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Quality and Development Deanship

***The Impact of the implementation of TQM on the
Organizational Performance and Customers
Satisfaction***

(Case-study on Giad Industrial Group)

أثر تطبيق الجودة الشاملة على أداء المنظمات ورضا العملاء
(دراسة حالة على مجموعة جياذ الصناعية)

*A research submitted in partial fulfillment for the requirement of M.Sc.Degree
in Managing Quality Excellence*

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Dedication

To

My mother

A strong and gentle soul who taught me to trust in Allah, believe in hard work and that so much could be done with little.

My grandmother

Thanks for being my first teacher that support me in everything I did.

My father

For earning an honest living and for supporting and encouraging me to believe in myself.

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Also my thanks external include Mr. Samoual who helped me to complete this research in the analysis of research data.

Finally I would like to express my thanks to all my beloved friends, who have been so supportive during all the research time.

Last but not least, deepest thanks go to all people who took part in making this research real, with those feelings which can never be quantified.

God bless you all.

Abstract

The TQM is one of the modern management tools that used by organizations to improve their performance and to strengthen the competitive advantage of products and services.

This study examined the impacts of the implementation of TQM on the organizational performance using customer satisfaction as a leading indicator.

Both qualitative and quantitative methods have been used in this study. Questionnaire tool was used in the collection of data from 2 companies and SPSS program is used for analysis.

Research results showed that TQM has positive impacts on organizational performance in terms of customer satisfaction as a leading indicator.

Research recommended that all Sudanese business units are to adopt and apply TQM in terms of leadership, training of employee and customer focus so as to improve the organizational performance as well as the customer satisfaction.

مستخلص الدراسة

تعتبر إدارة الجودة الشاملة هي إحدى المناهج الحديثة في الإدارة التي تستخدم في وحدات الأعمال من أجل تحسين الأداء وبالتالي تقوية الميزة التنافسية للمنتجات والخدمات . في هذه الدراسة تم إختبار أثر تطبيق الجودة الشاملة على الأداء المؤسسي بإستخدام رضا العملاء كمؤشر.

في هذا البحث تم إستخدام الطرق النوعية والكمية بإستخدام الإستبيان لجمع المعلومات من عدد 2 من الشركات , كما تم تحليل البيانات بإستخدام برنامج التحليل الإحصائي (SPSS).

وقد أظهرت نتائج البحث بأن تطبيق الجودة الشاملة في وحدات الأعمال له أثر إيجابي ينعكس على رضا العملاء.

وقد كانت توصية البحث بأنه على كل وحدات الأعمال السودانية أن تتبنى وتطبق الجودة الشاملة (القيادة , تدريب وتمكين العاملين , التوجه والتركيز نحو العملاء) وذلك بغرض تحسين الأداء المؤسسي والذي بدوره ينعكس على رضا العملاء.

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Chapter 1

1. Overall Study Frame-work

1.1 Introduction

Total quality management (TQM) is a firm-wide management philosophy of continuously improving the quality of the products/services/processes by focusing on the customers' needs and expectations to enhance customer satisfaction and firm performance. There are mixed results about the relationship between total quality management practices and performance. The previous studies used different methods, different TQM variables, and different performance measures in their research models. Research with appropriate analytical methodologies and measuring tools can significantly contribute to investigating work on TQM which analyzed reasons of the relationship between TQM practices and performance.

1.2 Research problem:

The research problem is: To investigate the impact of TQM on the Organization Performance and customer satisfaction.

Most of Sudanese companies tend to neglect implementation of TQM, therefore, there are many problems arise which affect their performance. The most common indicator of this humble performance is the low trends of customer satisfaction.

1.3 Research Objectives:

1. To find the impact of TQM practices on various firm performances in industrial business units working in Khartoum.
2. Investigating the reasons and difficulties of implementing TQM practices
3. To use the appropriate analytical techniques and statistical analysis methods to investigate the relationship between TQM practices and firm performances.

1.4 Research Question:

Bearing in mind the above problem a number of questions stemmed in mind of the researcher as follows.

1. Does the implementation of TQM in the Sudanese companies affect the overall performance in terms of customer satisfaction as a leading indicator?

1.5 Research Hypothesis:

In regard to research question, the research hypothesis will be formulated as follow:

1. The implementation of TQM in Sudanese Business Units has positive effects on the Customer Satisfaction as a leading indicator for performance.

Hypothesis Test:

Since the implementation of TQM affects the performance in terms of product quality, product price, product delivery, etc.

The researcher has formulated the hypothesis tests as follows:

1. There is statistical relationship between product quality and customer satisfaction.
2. There is statistical relationship between product price and customer satisfaction.
3. There is statistical relationship between product delivery and customer satisfaction.

1.6 Research Limitations

This study is delimited to Giad industrial Group, where all the data and measures used for analysis, are related to the performance of Giad Industrial Group in the years August 2018.

Giad Industrial Group Background

The idea of Giad was developed as integrated Production Industries and integrated Services Complex. The project Technical and Feasibility studies were undertaken in June 1996. The Foundation Stone had been set on March 1997 and the actual operation has begun on July 1997. The City opening was celebrated on 26 August 2000.

Giad Industrial City is located on the western bank of the Blue Nile, 50 kilometer south of Khartoum, in Kamleen Province, Jazeera State and the city area is about 15 kilometers square. The Industrial City consists of Metallurgical Manufacturing Sector and Automotive Sector along with the Administrative and Services Sector.

The number of labors force in Giad Industrial City is about 1300 of the unit-shift labor and the number is expected to increase to about 3000 at the future.

Chapter 2

Theoretical framework & literature review

In this chapter, the researcher would describe what has been written in the field of performance management, customer satisfaction, performance measurement, TQM and their impacts on performance of organization, the Customer Satisfaction as a leading indicator of performance, how it is being measured and evaluated.

TQM:

Professor Gopal K Kanji, Sheffield City Polytechnic, 1990 p-4, has mentioned that Quality is a part of this definition in that TQM can be said to be the culmination of a hierarchy of quality definitions:

1. Quality—is to continuously satisfy customers' expectations.
2. Total quality—is to achieve quality at low cost.
3. Total Quality Management—is to achieve total quality through everybody's participation.

2.1 The Concept of TQM:

Total quality management is based on a number of ideas. It means thinking about quality in terms of all functions of the enterprise, a start-to-finish process that integrates interrelated functions at all levels. It is a systems approach that considers every interaction between the various elements of the organization. Thus, the overall effectiveness of the system is higher than the sum of the individual outputs from the subsystems. The subsystems include all the organizational functions in

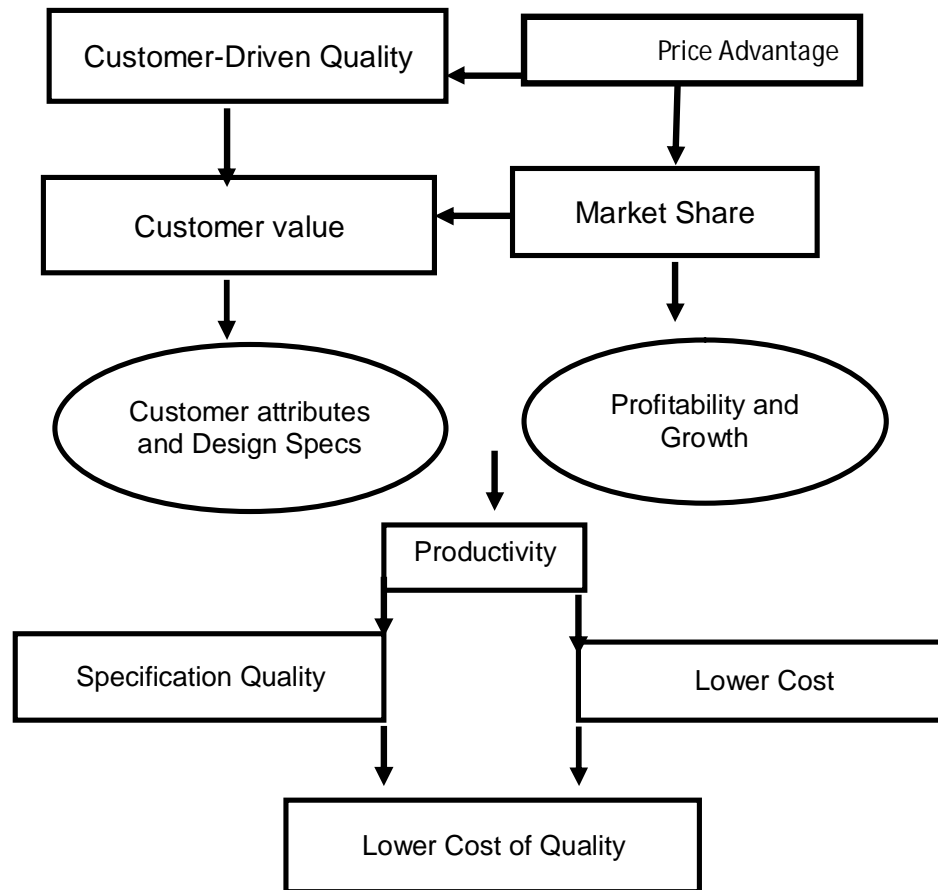
the life cycle of a product, such as design, planning, production, distribution, and field service. The management subsystems also require integration, including strategy with a customer focus, the tools of quality, and employee involvement.

