

The Role of Total Quality Management in Achieving Competitive Advantage

Osama Anmar Abdulameer¹, Bakr Ibrahim Mahmood Aljuhishi^{2*}, Thamer Mahdi Muhamed Sabri^{3*}

¹Middle Technical University, Iraq.

^{2*}Al Mustansiriyah University, Faculty of Economics and Administration, Baghdad, Iraq. Email: bakerabrahim@yahoo.com

^{3*}Ministry of Higher Education, Baghdad, Iraq. Email: nabeelmahdi100@gmail.com

ABSTRACT

The research dealt with the relationship between the steps of applying total quality management represented in quality planning, control, improving and their role in achieving the competitive advantage represented by cost, quality, time and flexibility. Several of statistical techniques for applying the TQM technology are used such as monitoring maps, Pareto diagram and the cause and effect diagram that can reduce the costs of evaluation and costs of Internal and external failure. As well as, through the applying of steps of improving the internal and external quality, can achieve product conformity to specifications and suitability for use, and then achieve the second dimension of competition dimensions (quality). In addition, applying the TQM technology integrates with other production systems as it aims to do the right work from the beginning and this will be reflected in the delivery of the product on time. The TQM technology has the ability to make adjustments to the products presented for the purpose of adapting to the change and diversity in customer requests.

Keywords

Total Quality Management, TQM, Competitive Advantage.

Introduction

The development of the competition market in the business environment requires organizations to be competitive and constantly superior in order to be able to maintain their market share and work to increase them in the future. Achieving this superiority requires the organization to obtain a competitive advantage that distinguishes it from other competitors. As this advantage plays an important role in organizations due to the rapid changes and successive developments in the business environment, including the emergence of a huge number of new products, opening up markets and increasing competitive offers. The dimensions of the competitive advantage, which represents a point of agreement between the specialists, can be determined in four dimensions: cost, quality, time and flexibility. These dimensions are of course aimed at achieving the important strategic dimension which is gaining customer satisfaction. Cost management techniques are an important part of the organization's information system that plays an important role in achieving the dimensions of competitive advantage. One of these technologies is Total Quality Management, which represents continuous improvement towards achieving good quality and low costs through the use of statistical methods for quality control represented by monitoring maps, Pareto diagram and cause and effect diagram. And it seeks to achieve the competitive advantage dimensions through these

methods. In order to achieve the goals envisaged from this research, it was divided into three sections, the first section dealt on total quality management, and the second section dealt with the competitive advantage, while the final section included the conclusions and recommendations.

Research Methodology

Research Problem

The research problem is the lack of interest in total quality management and analysis of the costs of quality in organizations, whose effect is reflected in the omission of this analysis by making these organizations more efficient and effective in performance compared to their competitors.

It is clear that the traditional approach to quality management has demonstrated its limitations in that it does not focus on the goal of zero defects, which is reflected in the increase in cost, and thus organizations do not achieve the dimensions of competitive advantage represented by cost, quality, time and flexibility.

Research Importance

The research aimed to demonstrate the importance of total quality management in achieving the competitive advantage of organizations.

Section 1: Total Quality Management

During the last decades of the last century, the world of production was accompanied by radical developments in the concepts and methods of production and cost accounting, which represent new challenges for management accounting. As a result, management accounting has responded to these challenges through the emergence of cost management techniques that have attempted to focus on production and storage activities, quality, and product evaluation. In addition to evaluating the performance of organizations and achieving a competitive advantage and among these technologies is Total Quality Management (TQM), so this section will address the management of costs, their origins, and total quality management technology.

1) Cost Management

Studies show that the beginnings of the strategic entrance to management accounting go back to the late eighties of the last century when the Institute of Chartered Accountants in the United Kingdom conducted a study of the reality and prospects for future development in managerial accounting and published the results of the report under the title Management Accounting: Evolution not Revolution, which was prepared by the authors Brumwich and Bhimani. In 1989 the authors wrote in this report attention to strategic accounting, one of the areas of future development in managerial accounting (Drury, 2000,923). Cost management was defined as those activities that managers take upon themselves to satisfy customers with an ongoing focus on cost control and reduction (Horngren et.al, 1997, 415). As for Osterenga, it is the organization's philosophy in managing all of its resources and activities that consume those resources by focusing on the events, operations or conditions that cause those activities (Osterenga, 1995, 54). Cost management uses modern management accounting systems to rationalize and direct current and future operations towards specific targets, and then direct attention towards resource consumption and suggest recommendations by focusing on operational processes and accounting applications. In addition, it benefits when its tools are in line with the organization's strategies, so the

goal of cost management is to understand the nature and behavior of cost and manage assets through the optimal use of resources (Barner, 2003, p. 13).

