year.

Table (3-33) shows the frequency distribution of Administrative level in Greater Nile Corporation.

**Table (3-33): Frequency Distribution of Administrative level in Greater Nile Corporation.**

Statement	Frequencies	Percentage
Senior Administration	5	7.7
Intermediate Administration	42	64.6
Supervisory Administration	18	27.7
Total	65	100

We found that 7.7% of sample occupied by senior administration, 64.6% of sample occupied by intermediate administration and 27.7% of sample occupied by supervisory administration. This means most of sample occupied by intermediate administration.

Table (3-34) shows the frequency distribution of Years of Experience in Grater Nile Corporation.

**Table (3-34): Frequency Distribution of Years of Experience in Grater Nile Corporation.**

Statement	Frequencies	Percentage
0-5	5	7.7
6-10	15	23.1
11-15	14	21.6
16-20	22	33.8
More than 21	9	13.8
Total	65	100

We found that 7.7% of sample ranged in experience between 0-5 years,23.1% of sample ranged in experience between 6-10 year,21.6% of sample ranged in experience between 11-15 year,33.8% of sample ranged in experience between 16-20 year and 13.8% of sample over 21 year. This means most of sample ranged in experience between 16-20 year.

Table (3-35) shows the frequency distribution of Basic qualification in Greater Nile Corporation.

**Table (3-35): Frequency Distribution of Basic qualification in Greater Nile Corporation.**

Statement	Frequencies	Percentage
Diploma	5	7.7
Bachelor	60	92.7
Total	65	100

We found that 7.7% of sample with diploma while 92.7% of sample with bachelor degree. This means most of sample with bachelor degree.

Table (3-36) shows the frequency distribution of Additional qualification in Greater Nile Corporation.

**Table (3-36): Frequency Distribution of Additional qualification in Greater Nile Corporation.**

Statement	Frequencies	Percentage
High Diploma	7	10.8
Master Degree	23	35.4
Doctorate	4	6.2
Does not answer	31	47.6
Total	65	100

We found that 10.8% of sample with diploma, 35.4% of sample with master degree, 6.2% of sample with doctorate and 47.6% of sample with no answers. This means most of sample with no additional qualification.

Table (3-37) shows the frequency distribution of Professional Specialization in Greater Nile Corporation.

**Table (3-37): Frequency Distribution of Professional Specialization in Greater Nile Corporation.**

Statement	Frequencies	Percentage
Engineering	17	26.2
Technical	8	12.3
Administrative	27	41.5
Financial	10	15.4
Others	3	4.6
Total	65	100

We found that 26.2% of sample specialized in engineering field, 12.3% of sample specialized in technical field, 41.5% of sample specialized in administrative field, 15.4% of sample specialized in financial field, 4.6% of sample specialized in other field. This means most of sample specialized in administrative field.

### **3.5.3.6 Petro Energy Corporation Profile**

Table (3-38) shows the frequency distribution of Gender in Petro Energy Corporation.

**Table (3-38) Frequency Distribution of Gender in Petro Energy Corporation.**

Statement	Frequencies	Percentage
Male	54	77.1
Female	16	22.9
Total	70	100

We found that 77.1% of sample was males while 22.9% was females. This means most of sample was males.

Table (3-39) shows the frequency distribution of Age in Petro Energy Corporation.

**Table (3-39): Frequency Distribution of Age in Petro Energy Corporation.**

Statement	Frequency	Percentage
21-30	2	2.9
31-40	27	38.6
41-50	36	51.4
51-60	5	7.1
Total	70	100

We found that 2.9% of sample ranged in age between 21-30 year, 38.6% of sample ranged in age between 31-40 year, 51.4% of sample ranged in age between 41-50year, 7.1% of sample ranged in age between 51-60 years. This means most of sample ranged in age between 41-50 years.

Table (3-40) shows the frequency distribution of Administrative level in Petro Energy Corporation.

**Table (3-40): Frequency Distribution of Administrative level in Petro Energy Corporation.**

Statement	Frequency	Percentage
Senior Administration	3	4.3
Intermediate Administration	45	64.2
Supervisory Administration	22	31.4
Total	70	100

We found that 4.3% of sample occupied by senior administration,64.2% of sample occupied by intermediate administration and 31.4% of sample occupied by supervisory administration. This means most of sample occupied by intermediate administration.

Table (3-41) shows the frequency distribution of Years of Experience in Petro Energy Corporation.

**Table (3-41): Frequency Distribution of Years of Experience in Petro Energy Corporation.**

Statement	Frequencies	Percentage
0-5	1	1.4
6-10	11	15.7
11-15	43	61.4
16-20	12	17.1
More than 21	3	4.3
Total	70	100

We found that 1.4% of sample ranged in experience between 0-5 years, 15.7% of sample ranged in experience between 6-10 year, 61.4% of sample ranged in experience between 11-15 year, 17.1% of sample ranged in experience between 16-20 year, 4.3% of sample over 21 years. This means most of sample ranged in experience between 11-15 year.

Table (3-42) shows the frequency distribution of Basic Qualification in Petro Energy Corporation.

**Table (3-42): Frequency Distribution of Basic Qualification in Petro Energy Corporation.**

Statement	Frequencies	Percentage
Diploma	2	2.9
Bachelor	68	97.1
Total	70	100

We found that 2.9% of sample with diploma while 97.1% of sample with bachelor degree. This means most of sample with bachelor degree.



Table (3-43) shows the frequency distribution of Additional qualification in Petro Energy Corporation.

**Table (3-43): Frequency Distribution of Additional qualification in Petro Energy Corporation.**

Statement	Frequencies	Percentage
High Diploma	9	12.9
Master Degree	29	41.4
Doctorate	2	2.9
Does not answer	30	42.9
Total	70	100

We found that 12.9% of sample with high diploma,41.4% of sample with master degree,2.9% of sample with doctorate and 42.9% of sample with no answers. This means most of sample with no additional qualification.

Table (3-44) shows the frequency distribution of Professional Qualification in Petro Energy Corporation.

**Table (3-44): Frequency Distribution of Professional Qualification in Petro Energy Corporation.**

Statement	Frequencies	Percentage
Engineering	14	20
Technical	7	10
Administrative	32	45.7
Financial	7	10
Others	10	14.3
Total	70	100

We found that 20% of sample specialized in engineering field,10% of sample specialized in technical field, 45.7% of sample in administrative field,10% of sample specialized in financial field,14.3% of sample specialized in others field. This means most of sample specialized in administrative field.

### **3.6 Data Collection Procedures**

The data collection procedures began with the ethical committee at the ministry of oil and gas (Sudanese Oil Corporation) in order to obtain the ethical clearance document .Data was collected after permission was granted by HRM department for each company to get access to staff members through clearance document.

The researcher piloted the questionnaires by distributing them to a small random sample of employees. The pilot helped the researcher to identify any issues with the following:

- Clarity, coherence and understandability of questions.
- The suitability of the questionnaire in the term of length time it would take to administer.
- The reliability of the questionnaire.
- Other technical and layout issues.

Based on the results of the pilot study, the researcher made some changes to the questionnaire, some questions were omitting and some were merged since they were found to be too long, so that the length of the questionnaire was within acceptable limits. This step did not affect the results and findings of the study.

After the pilot study and adjustments of the questionnaire, the researcher started distributing the questionnaires among employees, the questionnaires were made available to participants in hard copies.

### **3.7 Data Analysis Methods**

The researcher used both numeric and non-numeric data analysis methods. The survey questionnaire was analyzed statically using the Statistical Packages for Social Science SPSS software. The process of data analysis begins with data preparation and description, the process is discussed in the following section.

### **3.7.1 Data preparation**

Data preparation included:

**Editing:** The first step was to edit the raw data to detect errors and to check that the data was gathered in suitable format.

**Coding:** Coding involves categorization responses into limited number of categories; the coding process covered the coding of close-ended questions.

**Data entry:** The researcher made use of Microsoft Excel spreadsheets to record the data collected through the survey questionnaires. This enable the researcher to code variables and store the data in a minimal space and on different types of data storage media until it was analyzed. Consequently the researcher transferred the data to the SPSS software for the analysis.

### **3.7.2 Data Description and Interpretation Methods**

Descriptive statistics were used to analyze the questionnaires data, the measures used to analyze data are:

1. **Frequencies:** This measure was used to sort and order the data.
2. **Percentages:** This was used to simplify the data by reducing numbers to a range from 1-100 and to translate data into a standard form with a base of 100 for compare results.
3. **The Mean:** The mean was to measure central tendency.
4. **Chi-square test:** Chi-square test used in this study to compare between different categories such as age, Gender ...etc.
5. **Significant value:** This was used to determine whether the hypothesis should be rejected or retained.
6. **Standard Deviation:** Standard Deviation was used to measure the numeric values spread out from the mean

### **3.8 Presentation of the Data**

To present the numerical data the researcher used tabular presentation.

### **3.9 Quality Criteria**

The quality of data is measured by looking at the reliability and also at the validity of the data. The following section explains all the validation procedures and how the validity and reliability issues were addressed in the study.

#### **3.9.1 Validity of the Questionnaire Data**

The researcher presented the survey questionnaire to experts and professional in judging it in the field of TQM for their comments. The researcher was assisted by:

- A number of doctors in the field of TQM including the supervisors who compared the instrument with the research questions and hypotheses.
- A language editor who checked the language suitability of the questionnaire.

#### **3.9.2 Reliability**

This study applied two types of reliability; T-test and the internal reliability.

##### **3.9.2.1 T- test**

This test was used to find a difference between respondents answers under different conditions before and after this circumstance to determine whether the answers were identical or not. This test was conducted on a number of subjects, sig value was less than 0.05. This means that there is no difference between respondents answers in both cases.

### **3.9.2.2 Internal Reliability (or Internal Consistency)**

The researcher measured this type of reliability by calculating (Cronbachs' alpha) to test the stability of the answer to the questionnaires. It measures the internal stability of the questions paragraphs and its ability to produce results consistent respondents responses to the questions paragraphs ,this value ranges from 0-100% and is acceptable if it is 60 or higher and vice versa. In this study the value was (0.75).This means that the stability of the tool is good and the results can be generalized.