A corollary is that any product, process, or service can be improved, and a successful organization is one that consciously seeks and exploits opportunities for improvement at all levels. The load-bearing structure is customer satisfaction. The watchword is continuous improvement.

Vincent K. Omachonu , Ph.D. Joel E. Ross, Ph.D.2004 p: 5.

Quality and business performance:

There is no doubt that relative perceived quality and profitability are strongly related. Whether the profit measure is return on sales or return on investment, businesses with a superior product/service offering clearly outperform those with inferior quality. Even producers of commodity or near commodity products seek and find ways to distinguish their products through cycle time, availability, or other quality attributes. In addition to profitability and market share, quality drives growth. The linkages between these correlates of quality are shown in Quality Figure 2-1 **Investment in Improved (The Quality Circle)**.



Source: Vincent K. Omachonu, Ph.D Joel E. Ros 2004,p:14.

Quality can also reduce costs. This reduction, in turn, provides an additional competitive edge. Note that Figure :(2.1) includes two types of quality: customer-driven quality and conformance or internal specification. Internal or conformance quality is inversely related to costs, and thus the phrase coined by Crosby: “Quality is Free.” As quality improves, so does cost, resulting in improved market share and hence profitability and growth. This, in turn, provides a means for further investment in such quality improvement areas as research and

development. The cycle goes on. In summary, improving both internal (conformance) quality and external (customer-perceived) quality not only lowers the cost of poor quality or “non-quality” but also serves as a driver for growth, market share, and profitability.

Vincent K. Omachonu, Ph.D. Joel E. Ross, Ph.D-2004 p: 15.

The rewards of higher quality are positive, substantial, and pervasive. Findings indicate that attaining quality superiority produces the following organizational benefits written by Vincent K. Omachonu, Ph.D. Joel E. Ross, Ph.D-2004 p: 15.

1. Greater customer loyalty.
2. Market share improvements.
3. Higher stock prices.
4. Reduced service calls.
5. Higher prices.
6. Greater productivity.

Leadership:

Leadership is one of the four sides of the TQM pyramid (management’s commitment (leadership), focus on the customer and the employee, focus on facts, continuous improvements (KAIZEN), everybody’s participation.)

Leadership is the beginning of the quality improvement process which starts with vision, mission, values, policy and strategy, systems etc. and further continues with other principles and concepts of Total Quality Management.

Leaders in a TQM system view the firm as a system; support employee development; establish a multipoint communication among the employees, managers, and customers; and use information efficiently and effectively. In addition, leaders encourage employee participation in decision-making and empower the employees. Top management commitment and participation in TQM practices are the most important factors for the success of TQM practices. Managers should demonstrate more leadership than traditional management behaviors to increase employees'.

Deming (1982) has formulated what management ought to do in his renowned 14 points and in point 14 presents' seven points for implementing TQM which are often overseen. In shortened form, these seven points are:

1. Management must agree about goals, conditions and obstacles to the introduction of TQM.
2. Management must have the courage to break with tradition.
3. In building up a new 'quality organization', management must appoint a manager for quality improvements who has direct access to top management.
4. Management must, as quickly as possible, build up an organization to advice on the carrying out of continuous improvements throughout the firm.
5. Management must explain to employees why changes are necessary and that they will involve everybody in the company.

6. Management must explain that every activity and every job has its own customers and suppliers.

7. Management must ensure that every employee in the company participates actively in a team (work team, quality circle).

Customer Focus:

TQM business units focus on serving the external customers. They first should know the customers' expectations and requirements and then should offer the products/services, accordingly. By the aid of successful customer focus efforts, production can be arranged with respect to the customers' needs, expectations, and complaints. This encourages business units to produce high quality and reliable products/services on time with increased efficiency and productivity. When customer expectations are met, their satisfaction will be increased, and the firm's sales and the market share will increase.

Previous studies have found that customer focus positively affects operational performance, inventory management performance, employee performance, innovation performance, customer satisfaction/results, sales, and aggregate firm performance. Based on the literature reviewed, it is found that customer satisfaction has a link to performance.

Seventh edition: David. Goetsch, Stanly Davis p: 8.

Training:

TQM business units should give necessary training to all their employees to improve their proficiencies in their tasks. Effective training in management and improvement in quality bring success for the business units. Employees' effective knowledge and learning capability will provide sustainability of quality management in the firm. Furthermore, learning organizations adapt rapidly to the changes and develop unique behavior, which distinguishes them from other business units and enables them to obtain better results. Quality does not begin in one department or function; it is the responsibility of the whole firm. Training should be given to all employees based on the results of the training needs assessment.

With effective training, employees know the industry and the structure of the firm. In addition, effective training will improve employees' loyalty to the firm, motivation, and work performance. If employees are trained on producing reliable and high quality products and/or services, their full participation in the production stage would be more fruitful. Thus, customer satisfaction will increase and customer complaints will reduce.

Some studies report that training is positively related to operational performance, inventory management performance, employee performance, innovation performance, customer results, market and

financial performance, and aggregate firm performance, while others report negative/insignificant results. Based on the literature reviewed, it is clear that training has a link with performance [E. Sadikoglu and C. Zehir, 2010 p: 26, 27]...

Strategic quality planning:

The basics of total quality management (TQM) can effectively govern executive-level strategic management and goal-setting.

One executive of the company explained it as follows: "How do you meet such a wide variety of expectations in a coherent way? I think you do it with a corporate philosophy on what constitutes a total quality process...a philosophy that you can apply across the company...to all your operations." There is little doubt that a strategy based on quality begins with strategic planning and is implemented through program and action planning.

Vincent K. Omachonu, Ph.D. Joel E. Ross, Ph.D.2004 p: 59.

2.3 organizational performances:

What is Performance?

Many firms claim to be running for performance and seek to measure their performance, improve performance, and compensate their people for performance. Yet, at the same time, there is widespread dissatisfaction with most performance measurement systems. Many firms, perhaps the majority, feel that they have not got it right. The high level of dissatisfaction is sometimes attributed to the dearth of non-financial predictors of financial performance. In a world of perfect measurement, managers would be able to design optimal performance measurement systems. The measures chosen would meet the following requirements – note that I am not saying what the measures would be; only what the measures would look like:

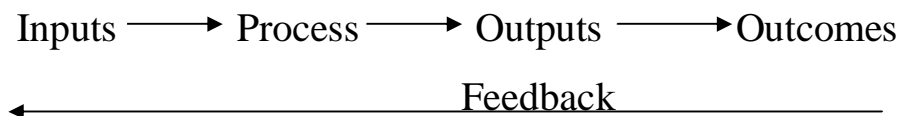
1. There would be relatively few measures to keep track of, perhaps as few as three financial measures and three non-financial measures. This is a matter of parsimony. If there are too many measures, cognitive limits will be exceeded and information will be lost.
2. The non-financial measures would predict subsequent financial performance, in other words, the non-financials would serve as leading performance indicators (and the financials as lagging indicators). Non-financials not demonstrated to be leading indicators would be sidelined unless, of course, they were tracked as matters of compliance, ethics, and security – “must-dos” for firms.

3. These measures would pervade the organization – the same measures would apply everywhere. Measures pervading the organization can be summed from the bottom to the top of the organization and decomposed downward, the latter giving manager’s drill-down capability. Measures pervading the organization, moreover, permit performance to be compared across units.

4. The measurement system would be stable. Measures would evolve slowly so as to maintain people’s awareness of long-term goals and consistency in their behavior.

5. People would be compensated for performance on these measures, that is, for performance on both financial measures and the non-financial measures known to be leading indicators of financial results.

This working definition takes in the process of producing results and the results themselves and is a common concept when people define organizational performance. This definition can be analyzed by considering a simple system view of an organization’s activities and results, like that in following:



The organization takes inputs today and processes them into valuable and measurable outputs that then have impact on outcomes tomorrow.