For the purpose of carrying out its cost management, a number of procedures are required: (Horngen, et.al, 1999,144).

1. Measuring the cost of resources consumed in carrying out the activities of the organization.
2. Identify and cancel unnecessary activities that do not affect product quality.
3. Determine the efficiency and effectiveness of the necessary activities.
4. Identify and evaluate new activities that improve the future performance of the organization.

2) The Causes of the Emergence of Costs Management

The literature on cost accounting and management accounting indicates that there are two groups of factors (causes) that have contributed to the emergence of the strategic approach to cost management (Al-Mousawi, 2006, 128-129).

The first group: environmental factors: represented by a set of compressing and challenges in the business environment facing organizations, which are represented by: (Blouher, et.al, 1999, 8-10)

1. Global business and intense competition.
2. Advances in information technology and industry.
3. Focus on the customer.
4. Growth of the strategic approach to management.
5. Social, political and cultural considerations.

The second group: technical factors, represented by the group of criticisms faced by the traditional entrance, including: (Wikson, 1990,42).

1. Focusing on manufacturing activities and ignoring the impact of other activities.
2. Not linking activities when analyzing each activity separately from other activities.

3. It does not give priority or importance to the competing positions of competitors. It is not limited to managing planned costs, criteria, and diagnosis of deviations according to the measures defined at the departmental level.

3) Total Quality Management

The decade of the eighties and nineties of the last century witnessed a wide application of the entrance to total quality management in many Japanese, American and European companies as a contemporary management philosophy that provides the basis for building a quality system that contributes to improving the quality of the company's products and meeting the needs of customers and achieving their satisfaction with the organization's outputs and then ensuring their survival and growth in the future.

In connection with shedding light on the concept of total quality management, we review the opinions of a number of researchers as he sees that it means the direction of the management of the (Evans, 1993, 52) organization towards continuous improvement in the quality of products through the participation of all workers in

reaching the goal of achieving the needs and desires of customers.

• The Principles of Total Quality Management

Opinions differed regarding to the number of principles on which total quality management is based. There are those who believe that these principles can be identified as follows: (Atkinson & Kablan, 1997, 41)

1. Focus on the customer's needs.
2. Measuring the organization's performance from the customer's point of view.
3. Documenting the operations of all the organization.
4. Quality is the responsibility of all workers in the organization.
5. Develop plans that should be reached.

As for the ISO 9001-2000 standard, its construction depends on the principles of comprehensive quality management in a comprehensive way, if it is based mainly on eight principles, as shown in the figure 1.