### **3.10 Anticipated Ethical Issue in the Study**

The goal of ethics in research is to insure that anyone who has direct or indirect relationship with the research or researcher is not harmed or and does not suffers adverse consequences from the research activities. As this study involved human subjects through the use of questionnaires, the confidentiality of findings of the study is an essential aspect of its ethical considerations besides the protection of participant's identities.

The researcher obtained permission to carry out this study from her university and all other official authorities and individuals necessary. This means the researcher will share the research findings with all participants and their respective institutions.

The researcher obtained an ethical clearance from the concerned ethical committees at ministry of oil and gas (Sudanese oil corporation).Generally, the researcher followed all the guidelines to make this study ethically accepted.

#### **3.10.1 Ethical Issues in the Research Problem, Purposes, and Questions**

The ethical issues in the research problem, questions and purposes are equally important to the ethical considerations in data collection, analysis, and interpretation.

The research problem was discussed with the researcher supervisor(s) and its relation to the TQM implementation was strong so it was the critical point for the research, the purposes of the study were conveyed and

described to the participants in the questionnaire covering letter. Questions were concluded from research objectives to serve orientations of the research.

### **3.10.2 Ethical Issues in Data Collection**

The cover letter was means of trust and expression for the participants in data collection through ethical points included in it, they were:

- Identification of the researcher;
- Identification of the sponsoring sector;
- Identification of the purpose of the research;
- Identification of the benefits for participating;
- Guarantee of confidentiality to the participants;
- Provision the names of researcher to contact if any question arise;

Furthermore, the confidentiality of the results of this study is very essential, besides the protection of participant's identities. Thus:

- The questions of the questionnaire were about role of people involvement in applying TQM only, there were no pertaining to participant's personal lives. The Participants remained anonymous during the analysis and presentation of the data.
- The covering letters explained that the participant's answers will not be disseminated further. While the result of this study will be published, the researcher promised for the higher level of confidentiality and privacy about all information given.

### **3.10.3 Ethical Issues in the Data Analysis and Interpretation**

For the quantitative data, personal information of the participants was disassociated from their responses during the coding and recording process.

## Chapter Four

### Data Analysis and Discussion

#### 4.1 Overview

This chapter dealing with analysis of data that related to the sample to test the research hypotheses and determine differences of responses about their perception for the concept of involvement in TQM implementation.

**Table (4-1) Frequency Distribution of Sample Answers in First Hypothesis.**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Employees are given adequate time to plan for and test improvements.	16	67	93	104	22
		5.3%	22.2%	30.8%	34.4%	7.3%
2	Each department and work group within the company maintains specific goals to improve quality.	10	55	69	138	30
		3.3%	18.2%	22.8%	45.8%	9.9%
3	Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality planning.	15	55	65	124	42
		5.0%	18.3%	21.5%	41.2%	14.0%
4	External customers are playing a key role in setting priorities for quality planning.	15	48	105	100	34
		5.0%	15.9%	34.8%	33.1%	11.3%
5	Non-managerial	16	60	109	90	27

	employees are playing a key role in setting priorities for quality planning.	5.3%	19.9%	36.1%	29.8%	8.9%
6	Problem issues are identified; necessary action plans agreed and progress monitored are significant strategies for supplier's satisfaction.	10	26	97	127	42
		3.3%	8.6%	32.1%	42.1%	13.9%
7	The senior executives consistently participate in activities to improve the quality.	18	50	79	121	34
		6.0%	16.5%	26.1%	40.1%	11.3%
8	The CEO/Administrators are a primary driving force behind quality improvement efforts.	9	56	97	112	28
		3.0%	18.5%	32.1%	37.1%	9.3%
9	A company has an effective system for employees to make suggestions to management on how to improve quality.	25	64	83	96	34
		8.3%	21.2%	27.5%	31.7%	11.3%
10	A company emphasizes on assessing current customers' needs and expectations.	8	36	99	122	37
		2.6%	11.9%	32.8%	40.4%	12.3%
11	Customers' complaints are studied to identify patterns and prevent the same problems from recurring.	17	35	109	108	33
		5.6%	11.6%	36.1%	35.8%	10.9%
12	Supplier satisfied with the quality and level of information contained within company.	9	33	114	123	23
		3.0%	10.9%	37.8%	40.7%	7.6%



13	Each employee must respect the needs and expectations of their suppliers.	13	30	91	130	37
		4.3%	10.0%	30.2%	43.2%	12.3%
14	Operational outcomes are met according to company demands.	13	37	59	134	59
		4.3%	12.3%	19.5%	44.4%	19.5%
15	All the employees should be committed to change for TQM implementation.	15	47	102	86	52
		5.0%	15.6%	33.7%	28.5%	17.2%

Employees are given adequate time to plan for and test improvements there (16) employees with (5.3%) were strongly agree, (67) employees with (22.2%) were agree, (93) employees with (30.8%) were neutral, (104) employees with (34.4%) were disagree, (22) employees with (7.3%) were strongly disagree.

Each department and work group within the company maintains specific goals to improve quality there (10) employees with (3.3%) were strongly agree, (55) employees with (18.2%) were agree, (69) employees with (22.8%) were neutral, (138) employees with (45.8%) were disagree, (30) employees with (9.9%) were strongly disagree.

Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality planning there (15) employees with (5.0%) were strongly agree, (55) employees with (18.3%) were agree, (65) employees with (21.5%) were neutral, (124) employees with (41.2%) were disagree, (42) employees with (14.0%) were strongly disagree.

External customers are playing a key role in setting priorities for quality planning there (15) employees with (5.0%) were strongly agree, (48) employees with (15.9%) were agree, (105) employees with (34.8%) were neutral, (100) employees with (33.1%) were disagree, (34) employees with (11.3%) were strongly disagree.

Non-managerial employees are playing a key role in setting priorities for quality planning there (16) employees with (5.3%) were strongly agree, (60) employees with (19.9%) were agree, (109) employees with (36.1%) were neutral, (90) employees with (29.8%) were disagree, (27) employees with (8.9%) were strongly disagree.

Problem issues are identified; necessary action plans agreed and progress monitored are significant strategies for supplier's satisfaction there (10) employees with (3.3%) were strongly agree, (26) employees with (8.6%) were agree, (97) employees with (32.1%) were neutral, (127) employees with (42.1%) were disagree, (42) employees with (13.9%) were strongly disagree.

The senior executives consistently participate in activities to improve the quality there (18) employees with (6.0%) were strongly agree, (50) employees with (16.5%) were agree, (79) employees with (26.1%) were neutral, (121) employees with (40.1%) were disagree, (34) employees with (11.3%) were strongly disagree.

The CEO/Administrators are a primary driving force behind quality improvement efforts there (9) employees with (3.0%) were strongly agree, (56) employees with (18.5%) were agree, (97) employees with (32.1%) were neutral, (112) employees with (37.1%) were disagree, (28) employees with (9.3) were strongly disagree.

A company has an effective system for employees to make suggestions to management on how to improve quality there (25) employees with (8.3%) were strongly agree, (64) employees with (21.2%) were agree, (83) employees with (27.5%) were neutral, (96) employees with (31.7%) were disagree, (34) employees with (11.3%) were strongly disagree.

A company emphasizes on assessing current customers' needs and expectations there (8) employees with (2.6%) were strongly agree, (36) employees with (11.9%) were agree, (99) employees with (32.8%) were neutral, (122) employees with (40.4%) were disagree, (37) employees with (12.3%) were strongly disagree.

Customers' complaints are studied to identify patterns and prevent the same problems from recurring there (17) employees with (5.6%) were strongly agree, (35) employees with (11.6%) were agree, (109) employees with (36.1%) were neutral, (108) employees with (35.8%) were disagree, (33) employees with (10.9%) were strongly disagree.

Supplier satisfied with the quality and level of information contained within company there (9) employees with (3.0%) were strongly agree, (33) employees with (10.9%) were agree, (114) employees with (37.8%) were neutral, (123) employees with (40.7%) were disagree, (23) employees with (7.6%) were strongly disagree.

Each employee must respect the needs and expectations of their suppliers there (13) employees with (4.3%) were strongly agree, (30) employees with (10.0%) were agree, (91) employees with (30.2%) were neutral, (130) employees with (43.2%) were disagree, (37) employees with (12.3%) were strongly disagree.

Operational outcomes are met according to company demands there (13) employees with (4.3%) were strongly agree, (37) employees with (12.3%) were agree, (59) employees with (19.5%) were neutral, (134) employees with (44.4%) were disagree, (59) employees with (19.5%) were strongly disagree.

All the employees should be committed to change for TQM implementation there (15) employees with (5.0%) were strongly agree, (47) employees with (15.6%) were agree, (102) employees with (33.7%) were neutral, (86) employees with (28.5%) were disagree, (52) employees with (17.2%) were strongly disagree.

**Table (4-2) Results of Chi Square to Indicate the Differences of Answers in the First Hypothesis.**

No	Statement	Mean	S.D.	Chi2	P. value	result
1	Employees are given adequate time to plan for and test improvements.	2.84	1.02	106.84	0.00	neutral
2	Each department and work group within the company maintains specific goals to improve quality.	2.59	1.00	158.76	0.00	disagree
3	Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality planning.	2.59	1.09	107.89	0.00	neutral
4	External customers are playing a key role in setting priorities for quality planning.	2.70	1.02	107.11	0.00	neutral
5	Non-managerial employees are playing a key role in setting priorities for quality planning.	2.83	1.02	104.72	0.00	neutral
6	Problem issues are identified; necessary action plans agreed and progress monitored are significant strategies for supplier's satisfaction.	2.45	0.95	162.87	0.00	disagree
7	The senior executives consistently participate in activities to improve the quality.	2.66	1.07	109.62	0.00	Neutral
8	The CEO/Administrators are a	2.69	0.97	127.70	0.00	Neutral

	primary driving force behind quality improvement efforts.					
9	A company has an effective system for employees to make suggestions to management on how to improve quality.	2.83	1.13	61.94	0.00	Neutral
10	A company emphasizes on assessing current customers' needs and expectations.	2.52	0.94	151.87	0.00	Disagree
11	Customers' complaints are studied to identify patterns and prevent the same problems from recurring.	2.65	1.01	130.91	0.00	Neutral
12	Supplier satisfied with the quality and level of information contained within company.	2.61	0.89	191.77	0.00	Neutral
13	Each employee must respect the needs and expectations of their suppliers.	2.51	0.98	157.79	0.00	Neutral
14	Operational outcomes are met according to company demands.	2.37	1.06	136.01	0.00	Disagree
15	All the employees should be committed to change for TQM implementation.	2.63	1.09	77.77	0.00	Neutral

**Employees are given adequate time to plan for and test improvements.**

the mean is 2.84, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 106.84, with p.value 0.00 indicates a significant differences between the percents.