The organization simply needs to identify: its desired outcomes; the

outputs that will positively impact upon them; the processes producing the outputs; and the inputs feeding the processes.

Performance Improvement:

Benchmarking allows the organization to define specific gaps in performance and to select the processes to improve. It provides a vehicle whereby products and services are redesigned to achieve outcomes that meet or exceed customer expectations. The gaps in performance that are discovered can provide objectives and action plans for improvement at all levels of the organization and promote improved performance for individual and group participants.

Source: Vincent K. Omachonu, PhD Joel E. Ross.2004, p: 145.

TQM and Performance:

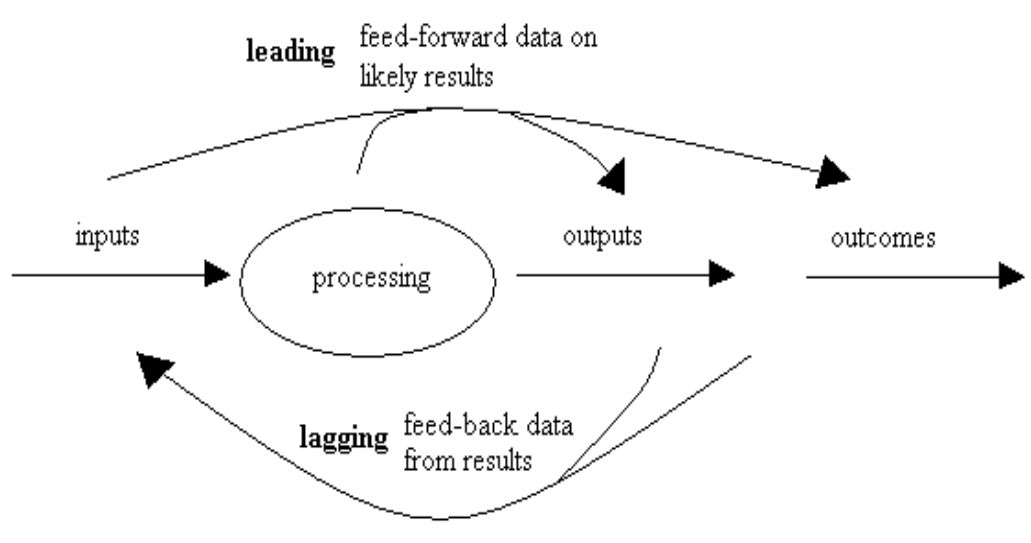
In the past decade we observed a considerable expansion in the use of TQM practices in manufacturing and non-manufacturing corporations. As competition increases, the business units try to create a competitive margin in their processes and production operations. This indicates that the use of TQM practices has a synergic effect on organizational performance. Other studies in this area demonstrate that TQM activities reduce the dispersion of production processes and eliminate the wastes and repetitions while it enhances the quality performance. In addition, the business units' pioneering in the use of TQM practices would increase their ability to improve performance. Recent empirical evidence shows direct and indirect relationships between TQM practices adaptation and organizational performance levels (Chong

&Rudus, 2004). Deming (1982) suggests that higher quality points to lower costs and higher productivity, which in turn leads to bigger market share and elevated competitiveness. Anderson et al. (1995), Flynn et al. (1995), Kaynak (2003), Lee et al. (2003) and Tari et al. (2007) investigated the relationships between TQM practices and achievements by using structural equations models and by considering the TQM as a multi-dimensional construct. The first three studies were performed in the U.S.; Lee et al al. (2007) in Spain. P: 113.

Leading and Lagging

Another consequence of the cause and effect model of performance has been the development of “leading” and “lagging” as terms to describe performance information. A leading measurement relates to today’s performance and can be used to make predictions about tomorrow’s results. A lagging measurement contains historical information on actual results. The lagging measurement can also be used to inform decisions about today’s activities to improve tomorrow’s results.

Fig 2.2: Lagging feed-back and leading feed-forward



Most accountancy measures of performance are lagging measurements because; they indicate the results of what has happened in the past, such as, how well a process has performed. Operational measures, such as standards, are leading indicators because they can be available before the result and can be used to help forecast results.

2.4 Customer satisfaction:

Who Is a Customer?

A person (or organization) paying to receive your services or goods, who has the right to pass judgment on the quality of your goods or services.

A person (or organization) entitled to your service or goods as a result of a legitimate arrangement, which has the right to pass judgment on the quality of your services or goods.

A person (or organization) that can be influential in bringing or denying your new customers as a result of his or her level of satisfaction with your goods or services.

A person (or organization) with which you have a partnership or agreement to reach a common objective, which has the ability to terminate the agreement based on his or her level of satisfaction with your performance of the terms of the agreement.

A person (or organization) who, by continuing to buy or use your product or services, will directly influence your organization's bottom line and overall success. (www.g00gle search)

There are two types of customers, as follows:

External Customers — that who are outside the organization and meet some of the preceding attributes.

Internal Customers — that who are inside the organization (staff, co-workers, etc.) and meet some of the preceding attributes.

Customer satisfaction is a marketing term that measures how products or services supplied by a company meet or surpass a customer's expectation. Customer satisfaction is important because it provides marketers and business owners with a metric that they can use to manage and improve their businesses.

Understanding customer- defined quality: Reliable customers are the most important one who buys repeatedly from the same organization and who are satisfied with the quality of their purchases from an organization become reliable customer therefore customer satisfaction is essential. Customer satisfaction is ensured by producing high quality products. Continual improvement is the only way to keep customer satisfied and loyal.

Identifying external customer need: In a total quality setting, customer needs are identified clearly as a normal part of product development, the quality gurus recommend the six step strategy for identifying customer needs: Speculate about results, check the validity of conclusions, analyze the result, gather the information, and plan how gather the information, speculate about the results.

Identifying internal customers' needs: Internal customers are also important in a TQM program. Identifying the need of internal customers amateur of ensuring that employee who depend on one another as individual, as well as department that depend on each other as unit, communicate their need to one another continually, David I. goetsch – stanleydavis. P: 89.

Using customer feedback to make design improvement

The organization collect customer input and feedback and use it to make continual improvements to design their products. Quality function deployment is an effective system for collecting customer input and factoring that input into the design process. Building affinity diagrams is an effective method for organizing customer feedback data which use to make ongoing design improvement, David I. goetsch – stanleydavis. P: 100.

Customer satisfaction measure:

To measure customer satisfaction, you must collect and analyze quantitative and qualitative data from a wide variety of sources, including surveys, focus groups, unsolicited feedback (e.g., social media posts), and sentiment and topic trends gleaned from service interactions.

For even more detail, you can look at indirect sources. For example, some contact center metrics, such as first-contact resolution rates, are known to affect customer happiness. On the flip side, retention rates and loyalty are strongly influenced by satisfaction levels.

By tracking a combination of these measurements, you'll get a better picture of where you stand with your customers. If you limit yourself to only one or two sources, you'll end up with a false understanding that can lead to misguided business decisions.

From the company's point of view, customer satisfaction is the result of a three-part system:

(1) Company processes (operations),

(2) Company employees who deliver the product, and service that is consistent with.

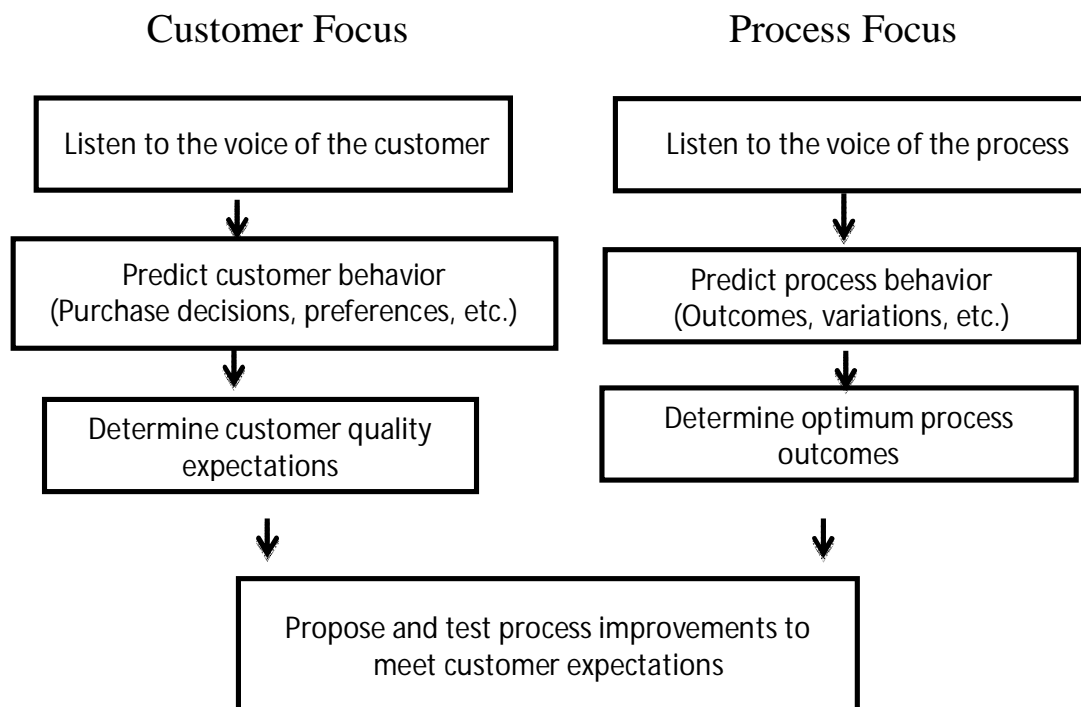
(3) Customer expectations.