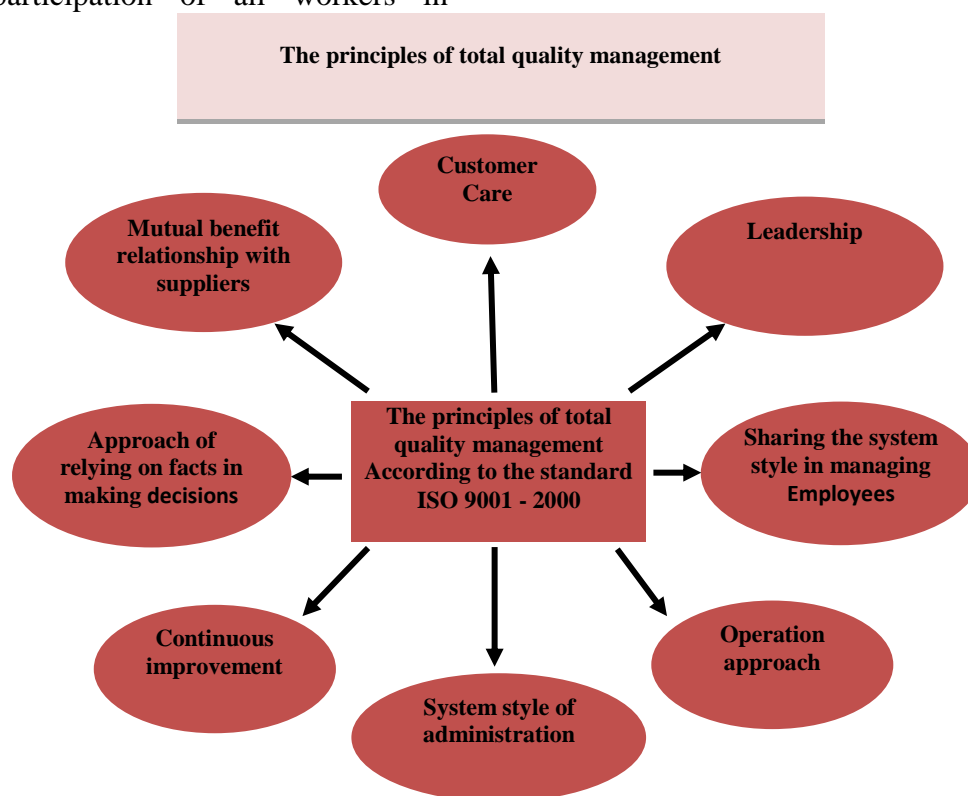


Figure 1. The goals of TQM are as following: (Al-Barwari, 2000,95)

1. Increase the competitiveness of the organization.
2. Increasing the efficiency of the organization in satisfying customers and distinguishing from competitors.
3. Increasing the productivity of all elements of the organization and raising the level of performance.
4. Increase the organization's ability to survive, continue, grow and communicate.
5. Increasing the desire and improvement of the organization's economies through continuous improvement and added value.
6. Increase the movement and flexibility of the organization in its dealings with variables, which means (higher ability to invest opportunities, avoid risks and obstacles)
7. Increase employee loyalty to the organization.

It should be noted that the growing interest in TQM led some countries to establish an award granted to companies that represent the best quality improvement applications and this is done through evaluating the degree of conformity of the organization that is the subject of evaluation for each of the criteria and elements of quality fields and these awards are: (Kotler, 1997,54).

1. Deming Award, approved in 1951 in Japan, aims to support the competitiveness of Japanese industries by spreading awareness of the importance of quality.
2. The Malcolm Baldrige National Quality Award approved in 1987 by Law (100-107), that aims to raise awareness about the quality and strengthen the competitiveness of US companies by focusing on continuous improvement.
3. European Foundation for Quality Management Award This organization was founded in 1988 with the membership of seven European countries and then increased to 250 members in 1992 with the aim of increasing the response to confirm the importance of quality in light of intense competition. This award includes two types: (Al-Abbasi, 1997, 89)

- The European Quality Award is awarded to organizations that demonstrate an outstanding activity in quality management efforts towards continuous development.
- The European quality reward is granted to the most successful organizations adopting total quality management and its application in Western Europe. Most of the literature on management accounting and production management has identified a set of TQM elements as shown the table 1:

<i>n</i>	<i>Source</i>	<i>Elements of total quality management</i>
1	Evans, 1997 p.p 57-59	Strategic planning, fact-based management, human resource leadership and management, customer-driven design and continuous improvement
2	Goetsch Davis, 1997, p.p 13-15	Strategic basis, customer focus, adherence to quality, scientific input, long-term commitment, team work, continuous improvement of systems, education and training, full use of control, integration and employee engagement.
3	Slack et. al, 1998, p.p 778-781	Quality strategy, senior management support, group orientation and improvement on a group basis, validation of success and training is the core of continuous improvement
4	Hick 1998, p.p 5-80	Strategic planning, assigning top management, focusing on the customer, training, education, employee participation and delegation of authority

Source: Preparing the researchers using several sources

• Steps of Applying Total Quality Management

Quality expert Juran proposed a comprehensive way of thinking about quality called triple - quality, which is quality planning, quality control and quality improvement. Then, he linked the issue of quality and its improvement to the extent of the efficiency of management, as he has a

famous saying that "achieving quality is not improvised action". Quality does not come by chance, but we achieve it through triple efficiency: quality management, which is good planning in order to achieve a high level of quality, effective quality control and continuous quality improvement to make it always better (Bounds, et.al, 1994, 75). The following are the clarification for these steps:

First: Quality Planning

The strategic planning for quality at the level of senior management clarifies broad objectives for quality, as well as a plan for action, allocating resources, achieving goals, and identifying alternative strategies. Evaluating those strategies in order to choose the best alternative, and on this basis, the long-term plans are translated through the annual budget. Then the actual results are compared with the budget to determine deviations and address those deviations. Through feedback, we can refer to identifying strategies. (Najm, 2003, 36)