**Each department and work group within the company maintains specific goals to improve quality.**

the mean is 2.59, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 158.76, with p.value 0.00 indicates a significant differences between the percents.

**Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality planning.**

the mean is 2.59, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 107.89, with p.value 0.00 indicates a significant differences between the percents.

**External customers are playing a key role in setting priorities for quality planning.**

the mean is 2.70, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 107.11, with p.value 0.00 indicates a significant differences between the percents.

**Non-managerial employees are playing a key role in setting priorities for quality planning.**

the mean is 2.83, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 104.72, with p.value 0.00 indicates a significant differences between the percents.

**Problem issues are identified; necessary action plans agreed and progress monitored are significant strategies for supplier's satisfaction.**

the mean is 2.45, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 162.87, with p.value 0.00 indicates a significant differences between the percents.

**The senior executives consistently participate in activities to improve the quality.**

the mean is 2.66, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 109.62, with p.value 0.00 indicates a significant differences between the percents.

**The CEO/Administrators are a primary driving force behind quality improvement efforts.**

the mean is 2.69, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 127.70, with p.value 0.00 indicates a significant differences between the percents.

**A company has an effective system for employees to make suggestions to management on how to improve quality.**

the mean is 2.83, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 61.94, with p.value 0.00 indicates a significant differences between the percents.

**A company emphasizes on assessing current customers' needs and expectations.**

the mean is 2.52, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 151.87, with p.value 0.00 indicates a significant differences between the percents.

**Customers' complaints are studied to identify patterns and prevent the same problems from recurring.**

the mean is 2.65, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 130.91, with p.value 0.00 indicates a significant differences between the percents.

**Supplier satisfied with the quality and level of information contained within company.**

the mean is 2.61, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 191.77, with p.value 0.00 indicates a significant differences between the percents.

**Each employee must respect the needs and expectations of their suppliers.**

the mean is 2.51, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 157.79, with p.value 0.00 indicates a significant differences between the percents.

**Operational outcomes are met according to company demands.**

the mean is 2.37, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 136.01, with p.value 0.00 indicates a significant differences between the percents.

**All the employees should be committed to change for TQM implementation.**

the mean is 2.63, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 77.77, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-3) Total of the First Section**

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	S.D	Chi <sup>2</sup>	P. value	Result
209	699	1371	1715	534					
4.6%	15.4%	30.3%	37.9%	11.8%	2.63	1.03	37.60	0.00	Neutral

The mean of all over section one is 2.63, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 37.60, with p.value 0.00 indicates a significant differences between the percents.



**Table (4-4) Frequency Distribution of Sample Answers in Second Hypothesis.**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Employees are fully trained to negotiate, follow up, and fulfill supplier's needs.	11	36	107	121	27
		3.6%	11.9%	35.5%	40.1%	8.9%
2	Every employee's thought has been taken into consideration to make any quality decision.	16	53	104	100	29
		5.3%	17.5%	34.5%	33.1%	9.6%
3	Sufficient effort is made to get the opinions and ideas of the employees.	13	52	90	109	38
		4.3%	17.2%	29.8%	36.1%	12.6%
4	Employees' participation in company's success reduces the turnover and therefore reduces the cost of hiring and training new employees.	17	60	87	104	34
		5.6%	19.9%	28.8%	34.4%	11.3%
5	Structural changes (less complexity, reduction of throughput time and losses) are appreciated in company.	12	55	101	104	30
		4.0%	18.2%	33.5%	34.4%	9.9%

Employees are fully trained to negotiate, follow up, and fulfill supplier's needs there (11) employees with (3.6%) were strongly agree, (36) employees with (11.9%) were agree, (107) employees with (35.5%) were neutral, (121) employees with (40.1%) were disagree, (27) employees with (8.9%) were strongly disagree.

Every employee's thought has been taken into consideration to make any quality decision there (16) employees with (5.3%) were strongly agree, (53) employees with (17.5%) were agree, (104) employees with (34.5%) were neutral, (100) employees with (33.1%) were disagree, (29) employees with (9.6%) were strongly disagree.

Sufficient effort is made to get the opinions and ideas of the employees there (13) employees with (4.3%) were strongly agree, (52) employees with (17.2%) were agree, (90) employees with (29.8%) were neutral, (109) employees with (36.1%) were disagree, (38) employees with (12.6%) were strongly disagree.

Employees' participation in company's success reduces the turnover and therefore reduces the cost of hiring and training new employees there (17) employees with (5.6%) were strongly agree, (60) employees with (19.9%) were agree, (87) employees with (28.8%) were neutral, (104) employees with (34.4%) were disagree, (34) employees with (11.3%) were strongly disagree.

Structural changes (less complexity, reduction of throughput time and losses) are appreciated in company there (12) employees with (4.0%) were strongly agree, (55) employees with (18.2%) were agree, (101) employees with (33.5%) were neutral, (104) employees with (34.4%) were disagree, (30) employees with (9.9%) were strongly disagree.

**Table (4-5) Results of Chi Square to Indicate the Differences of Answers in the second Hypothesis.**

No	Statement	Mean	S.D.	Chi <sup>2</sup>	P. value	Result
1	Employees are fully trained to negotiate, follow up, and fulfill supplier's needs.	2.61	0.93	165.48	0.00	Neutral
2	Every employee's thought has been taken into consideration to make any quality decision.	2.76	1.02	107.30	0.00	Neutral
3	Sufficient effort is made to get the opinions and ideas of the employees.	2.65	1.04	100.28	0.00	Neutral
4	Employees' participation in company's success reduces the turnover and therefore reduces the cost of hiring and training new employees.	2.74	1.07	85.91	0.00	Neutral
5	Structural changes (less complexity, reduction of throughput time and losses) are appreciated in company.	2.72	1.00	113.33	0.00	Neutral

**Employees are fully trained to negotiate, follow up, and fulfill supplier's needs.**

the mean is 2.61, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 165.48, with p.value 0.00 indicates a significant differences between the percents.

**Every employee's thought has been taken into consideration to make any quality decision.**

the mean is 2.76, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 107.30, with p.value 0.00 indicates a significant differences between the percents.

**Sufficient effort is made to get the opinions and ideas of the employees.**

the mean is 2.65, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 100.28, with p.value 0.00 indicates a significant differences between the percents.

**Employees' participation in company's success reduces the turnover and therefore reduces the cost of hiring and training new employees.**

the mean is 2.74, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 85.91, with p.value 0.00 indicates a significant differences between the percents.

**Structural changes (less complexity, reduction of throughput time and losses) are appreciated in company.**

the mean is 2.72, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 113.33, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-6) Total of the Second Section**

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	S.D	Chi <sup>2</sup>	P. value	Result
69	256	489	538	158					
4.6%	16.9%	32.4%	35.6%	10.5%	2.70	1.02	36.71	0.00	Neutral

the mean of all over section one is 2.70, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 36.71, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-7) Frequency Distribution of Sample Answers in Third Hypothesis.**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement.	8	59	51	150	34
		2.6%	19.5%	16.9%	49.7%	11.3%
2	The senior executives generate confidence that efforts to improve quality will succeed.	8	48	72	140	33
		2.7%	15.9%	23.9%	46.5%	11.0%
3	The senior executives have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality.	10	52	90	123	27
		3.3%	17.2%	29.8%	4.8%	8.9%
4	Employees are given education and training in how to identify and act on quality improvement opportunities.	17	50	75	130	30
		5.6%	16.6%	24.8%	43.1%	9.9%
5	Employees are given education and training in their field and other quantitative methods that support quality improvement.	15	54	75	132	26
		5.0%	17.9%	24.8%	43.7%	8.6%
6	Employees have the authority to correct problems in their area when quality standards are	22	63	95	100	22
		7.3%	20.8%	31.5%	33.1%	7.3%

	not being met.					
7	Employees are supported when they take necessary risks to improve quality.	19	64	102	92	25
		6.3%	21.2%	33.7%	30.5%	8.3%
8	A company does a good job of assessing future customer needs and expectations.	10	31	106	122	33
		3.3%	10.3%	35.1%	40.4%	10.9%
9	Employees promptly solve customer complaints.	12	42	96	119	33
		4.0%	13.9%	31.8%	39.4%	10.9%
10	Benchmarking has been used to enhance the performance of employees of the company.	24	46	81	107	44
		7.9%	15.2%	26.8%	35.5%	14.6%
11	Employees' involvement and empowerment encourages them to exert the best.	18	31	64	129	60
		6.0%	10.3%	21.2%	42.6%	19.9%
12	Employee satisfaction can lead to better efficiency.	18	21	36	125	102
		6.0%	7.0%	11.6%	41.5%	33.9%
13	Constant employee awareness and feedback on status are provided and a reward/recognition process is established.	17	65	79	115	26
		5.6%	21.5%	26.2%	38.1%	8.6%

The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement there (8) employees with (2.6%) were strongly agree, (59) employees with (19.5%) were agree, (51) employees with (16.9%) were neutral, (150) employees with (49.7%) were disagree, (34) employees with (11.3%) were strongly disagree.

The senior executives generate confidence that efforts to improve quality will succeed there (8) employees with (2.7%) were strongly agree, (48) employees with (15.9%) were agree, (72) employees with (23.9%) were neutral, (140) employees with (46.5%) were disagree, (33) employees with (11.0%) were strongly disagree.

The senior executives have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality there (10) employees with (3.3%) were strongly agree, (52) employees with (17.2%) were agree, (90) employees with (29.8%) were neutral, (123) employees with (48%) were disagree, (27) employees with (8.9%) were strongly disagree.

Employees are given education and training in how to identify and act on quality improvement opportunities there (17) employees with (5.9%) were strongly agree, (50) employees with (16.6%) were agree, (75) employees with (24.8%) were neutral, (130) employees with (43.1%) were disagree, (30) employees with (9.9%) were strongly disagree.