In Figure 2.5 we show that, the effectiveness of the three-part system is a function of how well these three factors are integrated.

In order to achieve customer satisfaction, customer needs must be identified, met and the results measured as a basis for ongoing improvement. It can be argued that any organization should seek:

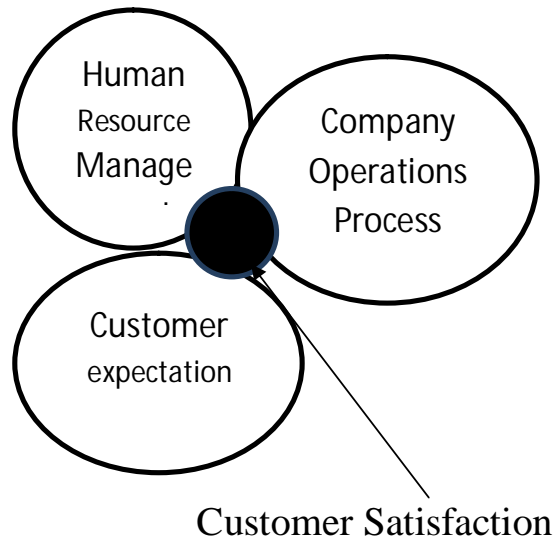
- to satisfy customers
- to achieve higher customer satisfaction than its competitors
- to retain customers, even if they complain.

Figure2.3 Integration of Customer and Process



Source: Vincent K. Omachonu, Ph.D Joel E. Ross.2004, p: 123.

Figure 2.4 Customer Satisfaction: Three-Part System



Source: Vincent K. Omachonu, Ph.D Joel E. Ross.2004, p: 124.

This concept is shown in Figure 2.4 the overlap (shaded area) represents the extent to which customer satisfaction is achieved. The objective is to make this area as large as possible and ultimately to make all three circles converge into an integrated system. The extent to which this condition is achieved depends on the effectiveness of:

- (1) The process,
- (2) Employees, and
- (3) Determination of what constitutes “satisfaction.”

Like any system, control is necessary. Thus, standards are set, performance is measured, and variation, if any, is corrected.

Source: Vincent K. Omachonu, Ph.D Joel E. Ross.2004, p: 124.

Surveys:

First, remember that you're measuring customer satisfaction—here, a survey refers to feedback solicited after a purchase or support interaction, not broad market surveys. (Those can be very useful for gauging consumer preferences to inform product development, marketing strategy, but not for this purpose.)

Surveys can be presented with self-service results, at the end of a live chat, in a pop-up on your website or mobile app, in an order confirmation email, or even as option after a phone call with are preventative. The more immediately they follow an interaction, the more accurate results they'll provide.

Continuous Improvement

Continuous improvement is a sustained effort to align the performance of an organization with its promises; the promises made to its customers, itself and its employees.

A key principle of TQM is that improvement should never end. Once an organization stops looking for better ways of doing things it ceases to progress and therefore stagnates. Organizations that truly adopt the principles of TQM look for improvement on a continual, never-ending, basis. The following list illustrates the wide variety of improvement tools and techniques, some of this Tools and Technique for Continuous Improvement is:

Project management, new product life cycle, process planning
Flowcharting, Benchmarking, business process re-engineering

Problem solving, design of experiments (Taguchi) quality function
deployment, quality policy deployment (HoshinKanri), quality circles,
reduction of variation, Pareto diagrams cause and effect diagrams,
stratification, check sheets, histograms scatter diagrams, control charts,
failure mode and effects analysis brainstorming, critical success
(Morgan C and Murgatroyd S (1994). *p*: 33.

Continuous Process Improvement (CIP) Steps:

The Deming Cycle, a concept introduced by Dr. Edwards Deming, is
divided into 4 steps:

Plan – Identifying a goal or purpose, formulating a theory, defining
success metrics, and putting a plan into action

Do – Implementing the plan on a small scale to prove or disprove its
validity

Study – Measuring and monitoring outcomes to test the validity of the
plan. This allows for identification of potential problems and areas for
improvement

Act – Taking the knowledge gained from the previous steps and putting
it into use. This can either mean implementing it on a wider scale or
restart the cycle and apply the lessons learned to change the plan for the
better.

2.5 Literature Review

The title of Study is Impact of TQM, work teams, and Just-In-Time on the performance of the Mexican manufacturing industry, Purpose of Study is investigates the impact of (TQM), Work Teams (WT), and Just-In-Time (JIT) on the performance of Mexican manufacturing business units, the Methodology Based on the model of Malcolm Baldrige Quality Award, and Mexican National Quality Award, a survey questionnaire was developed. It contained variables of the TQM, WT, and JIT Questionnaire: The questionnaires were mailed to 230 large, 133 medium, 105 small and 175 Maquiladora companies, the Conclusions of The study showed that no stand-alone improvement technique had an impact on the performance. The only significant impact was found when TQM, JIT and WT were practiced simultaneously.

The title of Study is A Test of the Effect of TQM on Performance and Stakeholder Satisfaction, The purpose of this research is to highlight the benefit of TQM implementation in the Nigerian Airline industry by examining the basic principles of TQM in the airlines. The impact of TQM implementation of the three performance indicator will be assessed, the Methodology use Quantitative and qualitative method. Primary data is collected from the airline companies by questionnaires and interview. Secondary data is gotten from articles, journals and online resources. In Conclusion the research findings confirmed the

benefits that ensue from the implementation of TQM. It showed that TQM is a strategic tool industry can employ in the quest to remain competitive. It was also discovered that for the TQM to be properly implemented, everybody in the organization must be involved from the management to the employees and even the customers. The title of Study is Impact of Total Quality Management on Customer Satisfaction in the Retail Sector: Case of indigenous Supermarkets in Botswana. The objectives of the study were to identify service quality attributes to invest in order to enhance customer satisfaction, to determine the impact of total of TQM on customer satisfaction and finally to determine the relationship between service quality attribute and customer satisfaction To achieve the objectives, the researcher integrates the famous Servqual scale into Kano Model to bridge the gap between marketing and total quality management. A sample of 128 respondents was randomly chosen from ten indigenous supermarkets in Gaborone, Botswana. The results obtained in the study suggest that TQM has a significant on customer satisfaction and where it is not implemented customer dissatisfaction lever increases as in the case of indigenous supermarkets in Botswana. Indigenous supermarkets need to have quality as one of its strategic focus and make quality the focus of every employee. Indigenous supermarkets must stop buying and selling generic brands. They also need to continuously engage its customers in order to understand their needs and develop TQM goals and strategies based on customer needs. In order to realize the full benefits of TQM, indigenous supermarkets

should invest in employee empowerment and involvement. Continuous improvement is a must for indigenous supermarkets and to achieve this goal employee training and development should be part of indigenous supermarkets' core business. The title of Study is the effect of TQM on organizational performance: empirical evidence from the textile sector of a developing country using SEM Organizations implements TQM in order to gain competitive advantage in terms of quality, productivity, customer satisfaction, and profitability. However, the literature seems inconclusive about the positive effect of TQM on organizational performance, using a questionnaire. The questionnaires were sent to 210 textile companies and the respondents were quality or production managers. Structural equation modeling was used to investigate the effect of TQM practices on organizational performance. The findings of this study indicate that TQM has a highly positive effect on organizational performance. These findings support the divergence argument, which indicates that the positive effect of TQM on organizational performance is not limited only to companies located in developed nations, but can also be equally achieved in other parts of the world.