TQM includes a large number of activities carried out by a large number of employees at all levels, and these activities must be directed towards achieving the main goals which are achieving the customer's desires and maintaining a good competitive level. It is important to know, without planning, these activities become a discordant and uncooperative effort, which leads to waste of time, effort and money without achieving the goals (Shabrawi, 1995,9)

Second: Quality Control

Maier notes that the concept of quality control is an effective system for integrating the efforts of the various departments of the organization with the aim of developing and improving quality, maintaining its level and meeting customer needs and desires (Maier, 1997,690).

Quality control is an administrative tool through which to achieve appropriate savings for the company in terms of improving quality as well as reducing costs by reducing defective costs and associated costs called quality costs. Quality Costs are defined as "costs that occur to prevent low quality from occurring or are costs that occur because low quality has occurred" (Al-Zubaidi,

2005, 13). Quality costs can be divided into two main groups: (Hussein, 2000, 286)

The first group: conformance costs: It aims to achieve conformity with the specific specifications of quality by avoiding any deviation from these specifications and includes two classes of costs:

1. **Prevention costs:** These are the costs that occur to prevent the production of products that do not meet specifications and are the costs associated with engineering design and operation, product design costs and training costs that are represent the costs spent on preventive maintenance programs. (Meredith, 1999, 57)
2. **Evaluation costs:** It is the cost that is spent to determine the degree of required quality or the costs associated with measuring the product, examining it, and testing it to show its conformity with the required quality. In addition, it represents the costs of testing raw materials and testing during production processes and the costs of raw materials used in the testing process (Juran, 1988-4-4).

The second group: the costs of non-conformity: the costs resulting from non-conformity with the specified quality specifications, and include two types of costs:

1. **Internal failure costs:** These are the costs that arise as a result of the products not conforming to the specified specifications before being sent to the customer and are represented by the costs of the damaged parts, the cost of rework, repairs, and retesting (Horngren, et.al, 2000, 678).
2. **External failure costs:** This is the cost that occurs due to the defect in the products after they are received by the customer and includes warranty costs, repair costs of the defective product, legal liability, and cost of sales loss (Maier & Deakin, 1994,460).

In addition to the costs that were mentioned, there are specific costs called hidden costs that include the costs of losing reputation and the customer's lack of conviction and the costs of losing customers as well as the quality costs of the supplier who supplies the purchased materials that

reflect their results through the purchase price of the purchased materials. We can say that the costs of hidden quality these are all other quality costs that are not mentioned in the two groups. (Al-Bakri 2000, 298)

There are two theories to determine the optimum level of quality costs:

A. Traditional Perspectives

In light of the traditional viewpoint, the relationship between the costs of quality will be as follows, the more the costs of prevention and evaluation (the costs of conformity) will increase, then the costs of internal and external failure (costs of non-conformity) will decrease. And whenever the decrease in the costs of non-conformity is greater than the increase in the costs of conformity, the organization must continue to increase its efforts to identify the units that do not conform to the specifications and strive to prevent their emergence until reached in a certain point, where any increase after the costs of conformity is greater than the decrease in costs of non-conformity as shown in Figure 2 (Slack, et. Al., 1998: 771)

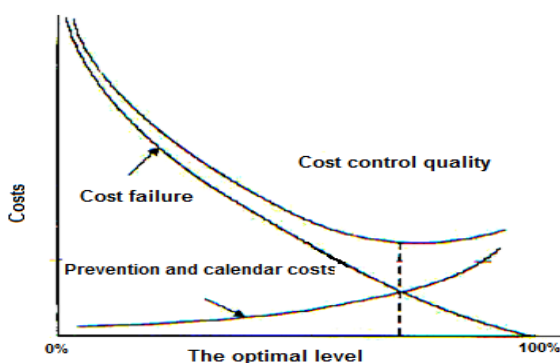


Figure 2. The traditional perspective of the costs of quality control (Bouns, et.al., 1994: p.67)

B. Contemporary Perspectives

The Japanese quality expert (Genchi Taguch) supports the modern perspective of ideal production quality that differs from the traditional perspective

The modern perspective states that both the observed and hidden quality costs are taken into account and that any deviation from the target specifications for the product results in an increase

in the quality costs. Thus, the visible and hidden costs of internal and external failure increase with increasing percentage of defective products. As for hidden and visible costs of prevention and evaluation costs, they increase slightly and then decrease with increasing percentage of damaged products.