Employees are given education and training in their field and other quantitative methods that support quality improvement there (15) employees with (5.0%) were strongly agree, (54) employees with (17.9%) were agree, (75) employees with (24.8%) were neutral, (132) employees with (43.7%) were disagree, (26) employees with (8.6%) were strongly disagree.

Employees have the authority to correct problems in their area when quality standards are not being met there (22) employees with (7.3%) were strongly agree, (63) employees with (20.8%) were agree, (95) employees with (31.5%) were neutral, (100) employees with (33.1%) were disagree, (22) employees with (7.3%) were strongly disagree.

Employees are supported when they take necessary risks to improve quality there (19) employees with (6.3%) were strongly agree, (64) employees with (21.2%) were agree, (102) employees with (33.7%) were

neutral, (92) employees with (30.5%) were disagree, (25) employees with (8.3%) were strongly disagree.

A company does a good job of assessing future customer needs and expectations there (10) employees with (3.3%) were strongly agree, (31) employees with (10.3%) were agree, (106) employees with (35.1%) were neutral, (122) employees with (40.4%) were disagree, (33) employees with (10.9%) were strongly disagree.

Employees promptly solve customer complaints there (12) employees with (4.0%) were strongly agree, (42) employees with (13.9%) were agree, (96) employees with (31.8%) were neutral, (119) employees with (39.4%) were disagree, (33) employees with (10.9%) were strongly disagree.

Benchmarking has been used to enhance the performance of employees of the company there (24) employees with (7.9%) were strongly agree, (46) employees with (15.2%) were agree, (81) employees with (26.8%) were neutral, (10) employees with (35.5%) were disagree, (44) employees with (14.6%) were strongly disagree.

Employees' involvement and empowerment encourages them to exert the best there (18) employees with (6.0%) were strongly agree, (31) employees with (10.3%) were agree, (64) employees with (21.2%) were neutral, (129) employees with (42.6%) were disagree, (60) employees with (19.9%) were strongly disagree.

Employee satisfaction can lead to better efficiency there (18) employees with (6.0%) were strongly agree, (21) employees with (7.0%) were agree, (36) employees with (11.6%) were neutral, (125) employees with (41.5%) were disagree, (102) employees with (33.9%) were strongly disagree.

Constant employee awareness and feedback on status are provided and a reward/recognition process is established there (17) employees with (5.6%) were strongly agree, (65) employees with (21.5%) were agree, (79) employees with (26.2%) were neutral, (115) employees with (38.1%) were disagree, (26) employees with (8.6%) were strongly disagree.



**Table (4-8) Results of Chi Square to Indicate the Differences of Answers in the Third hypothesis.**

No	Statement	Mean	S.D.	Chi2	P. value	Result
1	The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement.	2.53	1.01	191.41	0.00	Disagree
2	The senior executives generate confidence that efforts to improve quality will succeed.	2.53	0.97	168.12	0.00	neutral
3	The senior executives have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality.	2.65	0.97	141.08	0.00	Neutral
4	Employees are given education and training in how to identify and act on quality improvement opportunities.	2.65	1.05	132.01	0.00	Neutral
5	Employees are given education and training in their field and other quantitative methods that support quality improvement.	2.67	1.02	142.80	0.00	Neutral
6	Employees have the authority to correct problems in their area when quality standards are not being met.	2.88	1.05	94.72	0.00	Neutral
7	Employees are supported when they take necessary risks to improve quality.	2.87	1.04	94.52	0.00	Neutral

8	A company does a good job of assessing future customer needs and expectations.	2.55	0.93	166.05	0.00	Disagree
9	Employees promptly solve customer complaints.	2.61	0.99	134.66	0.00	neutral
10	Benchmarking has been used to enhance the performance of employees of the company.	2.67	1.14	72.80	0.00	neutral
11	Employees' involvement and empowerment encourages them to exert the best.	2.40	1.10	122.21	0.00	disagree
12	Employee satisfaction can lead to better efficiency.	2.10	1.12	163.07	0.00	Disagree
13	Constant employee awareness and feedback on status are provided and a reward/recognition process is established.	2.77	1.06	106.21	0.00	neutral

**The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement.**

the mean is 2.53, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 191.41, with p.value 0.00 indicates a significant differences between the percents.

**The senior executives generate confidence that efforts to improve quality will succeed.**

the mean is 2.53, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 168.12, with p.value 0.00 indicates a significant differences between the percents.

**The senior executives have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality.**

the mean is 2.65, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 141.08, with p.value 0.00 indicates a significant differences between the percents.

**Employees are given education and training in how to identify and act on quality improvement opportunities.**

the mean is 2.65, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 132.01, with p.value 0.00 indicates a significant differences between the percents.

**Employees are given education and training in their field and other quantitative methods that support quality improvement.**

the mean is 2.67, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 142.80, with p.value 0.00 indicates a significant differences between the percents.

**Employees have the authority to correct problems in their area when quality standards are not being met.**

the mean is 2.88, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 94.72, with p.value 0.00 indicates a significant differences between the percents.

**Employees are supported when they take necessary risks to improve quality.**

the mean is 2.87, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 94.52, with p.value 0.00 indicates a significant differences between the percents.

**A company does a good job of assessing future customer needs and expectations.**

the mean is 2.55, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 166.05, with p.value 0.00 indicates a significant differences between the percents.

**Employees promptly solve customer complaints.**

the mean is 2.61, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 134.66, with p.value 0.00 indicates a significant differences between the percents.

**Benchmarking has been used to enhance the performance of employees of the company.**

the mean is 2.67, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 72.80, with p.value 0.00 indicates a significant differences between the percents.

**Employees' involvement and empowerment encourages them to exert the best.**

the mean is 2.40, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 122.21, with p.value 0.00 indicates a significant differences between the percents.

**Employee satisfaction can lead to better efficiency.**

the mean is 2.10, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 163.07, with p.value 0.00 indicates a significant differences between the percents.

**Constant employee awareness and feedback on status are provided and a reward/recognition process is established.**

the mean is 2.77, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 106.21, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-9) Total of the Third Section**

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	S.D	Chi <sup>2</sup>	P. value	Result
198	626	1022	1584	495	2.60	1.05	37.50	0.00	Neutral
5.0	15.9	26.0	40.4	12.6					

The mean of all over section one is 2.60, which located in the range of the answer (neutral) regarding to likart . the chi<sup>2</sup> value 37.50, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-10) Frequency Distribution of Sample Answers in Fourth Hypothesis.**

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Senior executives seek information on needs and suggestions for quality improvement directly from external customers.	14	70	72	113	33
		4.6%	23.2%	23.8%	37.4%	10.9%
2	The managerial system collects a wide range of data and information about the quality.	9	51	78	123	41
		3.0%	16.9%	25.8%	40.7%	13.6%
3	The managerial system uses a wide range of data and information about the quality to make improvements.	7	46	95	120	34
		2.3%	15.2%	31.5%	39.7%	11.3%
4	The managerial system continually tries to improve how it uses data and information on the quality.	8	52	93	115	34
		2.6%	17.2%	30.8%	38.1%	11.3%
5	Employees are actively	10	59	74	121	38

	involved in determining what data are collected for the purpose of improving the quality.	3.3%	19.5%	24.5%	40.1%	12.6%
6	The managerial system disseminates the data and information to all the employees.	24	64	85	99	30
		7.9%	21.2%	28.1%	32.9%	9.9%
7	The managerial system uses data on customer expectations and/or satisfaction when designing new processes.	18	42	104	102	36
		6.0%	13.9%	34.4%	33.8%	11.9%
8	Common types of faults are informed to all the employees in the same field.	14	56	100	111	21
		4.6%	18.5%	33.1%	36.8%	7.0%
9	The causes of all the possible faults are identified and informed to all the employees in the same field.	11	54	97	120	20
		3.6%	17.9%	32.1%	39.8%	6.6%
10	Company is fully satisfied with the spirit of team work.	12	38	105	96	51
		4.0%	12.6%	34.7%	31.8%	16.9%
11	Continuous improvement tools (brainstorming, check sheet and other statistical process control) are applied on regular basis.	15	50	111	101	25
		5.0%	16.6%	36.7%	33.4%	8.3%
12	Various continuous improvement approaches (Deming Approach, Kaizen Approach) are practiced in	11	26	46	144	74
		3.7%	8.6%	15.3%	47.8%	24.6%

	the company.					
13	Integrity, ethics and trust are essential prerequisite for TQM implementation.	24	12	46	102	118
		7.9%	4.0%	15.2%	33.8%	39.1%
14	A company with strong comprehensive culture implements highly the TQM elements of top management leadership, people, process, customer, and supplier management.	19	22	56	114	91
		6.3%	7.3%	18.5%	37.8%	30.1%
15	As company's culture dictates the way a sector responds to environmental stimuli (in the form of strategy), the TQM practices are the manifestations of company culture.	17	26	73	124	62
		5.6%	8.6%	24.2%	41.1%	20.5%
16	A company culture reflects the prevailing ideology people carry inside their heads, it conveys a sense of identity to employees, provide unwritten and, often, unspoken guidelines for how to get along in the industry.	20	22	79	124	57
		6.6%	7.3%	26.2%	41.1%	18.8%
17	Company maintains cooperative relations with suppliers	9	30	79	138	46
		3.0%	9.9%	26.2%	45.7%	15.2%
18	Company encourages team working.	15	24	47	156	60
		5.0%	7.9%	15.6%	51.6%	19.9%

Senior executives seek information on needs and suggestions for quality improvement directly from external customers there (14) employees with (4.6%) were strongly agree, (70) employees with (23.2%) were agree, (72) employees with (23.8%) were neutral, (113) employees with (37.4%) were disagree, (33) employees with (10.9%) were strongly disagree.

The managerial system collects a wide range of data and information about the quality there (9) employees with (3.0%) were strongly agree, (51) employees with (61.9%) were agree, (78) employees with (25.8%) were neutral, (123) employees with (40.7%) were disagree, (41) employees with (13.6%) were strongly disagree.

The managerial system uses a wide range of data and information about the quality to make improvements there (7) employees with (2.3%) were strongly agree, (46) employees with (15.2%) were agree, (95) employees with (31.5%) were neutral, (120) employees with (39.7%) were disagree, (34) employees with (11.3%) were strongly disagree.

The managerial system continually tries to improve how it uses data and information on the quality there (8) employees with (2.6%) were strongly agree, (52) employees with (17.2%) were agree, (93) employees with (30.8%) were neutral, (115) employees with (38.1%) were disagree, (34) employees with (11.3%) were strongly disagree.