The title of Study is investigating the relationship between TQM practices and Firm's performance: A conceptual framework for Indian organizations performance. The purpose of this study is to develop and propose the conceptual framework and research model of TQM Implementation in relation to organization performance particularly in Indian context.

Collecting the primary data from Indian organizations by using Structural Equation Modeling (SEM) approach for hypotheses testing and to find out the effect of mediators in between TQM practices and organization performance.

The study will provide a significant contribution in developing a better understanding of the TQM practices and organization performance in Indian industries, the study investigates how far TQM practices are positively or negatively contributing towards organization performance. Further, the scope for future and Most of the previous works show that TQM has significant relationship with firm's performance.

After reviewing the previous related studies, the researcher has discovered that there is alack in the field of TQM studies that concern for Sudanese Business Units, especially in th e field of industries.

Chapter 3

Methodology

In this chapter, steps of research methodology will be illustrated. The choice of topic and the aim of the research will be discussed. The choice of the method used will also be justified. The design of the study and the methods of data collection will be described. The tests of the chosen methods concerning validity, and reliability will be tested, in order to justify the approach taken. The steps illustrate:

1. Choice of topic
2. Aim of research
3. Method of Data collection Primary Data
4. Validity and Reliability
5. Results & Discussion
6. Conclusions & Recommendations

3.1 Research Methodology:

The descriptive analytical approach is adopted for the purpose of this study as follow:

The research work starts out with stating the choice of our research topic, the aim of the research, next, methods used for data collection and the type of data collected: primary data (qualitative and quantitative data) will be described. From the results or findings of the primary data, the researcher would make an analysis in relation to the theory used and draw his conclusions.

The Aim of the research

1. Providing & Maintaining framework for organizational performance
2. To find the linkage between TQM, performance and customer satisfaction.
3. Determination of the difficulties of implementation of TQM.
4. To obtain the benefits of implementing T.Q.M on business units in Sudan.

3.2 Method of data collection:

According to most literature on research methods in collecting data, Yin (2003), Strauss et al (1998), Fisher (2007) a researcher can choose between two methods; the quantitative and the qualitative. While the quantitative method has more to do with measurements and figures, the qualitative is more about descriptions and opinions.

The quantitative and qualitative methods have been used in this study. According to Strauss et al (1998:10), “qualitative research is the kind of research that produces findings not arrived at by statistical procedures or other means of quantification”. In order to achieve the desired result of this research it makes sense to choose this approach since it enables the researcher to be able to look into all areas of the subject at hand and give a thorough discussion and analysis. Due to the nature of this study, a quantitative method of approach is conducted as well. This is to help the researchers’ analyze information gathered from questionnaires, which were handed out to a group of customers those deal with the case under study. Therefore, while this work is a

qualitative study, we have however used both Quantitative and Qualitative data to describe the results obtained.

The Primary data was obtained through the use of questionnaires as a tool for data collection after is used tested judge validate the data then collected from (60) customers from (2) companies in August 2018.

3.3 Primary data

Questionnaires were handed out from the (2) companies under study which is (60) customers to Giad automobile company and questionnaires to (40) customers to Giad furniture company , This enabled the researcher to acquire, an in-depth knowledge into the organizational practices in Giad Group, and whether or not it reflects the concept of customer satisfaction based on the TQM. Moreover, the goal is to ascertain the extent to which TQM impacts customer satisfaction in Giad Industrial Group.

Questionnaires

Questionnaires forms collected from the customers of (2) companies under study in August 2018. The aim of these questionnaires is to validate and examine the customer perception.

3.4 Population and Sample of the Study

The original population for this study is all the customers that deal with the (2) companies under study in August 2018. Table (2.1) shows the number of distributed questionnaire, the number of received questionnaire and the responses percentage.

3.5 Statistical Reliability and Validity:

It is meant by the reliability of any test, to obtain the same results if the same measurement is used more than one time under the same conditions. In addition, the reliability means when a certain test was applied on a number of individuals and the marks of every one were counted; then the same test applied another time on the same group and the same marks were obtained; then we can describe this test as reliable. In addition, reliability is defined as the degree of the accuracy of the data that the test measures. Here are some of the most used methods for calculating the reliability:

1. Split-half by using Spearman-Brown equation.
2. Alpha-Cronbach coefficient.
3. Test and Re-test method
4. Equivalent images method.
5. Guttman equation.

On the other hand, validity is a measure used to identify the validity degree among the respondents according to their answers on certain criterion. The validity is counted by a number of methods, among them is the validity using the square root of the (reliability coefficient). The value of the reliability and the validity lies in the range between (0-1). The validity of the questionnaire is that the tool should measure the exact aim, which it has been designed for.

The researcher calculated the validity statistically using the following equation:

$$\text{Validity} = \sqrt{\text{Reliability}}$$

The researcher calculated the reliability coefficient for the measurement, which was used in the questionnaire using (split-half) method. This method stands on the principle of dividing the answers of the sample individuals into two parts, i.e. items of the odd numbers e.g. (1, 3, 5 ...) and answers of the even numbers e.g. (2, 4, 6...). Then Pearson correlation coefficient between the two parts is calculated. Finally, the (reliability coefficient) was calculated according to Spearman-Brown Equation as the following:

$$\text{Reliability Coefficient} = \frac{2 \times r}{1 + r}$$

r = Pearson correlation coefficient

3.6 Statistical Instruments

To achieve the objectives of the study and to verify hypotheses, statistical methods were used as follows:

1. Charts.
2. Frequency distribution of the answers.
3. Percentages.
4. Alpha equation, to calculate the reliability coefficient.
5. Median.
6. Chi-square test for the significance of differences between the answers.

In order to obtain accurate results, Statistical Package for Social Sciences (SPSS) was used.

Implementation of the Study's Tool:

After checking questionnaire reliability and validity, the researcher constructed the required tables for collected data, then transform the qualitative (nominal) variables (Good, Very Good, and Excellent) into quantitative variables (1, 2, and 3) respectively, also the graphical representation has been done for this purpose

Chapter 4

Data Collection and Analysis

4.1 Result & Discussions for primary data:

This chapter is concerned with results, analysis and discussions of primary data (questionnaire) for customer satisfaction

Statistical methods used:

To achieve the objectives of the study and to verify hypotheses, statistical methods were used as follows:

7. Charts.
8. Frequency distribution of the answers.
9. Percentages.
10. Alpha equation, to calculate the reliability coefficient.
11. Median.
12. Chi-square test for the significance of differences between the answers.

To get accurate results, the software SPSS (Statistical Package for Social Sciences) has been used.

4.2 Questionnaire:

The Questionnaire is being designed so as to know the perception of the customers towards the products and services of Giad Automobile Company & Giad Furniture Company.

The Questionnaire for Giad Furniture contain 13 phrases (appendix A):

1. Staff Behaviors.
2. Level of Cleaning.
3. Level of Hospitality.
4. Staff Capability.
5. Service Time.
6. Products Show.
7. Products Price.
8. Delivery Time.
9. Delivery Service.
10. Products Shape.
11. Product Quality.
12. Complaints Response.
13. Complaints Handling.

The questionnaire is being designed in a simple way (figures) which show the perceptions of customers as follows:

The answers (7, 8, 9, and 10) are equivalent to Grade (3) "Excellent"

The answers (3, 4, 5, and 6) are equivalent to Grade (2) "very good"

The answers (1, 2) are equivalent to Grade (1) "good"

Test hypotheses:

To answer the Research Questions of the study and to verify hypotheses, the Median is calculated to know the Trends of answers for each phrase in the questionnaire and the Chi-square test is also calculated to know the significance of differences in answers.

Questionnaire No. (1):

This questionnaire is distributed for Giad Furniture Company

The number of distributed questionnaire = 60

The number of received questionnaire = 40

The responses percentage = 66.67%

Questionnaire No. (2):

This questionnaire is distributed for Giad Automobile Company

The number of distributed questionnaire = 40

The number of received questionnaire = 40

The responses percentage = 100%.

Analysis for Questionnaire No. (1):

This questionnaire is distributed for Giad Furniture Company.