The most important point is that the costs of total quality are minimal at the zero defective level (Hilton, 1999: P499). Figure 3 shows the modern perspective of the costs of quality control.

There is a common question, whether the zero defect is a realistic standard? The answer to this question is yes, as some Japanese companies have achieved this standard, and Russell & Taylor has shown that there are several reasons for the Japanese to achieve a 100% quality level and achieve zero defect for the following reasons: (Russell & Taylor, 1998: p. 105 -106).

1. The costs of non-conformity under the traditional view did not take sufficient importance, as the losses resulting from the bad reputation were not taken into account, and these costs are difficult to define, and they were ignored while the zero-defective method focused on these costs.
2. The traditional relationship between the elements of quality costs did not show the importance of the effectiveness of the quality management program on the performance of the organization, as the report of the public accountants in 1991 showed that the companies that received the Buldrig Quality Award showed the effect of quality improvements in motivating workers, improving relations between them, increasing production and increasing satisfaction the customer.
3. The Japanese pledged to achieve the highest quality at the lowest cost, and that one of the methods used was to focus more on training workers and had obtained greater results in preventing defects.
4. Emphasis was placed on improving quality in the product development stage, rather than building quality during the production process.

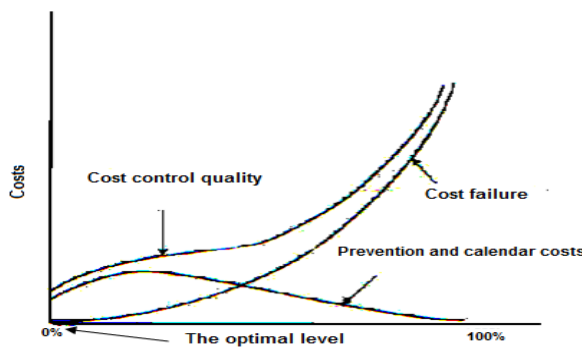


Figure 3. The modern perspective of the costs of quality control

• Statistical Techniques for Quality Control

Statistical control techniques are widely used in industrial organizations as a tool to verify the conformity of the product to the standards required by it, that is, to examine the product and exclude the damaged and defective units.

Therefore, statistical control techniques provide a tool for measuring the performance of a specific process, and from the measurement result it can be verified that the operations are going within the specified plan and criteria, or that operations outside the control require intervention to be corrected. (Hormuz Walman, 1989)

Among the most common statistical methods that are used on which management accounting literature focused on are monitoring maps, a Pareto chart, and a cause-and-effect diagram. Explanations of these statistical methods are as following.

1. Control Chart

It is one of the most important methods for distinguishing between deviations that arise by chance or random and other deviations that are not due to chance or random in the operational process.

Monitoring maps are graphical representations of a series of consecutive observations of a specific step, procedure or process taken in a regular period of time, and each view is represented graphically by a certain percentage that represents the expected distribution and the observations that fall outside certain limits are not random. (Horngren, et. al, 2000,680).

2. Pareto Chart

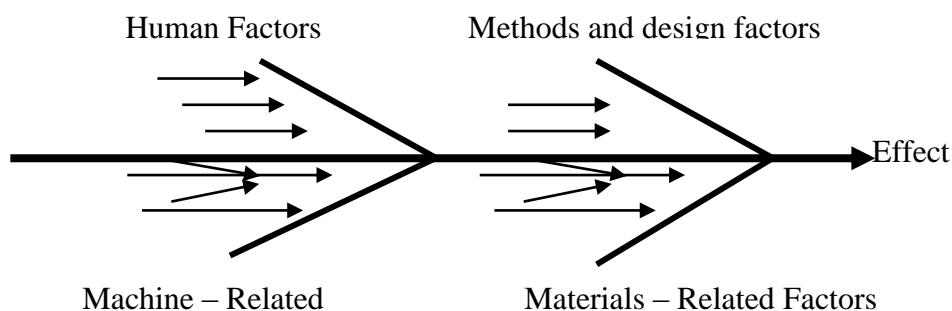
The Pareto chart is one of the statistical methods used to determine the relative importance of the causes of deviation and to prioritize the measures to be addressed.