Employees are actively involved in determining what data are collected for the purpose of improving the quality there (10) employees with (3.3%) were strongly agree, (59) employees with (19.5%) were agree, (74) employees with (24.5%) were neutral, (121) employees with (40.1%) were disagree, (38) employees with (12.6%) were strongly disagree.

The managerial system disseminates the data and information to all the employees there (24) employees with (7.9%) were strongly agree, (64) employees with (21.2%) were agree, (85) employees with (28.1%) were neutral, (99) employees with (32.9%) were disagree, (30) employees with (9.9%) were strongly disagree.



The managerial system uses data on customer expectations and/or satisfaction when designing new processes there (18) employees with (6.0%) were strongly agree, (42) employees with (13.9%) were agree, (104) employees with (34.4%) were neutral, (102) employees with (33.8%) were disagree, (36) employees with (11.9%) were strongly disagree.

Common types of faults are informed to all the employees in the same field there (14) employees with (4.6%) were strongly agree, (56) employees with (18.5%) were agree, (100) employees with (33.1%) were neutral, (111) employees with (36.8%) were disagree, (21) employees with (7.0%) were strongly disagree.

The causes of all the possible faults are identified and informed to all the employees in the same field there (11) employees with (3.6%) were strongly agree, (54) employees with (17.9%) were agree, (97) employees with (32.1%) were neutral, (120) employees with (39.8%) were disagree, (20) employees with (6.6%) were strongly disagree.

Company is fully satisfied with the spirit of team work there (12) employees with (4.0%) were strongly agree, (38) employees with (12.6%) were agree, (105) employees with (34.7%) were neutral, (96) employees with (31.8%) were disagree, (51) employees with (16.9%) were strongly disagree.

Continuous improvement tools (brainstorming, check sheet and other statistical process control) are applied on regular basis there (15) employees with (5.0%) were strongly agree, (50) employees with (16.6%) were agree, (111) employees with (36.7%) were neutral, (101) employees with (33.4%) were disagree, (25) employees with (8.3%) were strongly disagree.

Various continuous improvement approaches (Deming Approach, Kaizen Approach) are practiced in the company there (11) employees with (3.7%) were strongly agree, (26) employees with (8.6%) were agree, (46) employees with (15.3%) were neutral, (144) employees with (47.8%) were disagree, (74) employees with (24.6%) were strongly disagree.

Integrity, ethics and trust are essential prerequisite for TQM implementation there (24) employees with (7.9%) were strongly agree, (12) employees with (4.0%) were agree, (46) employees with (15.2%) were neutral, (102) employees with (33.8%) were disagree, (118) employees with (39.1%) were strongly disagree.

A company with strong comprehensive culture implements highly the TQM elements of top management leadership, people, process, customer, and supplier management there (19) employees with (6.3%) were strongly agree, (22) employees with (7.3%) were agree, (56) employees with (18.5%) were neutral, (114) employees with (37.8%) were disagree, (91) employees with (30.1%) were strongly disagree.

As company's culture dictates the way a sector responds to environmental stimuli (in the form of strategy), the TQM practices are the manifestations of company culture there (17) employees with (5.6%) were strongly agree, (26) employees with (8.6%) were agree, (73) employees with (24.2%) were neutral, (124) employees with (41.1%) were disagree, (62) employees with (20.5%) were strongly disagree.

A company culture reflects the prevailing ideology people carry inside their heads, it conveys a sense of identity to employees, provide unwritten and, often, unspoken guidelines for how to get along in the industry there (20) employees with (6.6%) were strongly agree, (22) employees with (7.3%) were agree, (79) employees with (26.2%) were neutral, (124) employees with (41.1%) were disagree, (57) employees with (18.8%) were strongly disagree.

Company maintains cooperative relations with suppliers there (9) employees with (3.0%) were strongly agree, (30) employees with (9.9%) were agree, (79) employees with (26.2%) were neutral, (138) employees with (45.7%) were disagree, (46) employees with (15.2%) were strongly disagree.

Company encourages team working there (15) employees with (5.0%) were strongly agree, (24) employees with (7.9%) were agree, (47)

employees with (15.6%) were neutral, (156) employees with (51.6%) were disagree, (60) employees with (19.9%) were strongly disagree.

**Table (4-11) Results of Chi Square to Indicate the Differences of Answers in the Fourth Hypothesis.**

No	Statement	Mean	S.D.	Chi2	P. value	result
1	Senior executives seek information on needs and suggestions for quality improvement directly from external customers.	2.73	1.08	97.64	0.00	neutral
2	The managerial system collects a wide range of data and information about the quality.	2.55	1.02	121.44	0.00	Disagree
3	The managerial system uses a wide range of data and information about the quality to make improvements.	2.58	0.96	140.81	0.00	Disagree
4	The managerial system continually tries to improve how it uses data and information on the quality.	2.62	0.98	125.12	0.00	Neutral
5	Employees are actively involved in determining what data are collected for the purpose of improving the quality.	2.61	1.04	114.26	0.00	Neutral
6	The managerial system disseminates the data and information to all the employees.	2.84	1.11	72.14	0.00	Neutral
7	The managerial system uses data on customer expectations	2.68	1.04	105.35	0.00	Neutral

	and/or satisfaction when designing new processes.					
8	Common types of faults are informed to all the employees in the same field.	2.77	0.98	130.02	0.00	Neutral
9	The causes of all the possible faults are identified and informed to all the employees in the same field.	2.72	0.95	149.09	0.00	Neutral
10	Company is fully satisfied with the spirit of team work.	2.55	1.04	102.47	0.00	disagree
11	Continuous improvement tools (brainstorming, check sheet and other statistical process control) are applied on regular basis.	2.76	0.99	126.34	0.00	Neutral
12	Various continuous improvement approaches (Deming Approach, Kaizen Approach) are practiced in the company.	2.19	1.02	182.80	0.00	Disagree
13	Integrity, ethics and trust are essential prerequisite for TQM implementation.	2.08	1.19	147.74	0.00	Disagree
14	A company with strong comprehensive culture implements highly the TQM elements of top management leadership, people, process, customer, and supplier management.	2.22	1.14	116.18	0.00	Disagree
15	As company's culture dictates the way a sector responds to environmental stimuli (in the	2.38	1.07	120.42	0.00	Disagree

	form of strategy), the TQM practices are the manifestations of company culture.					
16	A company culture reflects the prevailing ideology people carry inside their heads, it conveys a sense of identity to employees, provide unwritten and, often, unspoken guidelines for how to get along in the industry.	2.42	1.08	124.32	0.00	Disagree
17	Company maintains cooperative relations with suppliers	2.40	0.96	167.90	0.00	Disagree
18	Company encourages team working.	2.26	1.02	210.35	0.00	disagree

**Senior executives seek information on needs and suggestions for quality improvement directly from external customers.**

the mean is 2.73, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 97.64, with p.value 0.00 indicates a significant differences between the percents.

**The managerial system collects a wide range of data and information about the quality.**

the mean is 2.55, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 121.44, with p.value 0.00 indicates a significant differences between the percents.

**The managerial system uses a wide range of data and information about the quality to make improvements.**

the mean is 2.58, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 140.81, with p.value 0.00 indicates a significant differences between the percents.

**The managerial system continually tries to improve how it uses data and information on the quality.**

the mean is 2.62, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 125.12, with p.value 0.00 indicates a significant differences between the percents.

**Employees are actively involved in determining what data are collected for the purpose of improving the quality.**

the mean is 2.61, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 114.26, with p.value 0.00 indicates a significant differences between the percents.

**The managerial system disseminates the data and information to all the employees.**

the mean is 2.84, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 72.14, with p.value 0.00 indicates a significant differences between the percents.

**The managerial system uses data on customer expectations and/or satisfaction when designing new processes.**

the mean is 2.68, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 105.35, with p.value 0.00 indicates a significant differences between the percents.

**Common types of faults are informed to all the employees in the same field.**

the mean is 2.77, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 130.02, with p.value 0.00 indicates a significant differences between the percents.

**The causes of all the possible faults are identified and informed to all the employees in the same field.**

the mean is 2.72, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 149.09, with p.value 0.00 indicates a significant differences between the percents.

**Company is fully satisfied with the spirit of team work.**

the mean is 2.55, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 102.47, with p.value 0.00 indicates a significant differences between the percents.

**Continuous improvement tools (brainstorming, check sheet and other statistical process control) are applied on regular basis.**

the mean is 2.76, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 126.34, with p.value 0.00 indicates a significant differences between the percents.

**Various continuous improvement approaches (Deming Approach, Kaizen Approach) are practiced in the company.**

the mean is 2.19, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 182.80, with p.value 0.00 indicates a significant differences between the percents.

**Integrity, ethics and trust are essential prerequisite for TQM implementation.**

the mean is 2.08, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 147.74, with p.value 0.00 indicates a significant differences between the percents.

**A company with strong comprehensive culture implements highly the TQM elements of top management leadership, people, process, customer, supplier management**

the mean is., which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 116.18, with p.value 0.00 indicates a significant differences between the percents.

**As company's culture dictates the way a sector responds to environmental stimuli (in the form of strategy), the TQM practices are the manifestations of company culture.,**

the mean is which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 120.42, with p.value 0.00 indicates a significant differences between the percents.

**A company culture reflects the prevailing ideology people carry inside their heads, it conveys a sense of identity to employees, provide unwritten and, is often, unspoken guidelines for how to get along in the industry.**

the mean, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 124.32, with p.value 0.00 indicates a significant differences between the percents.

**Company maintains cooperative relations with suppliers**

the mean is 2.40, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 167.90, with p.value 0.00 indicates a significant differences between the percents.



**Company encourages team working.**

the mean is 2.26, which located in the range of the answer (disagree) regarding to likart . the  $\chi^2$  value 210.35, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-12) Total of the Fourth Section**

Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	S.D	Chi <sup>2</sup>	P. value	Result
257	744	1440	2123	871	2.52	1.06	34.84	0.00	2.52
4.7%	13.7%	26.5%	39.1%	16.0%					

The mean of all over section one is 2.52, which located in the range of the answer (neutral) regarding to likart . the  $\chi^2$  value 34.84, with p.value 0.00 indicates a significant differences between the percents.