Frequency Distribution of the Answers:

Table 4. (1.1): Frequency distribution of Answers for Questionnaire Phrases:

No	Phrases	Frequency %		
		Excellent	Very good	Good
1	Staff Behaviors	19 %47.5	14 %35	7 %17.5
2	Level of Cleaning	28 %70	7 %17.5	5 %12.5
3	Level of Hospitality	26 %65	7 %17.5	7 %17.5
4	Staff Capability	31 %77.5	4 %10	5 %12.5
5	Service Time	26 %65	10 %25	4 %10
6	Products Show	32 %80	3 %7.5	5 %12.5
7	Products Price	30 %75	6 %15	4 %10
8	Delivery Time	30 %75	5 %12.5	5 %12.5
9	Delivery Service	30 %75	6 %15	4 %10
10	Products Shape	29 %72.5	5 %12.5	6 %15
11	Product Quality	30 %75	5 %12.5	5 %12.5
12	Complaints Response	29 %72.5	7 %17.5	4 %10
13	Complaints Handling	29 %72.5	7 %17.5	4 %10
Axis		369 %71	86 %16.5	65 12.5%

Source: prepared by researcher, using SPSS, 2018.

Figure 4.1 Frequency distribution of the first axis phrases Answers

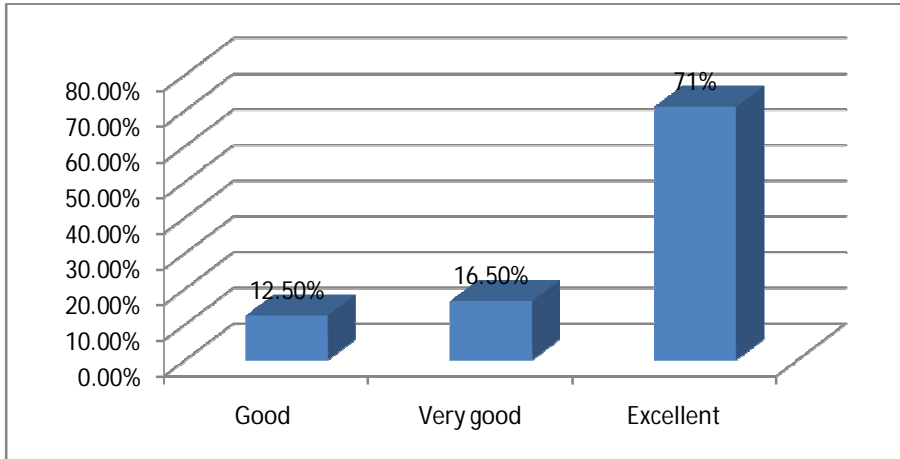


Table 4. (1.2): Chi-square test results:

No	Phrases	Chi-square value	P-value	Median	Trend
1	Staff Behaviors	5.5	0.066	-	-
2	Level of Cleaning	24.4	0.000	3	Excellent
3	Level of Hospitality	18.1	0.000	3	Excellent
4	Staff Capability	35.2	0.000	3	Excellent
5	Service Time	19.4	0.000	3	Excellent
6	Products Show	39.4	0.000	3	Excellent
7	Products Price	31.4	0.000	3	Excellent
8	Delivery Time	31.3	0.000	3	Excellent
9	Delivery Service	31.4	0.000	3	Excellent
10	Products Shape	27.7	0.000	3	Excellent
11	Product Quality	31.3	0.000	3	Excellent
12	Complaints Response	28.0	0.000	3	Excellent
13	Complaints Handling	28.0	0.000	3	Excellent
axis		332.6	0.000	3	Excellent

Source: prepared by researcher, using SPSS, 2018.

From the table above:

1. The value of chi-square for the Staff Behaviors is (5.5) with (p-value=0.066 > 0.05), this indicates that there is no significant differences at the level (5%) between answers of study individuals.
2. The value of chi-square for the level of Cleaning (24.4) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
3. The value of chi-square for the Level of Hospitality is (18.1) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
4. The value of chi-square for the Staff Capability is (35.2) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
5. The value of chi-square for the Service Time is (19.4) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
6. The value of chi-square for the Products show is (39.4) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.

7. The value of chi-square for the Products Price is (31.4) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
8. The value of chi-square for the Delivery Time is (31.3) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
9. The value of chi-square for the Delivery Service is (31.4) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
10. The value of chi-square for the Products Shape is (27.7) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
11. The value of chi-square for the Product Quality is (31.3) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.
12. The value of chi-square for the Complaints Response is (28.0) with (p-value=0.000< 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.

13. The value of chi-square for the Complaints Handling is (28.0) with (p-value=0.000 < 0.05), this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent.

The value of chi-square for all Questionnaire Questions in the first axis (332.6), with (p-value =0.000 < 0.05) , this indicates that there is significant differences at the level (5%) between answers of study individuals and in favor of whom answer is excellent and this are shown in Figure (1).

This means that the Customer satisfaction overview is excellent towards the products and services and accordingly, has shown a positive trend in the customer satisfaction result.

Analysis for Questionnaire No. (2):

This questionnaire is distributed for Giad Automobile Company

1-Customer Perception:

Table 4.1: Frequency distribution of Customer Perception

Answer	Frequency	Percent
Excellent	38	%95
Very good	2	%5
Good	0	%0.0
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.2: Frequency distribution of Customer Perception



Source: prepared by researcher, using Excel, 2018

From table (1) and figure (2) we note that the answer of most individuals study is (Excellent) by (38) and with (%95) while the total number of whom answer is (very good) by (2) with (%5).

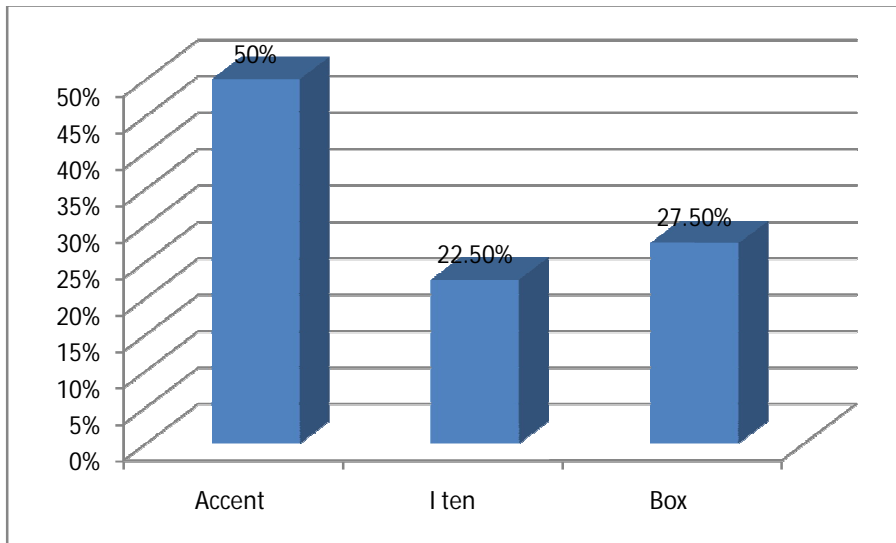
2-Favored Product

Table 4.2: Frequency distribution of Favored Product

Answer	Frequency	Percent
Accent	20	%50
I ten	9	%22.5
Box	11	%27.5
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.3: Favored Product



Source: prepared by researcher, using Excel, 2018

From table (2) and figure (3) we note that the answer of most individuals study is (accent) by (20) and with (%50), followed by whom answer is (Box) by (11) and with (%27.5) while the total number of whom answer is (I ten) by (9) with (22.5%).

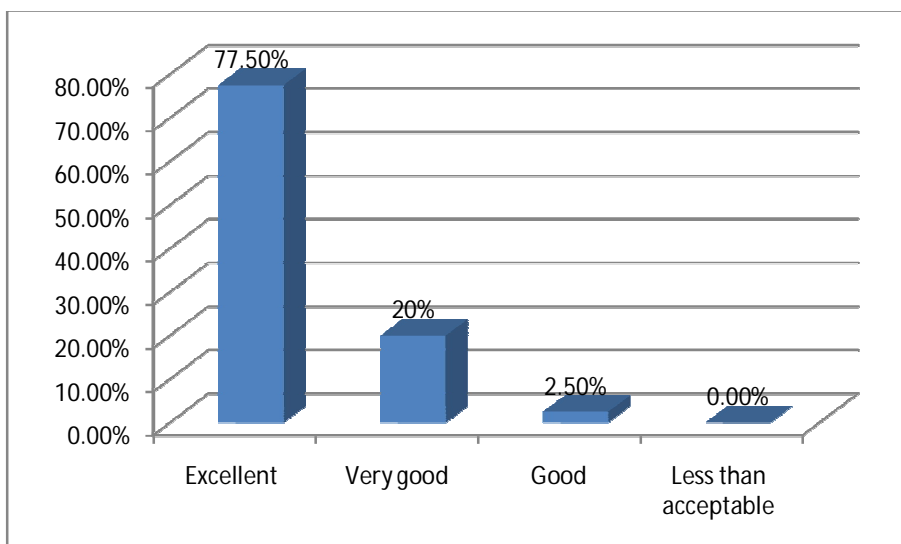
3- Level of Hospitality

Table 4.3: Frequency distribution of Level of Hospitality

Answer	Frequency	Percent
Excellent	31	%77.5
Very good	8	%20
Good	1	%2.5
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.4: Level of Hospitality



Source: prepared by researcher, using Excel, 2018

From table (3) and figure (4) we note that the answer of most individuals study is (Excellent) by (31) and with (%77.5), followed by whom answer is (Very good) by (8) and with (%20) while the total number of whom answer is (good) by (1) with (%2.5).