That is, the observations outside the control limits that were determined by monitoring maps are considered inputs to the Pareto chart, as this chart shows the repetition of each defect. (Hamdi, 1996, 41).

3. Cause and Effect Diagram

After defects are arranged according to their recurrence by a Pareto chart, which is analyzed by the cause and effect diagram, (Ishikaw) used a chart in which a set of factors are analyzed in the organization as a whole that can influence the quality. (Evans, 1997,92).

The following figure shows the cause and effect diagram



Source: Horngren, et.al, 2000: 682.

Figure 4. Cause and effect diagram

Third: Quality Improvement

Quality improvement is a set of measures taken to increase the effectiveness of both activities and processes in order to create additional benefits for the organization and its clients. This is done either through better control of activities and operations or through its implementation in new ways and falls within the concept of quality improvement: (Najm, 2003, 71).

1. Demonstrate the need for some measures leading to improvement.
2. Define the procedures and events required to achieve improvement.
3. Organizing teams for the necessary projects.
4. Diagnosing the reasons leading to quality improvement.
5. Providing solutions and proving their applied effectiveness

Quality improvement forms the basis for the concept of total quality management and one of the methods of improvement is the method of assessing the quality level of final products by which the higher management can know the efficiency and level of performance in its organization and verify the effectiveness of the plans in place to achieve the goals of the device.

The method of assessing the quality level is by identifying the quality costs of products, understanding the interrelationships between their components, and working to reduce the costs of improving quality in order to achieve a competitive advantage.

Second Section: Competitive Advantages

The intensification of competition in the business environment requires the organizations to be constantly competitive in order to be able to maintain their market share and work to increase them in the future. This requires being able to achieve the required competitive advantage within its business sector, and because organizations operate in a complex and changing environment, they are in continuous interaction with them and in light of these variables and challenges, it requires organizations to achieve a competitive advantage and work to support and develop them, so this section will be addressed to the concept of

competitive advantage, its sources, and priorities competitiveness and the relationship between TQM and competition primacy.

Concept of Competitive Advantage

The researchers define the concept of competitive advantage through different visions. (Hick, 1993,103) adopted its applications of information technology as a competitive advantage that can distinguish it from other competitors. As for (Kloter, 1997,53), he emphasized the performance aspects as he described the feature. Competitiveness is the ability of the organization to perform in one way or multiple methods that competitors are not able to follow now and in the future. (Lunch, 2000,153) is mentioned as anything that distinguishes the organization or its products positively in the eyes of its customers or the end users of its products and it is known that it possesses capabilities, characteristics and features The capabilities and skills that give it an inner strength to excel from Competitors by responding to diminishing those capabilities to the values of customers and their need for goods and services. (Barwari, 2001, 75).

In light of what is presented from the previous definitions, it can be said that the competitive advantage pushes the organization to focus on an important property, which is achieving the satisfaction of the customer, who is often the judge in the survival of the organization and the disappearance of others. This is on the one hand, and on the other hand, achieving the competitive advantage is not achieved through owning a large amount Of the resources or the possession of global technology, but it is through the ability to exploit these resources and technology to make optimal use of which makes the organization able to provide a product or service distinct from other organizations.

Competitive advantage gives importance for all parties of the organization, whether employees, suppliers, customers or competitors. At the level of workers, the uniqueness of their organization is a source of pride by giving them a distinct identity to them from workers in other organizations, and this is reflected in the creation of a high competitive culture that directs behaviorally to

maintain this level as well. The customers, who are the most important variable, see that the organization uniquely demonstrates its quality and its financial adaptive ability to fulfill their requests, and once the organization gets a competitive advantage, it will achieve a set of advantages, most notably: (Zepiel, 1992, 40).

1. Customer loyalty and satisfaction will be greater towards the organization's products, thereby making it difficult for competitors to penetrate these customers.
2. The organization will gain more market share through its ability to provide higher value to customers.
3. The increase in the market share is reflected in the increase in the volume of production.