**Table (4-13) ANOVA one-way test differences in scores between corporations (first hypothesis)**

Corporations	N	Mean	S.D.	F	P. value	Differences
Sudanese Petroleum Pipeline	50	2.50	0.58	4.06	0.00	Significant
Nile petroleum	14	2.76	0.67			
Petroeneregey	70	2.90	0.63			
Greater Nile	65	2.42	0.56			
sudanese oil corporation	80	2.67	0.82			
Sudapet	23	2.62	0.72			
Total	302	2.64	0.69			

A one-way between-groups analysis of variance was conducted to explore the differences between the corporations. There was a statistically

significant difference at the  $p < 0.05$  level in scores for the six groups [F=4.06, p=0.00].

**Table (4-14) LSD test to find differences resources (first hypothesis)**

Groups	Groups	Mean difference	Std. error	p. value	Result
Sudanese Petroleum Pipeline	Nile petroleum	-0.26	0.20	0.20	Not significant
	Petroenergey	0.40	0.12	0.00	Significant
	Greater Nile	0.08	0.13	0.54	Significant
	sudanese oil corporation	-0.18	0.12	0.15	Not significant
	Sudapet	-0.12	0.17	0.47	Not significant
Nile petroleum	Petroenergey	-0.14	0.20	0.48	Not significant
	Greater Nile	0.34	0.20	0.09	Not significant
	sudanese oil corporation	0.09	0.19	0.65	Not significant
	Sudapet	0.14	0.23	0.53	Not significant
Petroenergey	Greater Nile	0.48	0.12	0.00	significant
	sudanese oil corporation	0.23	0.11	0.04	significant
	Sudapet	0.28	0.16	0.08	Not significant

Greater Nile	sudanese oil corporation	0.25	0.11	0.03	significant
	Sudapet	-0.20	0.16	0.22	Not significant
sudanese oil corporation	Sudapet	0.05	0.16	0.74	Not significant

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Petroeneregey (M=2.93, SD=0.73) was significantly different from Sudanese petroleum pipeline (M=2.44, SD=0.60), and Sudanese oil corporation (M=2.77 (M=0.87), and Sudapet (M=2.61 SD=0.80).

Also Greater Nile (M=2.46, SD=0.69) was significantly different from Sudanese oil corporation (M=2.77 (M=0.87).

**Table (4-15) ANOVA one-way test differences in scores between corporations (Second hypothesis)**

Corporations	N	Mean	S.D.	F	P. value	Differences
Sudanese Petroleum Pipeline	50	2.44	0.60	5.36	0.00	Significant
Nile petroleum	14	3.24	0.84			
Petroeneregey	70	2.93	0.73			
Greater Nile	65	2.46	0.69			
sudanese oil corporation	80	2.77	0.87			
Sudapet	23	2.61	0.80			
<b>Total</b>	<b>302</b>	<b>2.70</b>	<b>0.78</b>			

A one-way between-groups analysis of variance was conducted to explore the differences between the corporations. There was a statistically significant difference at the  $p < 0.05$  level in scores for the six groups [F=5.36, p=0.00].

**Table (4-16) LSD test to find differences resources (Second hypothesis)**

<b>Groups</b>	<b>Groups</b>	<b>Mean difference</b>	<b>Std. error</b>	<b>p. value</b>	<b>Result</b>
Sudanese Petroleum Pipeline	Nile petroleum	0.80	0.23	0.00	Significant
	Petroeneregey	-.484	0.14	0.00	Significant
	Greater Nile	-0.02	0.14	0.88	Not Significant
	sudanese oil corporation	0.32	0.14	0.02	Significant
	Sudapet	-0.16	0.19	0.39	Not Significant
Nile petroleum	Petroeneregey	0.31	0.22	0.16	Not Significant
	Greater Nile	0.78	0.22	0.00	Significant
	sudanese oil corporation	0.48	0.22	0.03	Significant
	Sudapet	0.63	0.26	0.01	Significant
Petroeneregey	Greater Nile	0.46	0.13	0.00	Significant
	sudanese oil corporation	0.16	0.12	0.19	Not Significant
	Sudapet	0.32	0.18	0.08	Not Significant
Greater Nile	Sudapet	-0.14	0.18	0.43	Not Significant
	Sudanese Oil corporation	0.32	0.14	0.02	Significant

	Pipeline				
sudanese oil corporation	Sudapet	0.16	0.18	0.38	Not Significant

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Nile petroleum (M=2.57, SD=0.75) was significantly different from Greater Nile (M=2.42, SD=0.59), and Sudanese oil corporation (M=2.60 SD=0.66), and Sudapet (M=2.69 SD=1.03).

Also Sudanese Oil Petroleum Pipeline (M=2.45, SD=0.58) was significantly different from Petroenergy (M=2.92 SD=0.69), and Greater Nile (M=2.42, SD=0.59), and Sudanese Oil corporation (M=2.60, SD=0.66).

Greater Nile (M=2.42, SD=0.59) was significantly different from Sudanese Oil corporation (M=2.60, SD=0.66).

**Table (4-17) ANOVA one-way test differences in scores between corporations (Third hypothesis)**

Corporations	N	Mean	S.D.	F	P. value	Differences
Sudanese Petroleum Pipeline	50	2.45	0.58	4.59	0.00	Significant
Nile petroleum	14	2.57	0.75			
Petroeneregey	70	2.92	0.69			
Greater Nile	65	2.42	0.59			
sudanese oil corporation	80	2.60	0.66			
Sudapet	23	2.69	1.03			
Total	302	2.62	0.70			

A one-way between-groups analysis of variance was conducted to explore the differences between the corporations. There was a statistically significant difference at the  $p < 0.05$  level in scores for the six groups [ $F=5.36, p=0.00$ ].

**Table (4-18) LSD test to find differences resources (Third hypothesis)**

Groups	Groups	Mean difference	Std. error	p. value	Result
Sudanese Petroleum Pipeline	Nile petroleum	-0.11	0.21	0.58	Not significant
	Petroeneregey	0.47	0.13	0.00	significant
	Greater Nile	0.03	0.13	0.79	Not significant
	sudanese oil corporation	-0.15	0.12	0.22	Not significant
	Sudapet	-0.24	0.17	0.16	Not significant
Nile petroleum	Petroeneregey	-0.36	0.20	0.07	Not significant
	Greater Nile	0.15	0.20	0.46	Not significant
	sudanese oil corporation	-0.04	0.20	0.85	Not significant
	Sudapet	-0.13	0.23	0.58	Not significant
Petroeneregey	Greater Nile	0.50	0.12	0.00	significant

	sudanese oil corporation	0.32	0.11	0.00	significant
	Sudapet	0.23	0.16	0.16	Not significant
Greater Nile	sudanese oil corporation	-0.18	0.11	0.11	Not significant
	Sudapet	-0.27	0.16	0.10	Not significant
sudanese oil corporation	Sudapet	-0.09	0.16	0.58	Not significant

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Sudanese petroleum Pipeline (M=2.37, SD=0.60) was significantly different from Petroenergy (M=2.88 SD=0.74).

Petroenergy (M=2.88 SD=0.74) was significantly different from Sudanese Oil corporation (M=2.52, SD=0.66), and Greater Nile (M=2.30, SD=0.58)

**Table (4-19) ANOVA one-way test differences in scores between corporations (Fourth hypothesis)**

Corporations	N	Mean	S.D.	F	P. value	Differences
Sudanese Petroleum Pipeline	50	2.37	0.60	6.62	0.00	Significant
Nile petroleum	14	2.60	0.49			
Petroeneregey	70	2.88	0.74			
Greater Nile	65	2.30	0.58			
sudanese oil corporation	80	2.52	0.66			
Sudapet	23	2.41	0.53			
Total	302	2.52	0.67			

A one-way between-groups analysis of variance was conducted to explore the differences between the corporations. There was a statistically significant difference at the  $p < 0.05$  level in scores for the six groups [ $F=6.62$ ,  $p=0.00$ ].



**Table (4-20) LSD test to find differences resources (Fourth hypothesis)**

Groups	Groups	Mean difference	Std. error	p. value	Result
Sudanese Petroleum Pipeline	Nile petroleum	-0.23	0.19	0.24	Not significant
	Petroeneregey	0.50	0.12	0.00	Significant
	Greater Nile	0.07	0.12	0.55	Not significant
	sudanese oil corporation	-0.15	0.12	0.21	Not significant
	Sudapet	-0.04	0.16	0.80	Not significant
Nile petroleum	Petroeneregey	-0.28	0.19	0.14	Not significant
	Greater Nile	0.30	0.19	0.11	Not significant
	sudanese oil corporation	0.08	0.19	0.65	Not significant
	Sudapet	0.19	0.22	0.38	Not significant
Petroeneregey	Greater Nile	0.58	0.11	0.00	significant
	sudanese oil corporation	.36012 *	0.10	0.00	significant
	Sudapet	.46477 *	0.15	0.00	significant
Greater Nile	sudanese oil corporation	-.21699 *	0.11	0.04	significant
	Sudapet	-0.11	0.16	0.47	Not

					significant
sudanese oil corporation	Sudapet	0.10	0.15	0.49	Not significant

Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Sudanese Petroleum Pipeline (M=2.44, SD=0.54) was significantly different from Petroenergy (M=2.91 SD=0.64).

Petroenergy (M=2.91 SD=0.64) was significantly different from Sudanese Greater Nile (M=2.40, SD=0.56), and Sudanese oil Corporation (M=2.64, SD, 0.70), and Sudapet (M=2.58, SD=0.69).

Greater Nile (M=2.40, SD=0.56) was significantly different from Sudanese oil Corporation (M=2.64, SD, 0.70).

## Chapter Five

### Conclusion and Recommendations

#### 5.1 Conclusion

- People involvement in applying TQM affect positively on organizational performance.
- Top management commitment and HRM strategies have significant role in support people involvement.
- Involving people in strategy formulation enhance TQM application.
- Participation of people in decision making helps in empowering people in contribution to their consequence in responsibilities and solving problem.
- Empowerment encourages commitment and creates a working environment.
- Communication flow between people encourages awareness of quality.
- Knowing the role of people involvement in applying TQM in oil and gas sector was through identify the role of top management commitment and HRM Strategies in the process of people involvement process in the corporations (sample);
  - Role of top management commitment toward the process:
    1. Understand motivators of involvement.
    2. Identify keys of involvement.
    3. Implementation policy.
    4. Giving employees the responsibilities.
    5. Training employee to accept responsibility.
    6. Communication and giving feedback.
    7. Giving rewards and recognition.
  - HRM strategies in the process of people involvement:
    1. Assessing current status of human resources.
    2. External and Internal analysis (SWOT analysis).
    3. Considering supplementary sources.