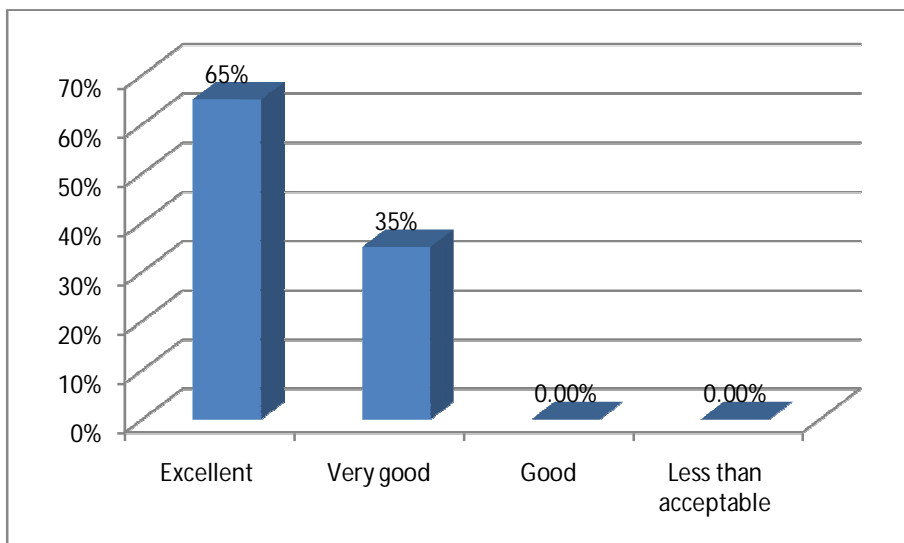
4- License:

Table 4.4: Frequency distribution of License

Answer	Frequency	Percent
Excellent	26	%65
Very good	14	%35
Good	0	%0.0
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.5: Frequency distribution of License



Source: prepared by researcher, using Excel, 2018

From table (4) and figure (5) we note that the answer of most individuals study is (Excellent) by (26) and with (%65) while the total number of whom answer is (Very good) by (14) with (%35).

5- Insurance:

Table 4.5: Frequency distribution of Insurance

Answer	Frequency	Percent
Excellent	23	%57.5
Very good	17	%42.5
Good	0	%0.0
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018.

Figure 4.6: Frequency distribution of Insurance



Source: prepared by researcher, using Excel, 2018

From table (5) and figure (6) we note that the answer of most individuals study is (Excellent) by (23) and with (%57.5 while the total number of whom answer is (Very good) by (17) with (%42.5).

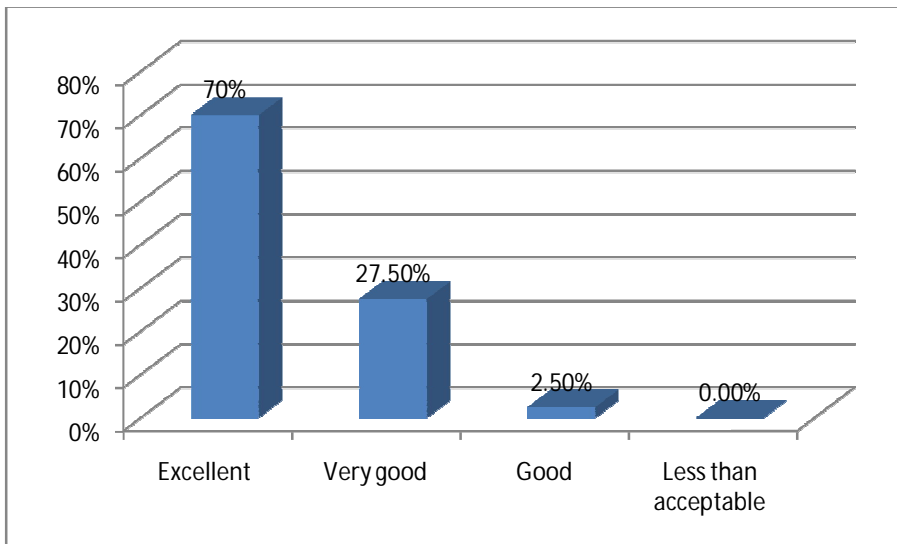
6- Funding:

Table 4.6: Frequency distribution of Funding

Answer	Frequency	Percent
Excellent	28	%70
Very good	11	%27.5
Good	1	%2.5
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.7: Frequency distribution of Funding



Source: prepared by researcher, using Excel, 2018

From table (6) and figure (7) we note that the answer of most individuals study is (Excellent) by (28) and with (%70), followed by whom answer is (Very good) by (11) and with (%27.5) while the total number of whom answer is (good) by (1) with (%2.5).

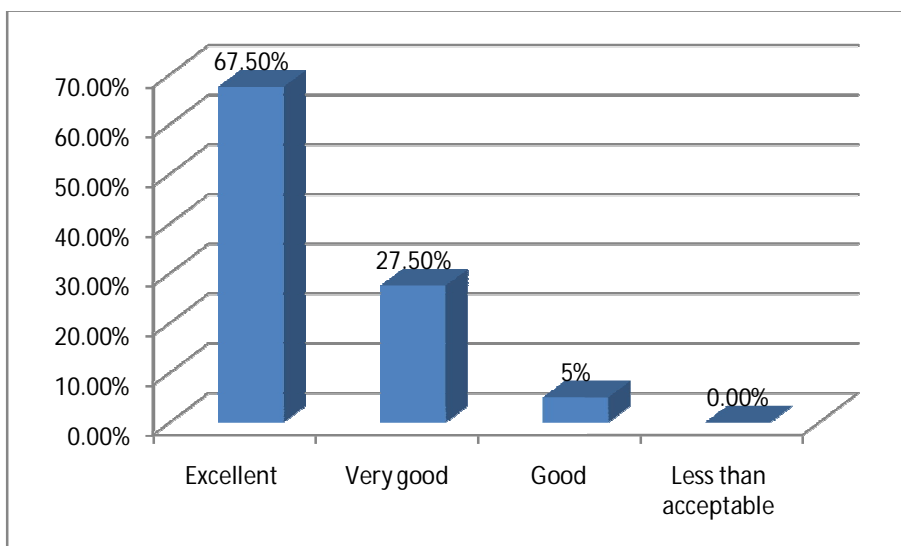
7- Product Delivery:

Table 4.7: Frequency distribution of Product Delivery

Answer	Frequency	Percent
Excellent	27	%67.5
Very good	11	%27.5
Good	2	%5
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.8: Frequency distribution of Product Delivery



Source: prepared by researcher, using Excel, 2018

From table (7) and figure (8) we note that the answer of most individuals study is (Excellent) by (27) and with (%67.5), followed by whom answer is (Very good) by (11) and with (%27.5) while the total number of whom answer is (good) by (2) with (%5).

8- Product Quality:

Table 4.8: Frequency distribution of Product Quality

Answer	Frequency	Percent
Excellent	36	%90
Very good	2	%5
Good	2	%5
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.9: Frequency distribution of Product Quality



Source: prepared by researcher, using Excel, 2018

From table (8) and figure (9) we note that the answer of most individuals study is (Excellent) by (36) and with (%90) while the total number of whom answer is (Very good and good) by (2) with (%5) both.