Competitive Advantage Resources

The competitive advantage of an organization often stems from within it and this represents the source of competitive advantage. The organization is a system consisting of inputs, processes, outputs and feedback that make any parts of the system an appropriate source of competitive advantage. Since the organization's system operates in an external environment that affects and affects it, that environment can be another source of competitive advantage, as follows:

First: External Resources

It includes among the external sources that contribute to achieving the competitive advantage as follows:

1. Governmental legislation: Governmental legislation provides protection for some organizations due to certain conditions that may contribute to creating a competitive advantage for these organizations such as tax exemptions that are granted to a specific sector or perhaps the opposite may happen. Governmental legislation may play a role in weakening the competitive position of some organizations by requiring them to pay certain fees or impose Fines for some polluting industries. (Pitts & Lei, 1996, 69)

2. The volume of competition in the industry: The increase in the volume of competition pushes the organization to pay attention to the strategic planning of its operations and activities in order to stand against the competitors and distinguish them by possessing features that are not available to competitors, enabling the organization to provide products of higher value that contribute to creating the competitive advantage of the organization. (El-Sherbiny, 1997, 48)
3. Technological progress: The speed of technological developments and the increase in several inventions were directly reflected in the emergence of new goods and services, the emergence of alternatives to the raw materials used and the adoption of a mass production method that greatly contributes to reducing the cost of production per unit, all of which leads to the preponderance of some Organizations achieve a competitive advantage over other competitors. (Al-Khatib, 2002,95)
4. The organization's strategy to enter the market: The strategy followed by organizations in entering the market plays a large role in building a competitive advantage. Some organizations follow the strategy of early entry and early exit from the market in order to achieve the largest possible revenue, using their uniqueness to provide a specific product and withdraw early If the competing organizations by imitating that product. Other organizations follow the strategy of late entry and late exit from the market in order to get rid of the promotion expenses and some other within the organizations follow the strategy of early entry and late exit if these organizations have significant financial capabilities and get through its financial ability to the advantages of large size to reduce the cost of production per unit. (Krajewski & Ritzman, 1996, 36-37)

Second: Internal Resources

The following include within the internal sources that contribute to achieving the competitive advantage:

1. **Resources:** This includes tangible and intangible human and non-human resources (material and financial) and that these resources are necessary to enable the organization to produce and provide goods and services to its customers through the efficient and rational use of those resources. (Doyle, 1994, 104)
2. **Activities and skills:** They are closely related to management, its methods and the activities carried out by the organization. (Michael J. Porter), a professor at Harvard University in the United States, presented his model called the "Value Chain", which serves as guidelines and strategic lines for the organization's attempts to gain a competitive advantage. The organization produces value through It performs activities that Porter calls it "Value Activities" and consists of two main groups:

A: Primary Activities

These are activities that lead to the physical formation of a good or service and include five activities, which are internal material supply, operations, external material supply, marketing and services.

B: Support Activities

They are activities that are used to assess the extent to which basic activities are able to achieve their tasks, and they include four activities that are the organization's infrastructure, procurement, technology, and human resource management, and that the efficiency and effectiveness of basic activities and support contributes to achieving a competitive advantage (Romney, 2000,20)

Competitive Priorities

The organization is distinguished according to multiple dimensions called competitive precedents, and these dimensions are chosen by the organization as a reflection of the continuous

evaluation of the changing customer desires, what he sees as valuable and what the competitor offers. (Al-Maamouri, 1999,183)

As the organization can achieve a competitive advantage by merging the ability to distinguish, adapt, and respond to needs faster than other competitors. Competitive precedents are defined as "the dimensions that the operating system must have in order for the organization to respond to market demands and then have a competitive advantage from Others by owning one or more of these dimensions (Krajewski & Retzman, 1999,33)

The organization can differentiate if it sets itself apart from its competitors in one or more dimensions of the competitive advantage that represents the subject of agreement between the researchers, which has been identified in four dimensions: cost, quality, time, and flexibility. The following is an explanation of it:

1. Cost

The lowest cost is one of the first competitive precedents that it relied on to achieve a competitive advantage that enables it to maintain its market share by enjoying the benefits of economies of scale, the most important of which is to offset the profit margin resulting from a reduction in the selling price by increasing the volume of sales and until the organization achieves the lowest cost, it must determine a citizen Waste and loss in order to get rid of them and thus reduce costs (Russell & Taylor, 1998: 3). If the organization wants to achieve the real cost reduction, it must follow all the methods that lead to achieving this while maintaining the quality. (Al-Bakri, 1998, 241)