4. Understand attitudes and perception of people to the involvement.
5. Understanding motivation and the people needs
6. Establish and retain a motivated environment.
7. Recognize and reward people.

Therefore the role of people involvement in Applying TQM in Sudanese oil and gas sector is:

- Develop and encourage leadership traits.
- Management of change towards improvement oriented behavior.
- Self-manage to problem contribution.
- Encourage means of communication.
- Developing the process of recreation problems solutions.
- Generate sense of responsibility in owning organizations criteria.
- Increase productivity and profit.

## **5.2 Recommendations**

- Enhancing the process of decision making for people whom dealing with the implementation process.
- Determine the human character through assessing the ability of setting priorities that make right decision.
- Benchmark for the strategies of decision making process in implementation process between corporations.
- Approval partitioning design in communication flow including top managers.
- Entering new department under human resources approach under functional name (Quality Teams deployment) to formulate teams in regularly basis (from various departments) in order to enhancing team working, spread the culture of the quality and following the changes in TQM policies.
- Enhancing the awareness of employees with the TQM application and their responsibilities.

- Evaluation of people involvement practicing according to orientation and requirements of corporations.
- Enhancing the culture of the quality in the corporation regarding effect of people involvement on the performance.
- Evaluate system for people's effectiveness in management of change.

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# Appendix

This study is part of a Master's thesis in TQM entitled "The role of people involvement in applying TQM in Sudanese oil and gas sector". The study examines the relationship between employees and their companies and the role of each in satisfying the customers and suppliers to support the pillars of the system of total quality management.

Please answer the questions carefully because the results of the research depend heavily on your answer to the questions. I would like to point out that the information which received from you will be treated with strict confidentiality and that the results of these questionnaires will be presented in the form of data set and illustrations only.

Thank you very much for giving this questionnaire your sufficient consideration and for taking part of your time to answer the questions

All of my appreciation and respect to yours

Researcher: Hanna Ezzaldien yassin

## Company profile

Name of company: .....

### *Part-A*

<b>Please mark the appropriate answer</b>		
1. Number of employees.	20-100	
	100 +	
2. Employment	Petroleum Operations	
	Petroleum Services	
3. Years in operation.	0-10 years	
	11-25 years	
	More than 25 years	
4. Does the company have a system of total quality management?	Yes	
	No	
5. If yes which system does your company have?	ISO	
	EFQM	
	Others	
6. The reasons for implementing a total quality management were?	Customers' requirement	
	Marketing purpose	
	Others	
7. The implementation process was:	Easy	
	Challenging	
	Difficult	
	Extremely difficult	
8. Was anyone trained to maintain the system?	Yes	
	No	
9. How long should be the training period?	6 weeks	
	8 weeks	
	6 months	
	More than 6 months	
	Others	
10. Does the company have a strategic plan?	Yes	
	No	
11. What kind of plan the company has?	Production plan	
	Quality plan.	
	Marketing plan.	
	Succession plan.	
	Others	
12. Does the company encourage	Yes	

staff development?	No	
13. When often does your company send employees to training?	Regularly	
	Whenever there is a need	
14. Does the company have a quality policy in place?	Yes	
	No	
15. Does top management show commitment to quality?	Yes	
	No	
16. Does the company have a quality manual?	Yes	
	No	
17. Does the company involve employees in decision making?	Yes	
	No	
18. Does the company encourage team work?	Yes	
	No	
19. Does the company communicate company objectives to staff?	Yes	
	No	
20. Does company measure quality performance?	Yes	
	No	
21. Does company measure customer satisfaction?	Yes	
	No	
22. Does company seek customer views?	Yes	
	No	
23. Are employees satisfied with the company?	Yes	
	No	

## Basic information

Name of company: .....

### Part B

<b>Please mark the appropriate answers</b>		
Sex	Male	
	Female	
Age Categories	21-30	
	31-40	
	41-50	
	51-60	
	More than 60	
Administrative level	Senior administration	
	Intermediate administration	
	Supervisory administration	
Years of experience	0-5	
	6-10	
	11-15	
	16-20	
	More Than 21	
Basic Qualifications	High secondary certificate	
	Diploma	
	Bachelor	
Additional Qualifications	High Diploma	
	Master degree	
	Doctorate	
Professional Specialization	Engineering	
	Technical	
	Administrative	
	Financial	
	Others	



# Total Quality Management System

## Part-c

<b>Please mark the appropriate answer which suit the current situation of your company</b>					
<b>LEADERSHIP</b>	<b>1= Strongly Agree</b>	<b>2= Agree</b>	<b>3= Neutral</b>	<b>4=Dis agree</b>	<b>5= Strongly Disagree</b>
1. The senior executives provide highly visible leadership in maintaining an environment that supports quality improvement.					
2. The senior executives are a primary driving force behind quality improvement efforts.					
3. The senior executives consistently participate in activities to improve the quality.					
4. The senior executives have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality.					
5. The senior executives generate confidence that efforts to improve quality will succeed.					
6. Senior executives seek information on needs and suggestions for quality improvement directly from external customers.					
<b>COMMUNICATION</b>					
1. The managerial system collects a wide range of data and information about the quality.					
2. The managerial system uses a wide range of data and information about the quality to make improvements.					
3. The managerial system continually tries to improve how it uses data and information on the quality.					
4. Employees are actively involved in determining what data are collected for the purpose of improving					

the quality.					
5. The managerial system disseminates the data and information to all the employees.					
<b>STRATEGIC QUALITY PLANNING</b>					
1. Employees are given adequate time to plan for and test improvements.					
2. Each department and work group within this industry maintains specific goals to improve quality.					
3. Middle managers (e.g., department heads, program directors, and first line supervisors) are playing a key role in setting priorities for quality planning.					
4. External customers are playing a key role in setting priorities for quality planning.					
5. Non-managerial employees are playing a key role in setting priorities for quality planning.					
<b>TRAINING</b>					
1. Employees are given education and training in how to identify and act on quality improvement opportunities.					
2. Employees are given education and training in statistical and other quantitative methods that support quality improvement.					
3. Employees have the authority to correct problems in their area when quality standards are not being met.					
4. Employees are supported when they take necessary risks to improve quality.					
5. A company has an effective system for employees to make suggestions to management on how to improve quality.					
<b>CUSTOMER SATISFACTION</b>					
1. A company emphasizes on assessing current customers' needs and expectations.					
2. A company does a good job of assessing future customer needs and expectations.					
3. Employees promptly resolve customer complaints.					
4. Customers' complaints are studied to identify patterns and prevent the same problems from recurring.					
5. The managerial system uses data on customer expectations and/or satisfaction when designing new processes.					

<b>CONTINUOUS IMPROVEMENT</b>					
1. Common types of faults are informed to all the employees.					
2. The causes of all the possible faults are identified and informed to all the employees.					
3. Continuous improvement tools (brainstorming, check sheet and other statistical process control) are applied on regular basis.					
4. Various continuous improvement approaches (Deming Approach, Kaizen Approach) are practiced in the industry.					
5. Benchmarking has been used to enhance the industry performance.					
<b>EMPLOYEE INVOLVEMENT &amp; SATISFACTION</b>					
1. Every employee's thought has been taken into consideration to make any quality decision.					
2. Constant employee awareness and feedback on status are provided and a reward/recognition process is established.					
3. Employees' participation in company's success reduces the turnover and therefore reduces the cost of hiring and training new employees.					
4. Employees' involvement and empowerment encourages them to exert the best.					
5. Employee satisfaction can lead to better efficiency.					
<b>CULTURE</b>					
1. Integrity, ethics and trust are essential prerequisite for TQM implementation.					
2. A company with strong comprehensive culture implements highly the TQM elements of top management leadership, people, process, customer, and supplier management.					
3. A company culture dictates the way a sector responds to environmental stimuli (in the form of strategy), the congruence argument implies that TQM practices are the manifestations of industrial culture.					
4. A company culture reflects the prevailing ideology people carry inside their heads, it conveys a sense of identity to employees, provide unwritten and, often, unspoken guidelines for how to get along in the company.					

5. All the employees should be committed to change for TQM implementation.					
<b>SUPPLIER SATISFACTION</b>					
1. Each person must respect the needs and expectations of their suppliers.					
2. Suppliers satisfied with the quality and level of information contained within company.					
3. Problem issues are identified; necessary action plans agreed and progress monitored are significant strategies for supplier's satisfaction.					
4. Employees are fully trained to negotiate, follow up, and fulfill supplier's needs.					
5. Company maintains cooperation relations with suppliers.					
<b>TEAMWORK</b>					
1. Company encourages team working.					
2. Structural changes (less complexity, reduction of throughput time and losses) are appreciated in your company.					
3. Operational outcomes are met according to company demands.					
4. Sufficient effort is made to get the opinions and ideas of the employees.					
5. Company is fully satisfied with the spirit of team work.					

Please put your very valuable Comments/ suggestions here (if required):

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هذا الإستبيان هو جزء من بحث رسالة ماجستير في إدارة الجودة الشاملة بعنوان ( دور مشاركة العاملين في تطبيق إدارة الجودة الشاملة في قطاع النفط والغاز السوداني) 0 البحث يدرس العلاقة التي تربط العاملين بالشركات والمؤسسات التي ينتسبون لها ودور كل منهما في إرضاء العملاء والموردين لدعم ركائز نظام إدارة الجودة 0

الرجاء التكرم بالإجابة عن الأسئلة الواردة في الإستبيان بكل دقة لأن نتيجة البحث تعتمد بشكل كبير علي إجاباتكم علي المعلومات والأسئلة المطلوب الإجابة عليها 0

أود أن أشير إلى أن المعلومات التي سترد منكم سيتم التعامل معها بسرية تامة وأن نتائج هذا الإستبيان سيتم عرضها في شكل مجموعة بيانات ورسوم توضيحية فقط 0

لكم جزيل شكري علي تكرمكم بإعطاء هذا الإستبيان الإعتبار الكافي وعلي إستقطاعكم جزء من وقتكم للإجابة على الأسئلة الواردة فية 0

ولكم التقدير والإحترام

الباحثة :هناء عزالدين ياسين

بسم الله الرحمن الرحيم

## معلومات عن الشركة

### الجزء الأول

إسم الشركة: .....