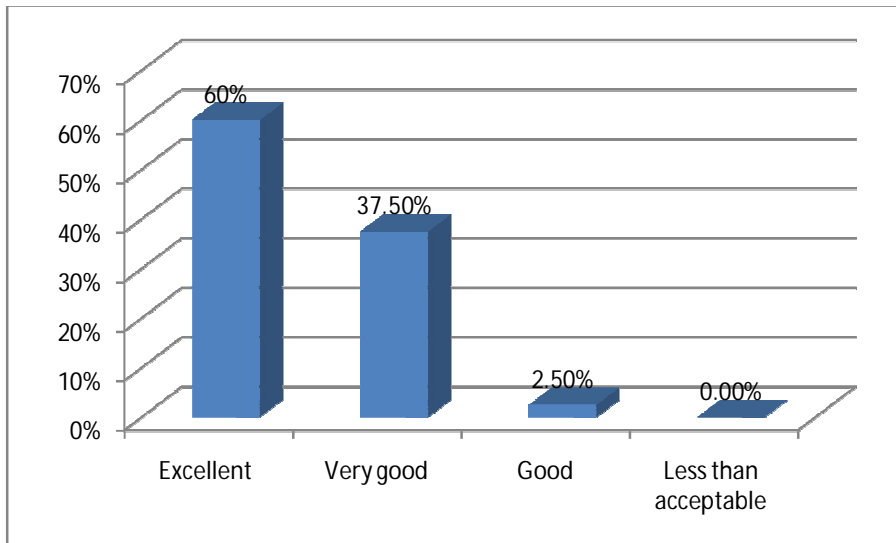
9- Product Development:

Table 4.9: Frequency distribution of Product Development

Answer	Frequency	Percent
Excellent	24	%60
Very good	15	%37.5
Good	1	%2.5
Less than acceptable	0	%0.0
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.10: Frequency distribution of Product Development



Source: prepared by researcher, using Excel, 2018

From table (9) and figure (10) we note that the answer of most individuals study is (Excellent) by (24) and with (%60), followed by whom answer is (Very good) by (15) and with (%37.5) while the total number of whom answer is (good) by (1) with (%2.5).

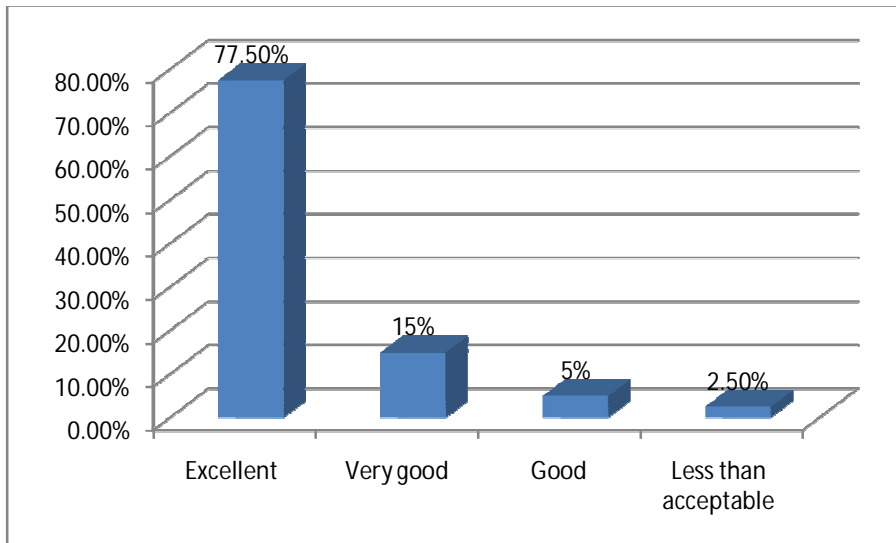
10- Product Price:

Table 4.10: Frequency distribution of Product Price

Answer	Frequency	Percent
Excellent	31	%77.5
Very good	6	%15
Good	2	%5
Less than acceptable	1	%2.5
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.11: Product Price



Source: prepared by researcher, using Excel, 2018

From table (10) and figure (11) we note that the answer of most individuals study is (Excellent) by (31) and with (%77.5), followed by whom answer is (Very good) by (6) and with (%15) while the total number of whom answer is (good) by (2) with (%5).

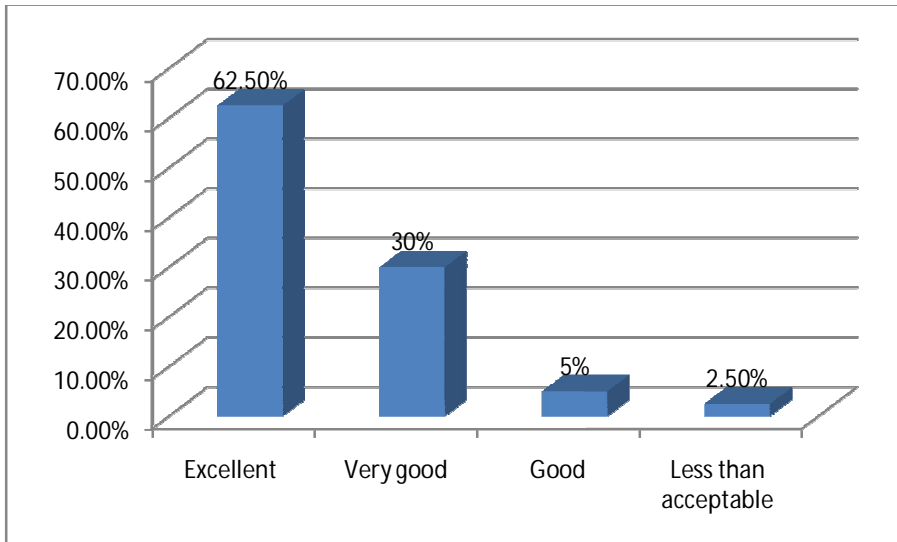
11- Complaints Response:

Table 4.11: Frequency distribution of Complaints Response

Answer	Frequency	Percent
Excellent	25	%62.5
Very good	12	%30
Good	2	%5
Less than acceptable	1	%2.5
Total	40	%100

Source: prepared by researcher, using SPSS, 2018

Figure 4.12: Complaints Response



Source: prepared by researcher, using Excel, 2018

From table (11) and figure (12) we note that the answer of most individuals study is (Excellent) by (25) and with (%62.5), followed by whom answer is (Very good) by (12) and with (%30) while the total number of whom answer is (good) by (2) with (%5).

Chapter 5

CONCLUSION & RECOMMENDATION

In this chapter, conclusions and recommendations would be presented based on the research findings, to affirm whether or not the purpose of the research has been fulfilled, and how the findings deviates or resonates with aim of research.

5.1 Conclusion:

General Research Aim

To examine the Impact of the implementation of TQM on the Organizational Performance and Customer Satisfaction

Specific Research Aim

To examine the impacts of the implementation of TQM on the customer satisfaction as a leading indicator of organization performance in Giad Automobile Company.

The solution to the problem statement and the fulfillment of the purpose of the research have been arrived at through the process of finding relevant literature, collecting and analyzing of primary data (Questionnaire).

Based on the literature reviewed and findings of analysis, several conclusions can be drawn:

- The adoption of TQM in Giad Automobile Company has positive impacts on customer satisfaction as a leading indicator for organizations' performance.

5.2 Recommendations:

- The researcher would recommend that Sudanese Companies should adopt TQM so as to improve their performance.
- It is observed from the results of the Questionnaire for Favored Product that 50% of 40 customers preferred to buy Accent, 28% Box and 22% i10, and this result indicates that Customer Behavior in Sudan favored Accent, so we recommend that Giad Automobile Company to plan for production as follow: 50% Accent, 28% Box and 22% i10.
- Studies in other organization should be conducted to ensure the reliability of results obtained.

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APENDIX (A): Questionnaire sample for Giad Automobile Company:

Could you like fill this questionair for quality , Put ✓ in the squeire :

1-Customer Perception:

Excellent Very good good less than a acceptable

2-Favored Product

Accent I10 Box

Excellent Very good good less than acceptable

3- Level of Hospitality

Excellent Very good good less than acceptable

4- License:

Excellent Very good good less than acceptable

5- Insurance:

Excellent Very good good less than acceptable

6- Funding:

Excellent Very good good less than acceptable

7- Product Delivery:

Excellent Very good good less than acceptable

8- Product Quality:

Excellent Very good good less than acceptable

9- Product Development:

Excellent Very good good less than acceptable

10- Product Price: Excellent Very good good less than acceptable

11- Complaints Response: Excellent Very good good less than acceptable

APPENDIX (B):

Questionnaire sample for Giad Furniture Company:

Could you like fill this questionair for quality , Put ✓ in the squeire

No	Customer questionnaire	good		Very good				Excellent			
		1	2	3	4	5	6	7	8	9	10
1	Staff Behaviors										
2	Level of Cleaning										
3	Level of Hospitality										
4	Staff Capability										
5	Service Time										
6	Products Show										
7	Products Price										
8	Delivery Time										
9	Delivery Service										
10	Products Shape										
11	Product Quality										
12	Complaints Response										
13	Complaints Handling										