يرجى وضع علامة (√) أمام الإجابة المناسبة		
وصف الشركة		
100-20	1. عدد الموظفون في الشركة	
أكثر من 100		
عمليات بتروول	2. مجال العمل	
خدمات بتروولية		
10-0 سنوات	3. عمر الشركة	
25-11 سنة		
أكثر من 25 سنة		
نعم	4. هل الشركة لديها نظام إدارة جودة؟	
لا		
أيزو	5. إذا كانت الإجابة نعم حدد نوع نظام الجودة بالشركة؟	
EFQM		
أخرى		
متطلبات الزبون	6. ماهي أسباب تنفيذ نظام الجودة الشامله؟	
أغراض تسويقية		
أخرى		
سهله	7. عملية تطبيق نظام إدارة الجودة	
فيها تحديات		
صعبه		
صعبه للغاية		
نعم	8. هل تم تدريب أي شخص أو عدة أشخاص للحفاظ على النظام؟	
لا		
6 أسابيع	9. كم كانت فترة التدريب؟	
8 أسابيع		
6 شهور		
أكثر من 6 شهور		
أخرى		
نعم	10. هل لدى الشركة خطه إستراتيجية؟	

	لا	
	خطة إنتاجية	11. أي نوع من الخطة لدى الشركة؟
	خطة الجودة	
	خطة تسويقية	
	خطة الخلافة	
	أخرى	
	نعم	12. هل تقوم الشركة بتطوير الموظفين؟
	لا	
	بانتظام	13. متى ترسل الشركة الموظفين للتدريب؟
	كلما دعت الحاجة	
	نعم	14. هل لدى الشركة سياسة الجودة؟
	لا	
	نعم	15. هل تظهر الإدارة العليا الإلتزام بالجودة؟
	لا	
	نعم	16. هل الشركة لديها دليل الجودة؟
	لا	
	نعم	17. هل تقوم الشركة بإشراك الموظفين في صنع القرار؟
	لا	
	نعم	18. هل تحبذ الشركة تكوين فرق العمل؟
	لا	
	نعم	19. هل تقوم الشركة بتوصيل أهدافها للموظفون؟
	لا	
	نعم	20. هل تقيس الشركة نظام إدارة الجودة؟
	لا	
	نعم	21. هل تقوم الشركة بقياس رضا العملاء؟
	لا	
	نعم	22. هل تسعى الشركة للحصول على آراء العملاء؟
	لا	
	نعم	23. هل الموظفون راضون عن الشركة؟
	لا	

الجزء الثاني: معلومات أساسية

إسم الشركة: .....

يرجى وضع علامة (√) أمام الإجابة المناسبة	
ذكر	الجنس
أنثى	
30-21	الفئة العمرية
40-31	
50-41	
60-51	
أكثر من 60	
إدارة عليا	المستوى الإداري
إدارة وسيطة	
إدارة إشرافية	
صفر-5	سنوات الخبرة
10-6	
15-11	
20-16	
21 فأكثر	
شهادة ثانويه	المؤهل الأساسي
دبلوم وسيط	
بكالوريوس	
دبلوم عالي	المؤهل الإضافي
ماجستير	
دكتوراه	التخصص المهني
هندسي	
فني	
إداري	
مالي	
أخرى	



## الجزء الثالث: نظام إدارة الجودة

بها التي تعمل بالشركة الحالي الوضع بالنسبة مع العلامة في المكان (٧) يرجى وضع					
لا أو افق بشدة	لا أو افق	محايد	أوافق	أوافق بشدة	القيادة
					1. يوفر المديرين التنفيذيين قيادة واضحة في الحفاظ على البيئة التي تدعم تحسينات الجودة
					2. يشكل المديرين التنفيذيين قوة دافعه لجهود تحسين الجودة
					3. يشارك المديرين التنفيذيين باستمرار في أنشطة لتحسين نظام إدارة الجودة
					4. لدى المديرين التنفيذيين القدرة على إدارة التغييرات اللازمة لتحسين نظام إدارة الجودة
					5. المديرين التنفيذيين يولدون الثقة بأن الجهود المبذولة لتحسين نظام إدارة الجودة سوف تنجح
					6. يقوم المديرين التنفيذيين بطلب معلومات عن الإحتياجات والإقتراحات لتحسين نظام إدارة الجودة من العملاء الخارجيين
الإتصال المؤسسي					
					1. تقوم الإدارة العليا بجمع مجموعة واسعة من البيانات والمعلومات عن نظام إدارة الجودة
					2. تستخدم الإدارة العليا مجموعة واسعة من البيانات والمعلومات عن نظام إدارة الجودة لإجراء التحسينات
					3. تحاول الإدارة العليا باستمرار تحسين كيفية إستخدام البيانات والمعلومات عن نظام إدارة الجودة
					4. يشارك الموظفون في تحديد البيانات التي يتم جمعها لغرض تحسين الجودة
					5. تقوم الإدارة العليا بنشر البيانات والمعلومات على جميع الموظفين
تخطيط الجودة الإستراتيجية					
					1. يتم إعطاء الموظفون الفرصة للتخطيط و إختبار التحسينات
					2. كل قسم وفريق عمل داخل الشركة يحافظ على أهداف محددة لتحسين نظام إدارة الجودة
					3. يلعب المديرين المتوسطون ( رؤساء الأقسام و مديروا البرامج والمشرفون) دورا" رئيسيا في تحديد أولويات تخطيط نظام إدارة الجودة
					4. يلعب العملاء الخارجيون دورا رئيسيا في تحديد أولويات تخطيط نظام إدارة الجودة
					5. يتم إشراك الموظفون في درجات الإدارة الأدنى في تحديد

أولويات تخطيط نظام إدارة الجودة				
<b>التدريب</b>				
				1. يحصل الموظفون على التعليم والتدريب على كيفية تحديد فرص تحسين نظام إدارة الجودة
				2. يحصل الموظفون على التعليم والتدريب على أدوات تدعم تحسين نظام إدارة الجودة
				3. يتمتع الموظفون بسلطة تصحيح المشاكل في منطقتهم عندما لا يتم الوفاء بمعايير الجودة
				4. يتم دعم الموظفون عندما يأخذون المخاطر اللازمة لتحسين نظام إدارة الجودة
				5. لدى الشركة نظام فعال للموظفون لتقديم إقتراحات للإدارة حول كيفية تحسين نظام إدارة الجودة
<b>رضا العملاء</b>				
				1. تؤكد الشركة على أهمية تقييم إحتياجات العملاء الحالية وتوقعاتهم المستقبلية
				2. تقوم الشركة بتقييم إحتياجات العملاء المستقبليين والتوقعات
				3. يتم دراسة شكاوي العملاء لتحديد أنماطها ومنع تكرارها من جديد
				4. يباشر موظفون الشركة بحل شكاوي العملاء
				5. يستخدم نظام إدارة الجودة بيانات حول توقعات العملاء وإرضائهم عند تصميم أي منتجات أو خدمات جديدة
<b>التحسين المستمر</b>				
				1. يتم نشر الأنواع الشائعة من الأعطال لجميع الموظفون في نفس المجال
				2. يتم تحديد أسباب جميع المشاكل المحتملة وإبلاغ جميع الموظفون في نفس المجال
				3. يتم تطبيق أدوات التحسين المستمر على أساس منظم
				4. يتم ممارسة مختلف أساليب التحسين المستمر في الشركة
				5. تم استخدام قياس الأداء لتعزيز أداء الموظفون في الشركة
<b>مشاركة الموظفين ورضائهم</b>				
				1. يتم وضع رأي الموظفون في الإعتبار عند إتخاذ قرار يخص نظام إدارة الجوده
				2. يتم توفير الوعي المستمر للموظفون والتغذية الراجعة حول أداء نظام إدارة الجودة
				3. إشراك الموظفون في أخذ القرارات التي تزيد من إحتتمالات نجاح الشركة تقلل من خسائر الشركة وبالتالي توظيف وتدريب موظفون جدد
				4. مشاركة الموظفون وتمكينهم يشجعهم على بذل قصارى جهدهم لإنجاح عمليات الشركة
				5. رضا الموظفون يمكن أن يؤدي إلى كفاءة أفضل
<b>ثقافة الشركة</b>				
				1. تعتبر النزاهة، الأخلاق والثقة شروط أساسيه لتطبيق إدارة

					الجوده الشامله
					2. ثقافة الشركة تؤثر على تنفيذ إدارة الجودة الشاملة , العمليات وإدارة العملاء والموردين
					3. توضح ثقافة الشركة الطريقة التي تستجيب بها الشركة للمؤثرات البيئية
					4. تعكس ثقافة الشركة التنوع الفكري والمهاري لدى العاملون
					5. جميع الموظفون ملتزمون بالتغيير من أجل تنفيذ إدارة الجودة الشاملة
<b>العلاقة مع الموردون</b>					
					1. يحترم الموظفون إحتياجات وتوقعات الموردين
					2. الموردون راضون عن نوعية ومستوى المعلومات التي تخص القرارات المرتبطة بهم
					3. تحديد المشاكل المحتملة , الموافقة على خطط العمل الضرورية ورصد التقدم المحرز هي إستراتيجيات مهمة للتعامل مع المردون
					4. يتم تدريب الموظفين على التفاوض والمتابعة و تلبية إحتياجات الموردون
					5. تحتفظ الشركة بعلاقات تعاون مستمرة مع الموردون
<b>فريق العمل</b>					
					1. تشجع الشركة تكوين فرق عمل لإنجاز بعض المشاريع
					2. التغييرات الهيكلية (تقليل التعقيد, الوقت والخسائر) هي مقدرة في الشركة.
					3. يتم تحقيق النتائج التشغيلية وفقا لمتطلبات الشركة
					4. يتم بذل جهد كافي للحصول على آراء وأفكار للموظفين
					5. الشركة راضية تماما عن روح العمل الجماعي

يرجى وضع تعليقاتكم أو إقتراحاتكم هنا إذا لزم الأمر :

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