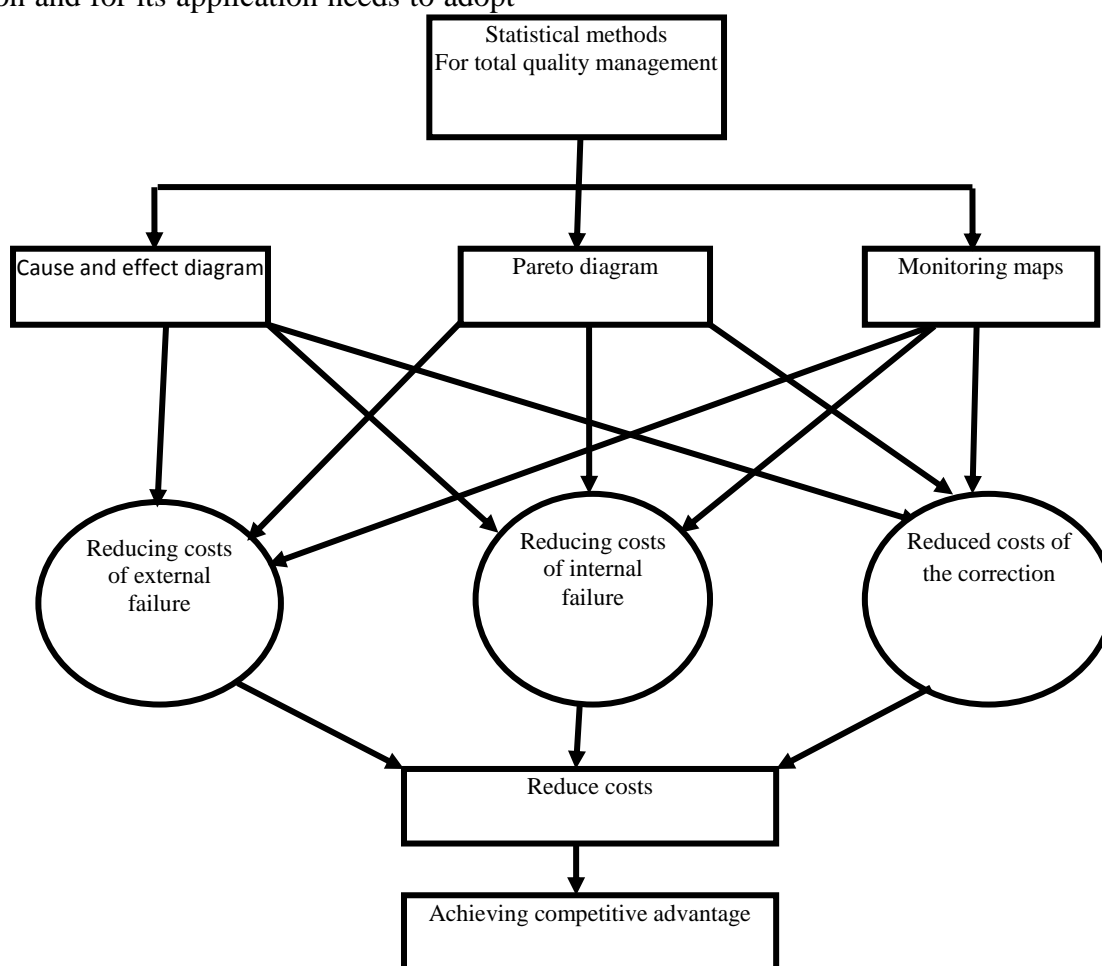
There are several conditions that the organization must consider if it wants to reduce its costs, including: (Al-Taweel and Al-Hafiz, 2002, 16)

1. Reducing all kinds of stocks to the lowest possible level.
2. Improve the quality control work and a tight practice to dispose or reduce defective units.
3. Maintain and continuously design the product.

4. Developing the skills of workers by engaging them in continuous courses.
5. Proper internal organization of the means of production to ensure efficient flow into the factory.

It is clear from the above that the lowest cost as an important competitive precedent for the organization and for its application needs to adopt

modern management accounting techniques, including comprehensive quality management technology, and through the use of statistical methods for quality control (monitoring maps, Pareto diagram and cause and effect diagram) can reduce the quality costs that lead to the result to achieve competitive advantage and the following figure shows that:



Source: prepared by the researchers

Figure 5. The role of statistical methods for total quality management in reducing costs

2. Quality

Quality is one of the most important competitive priorities in addition to cost, and it has been defined as the set of facts that constitute the product / service through which the product meets customer expectations. (Brown, 1996, 179)

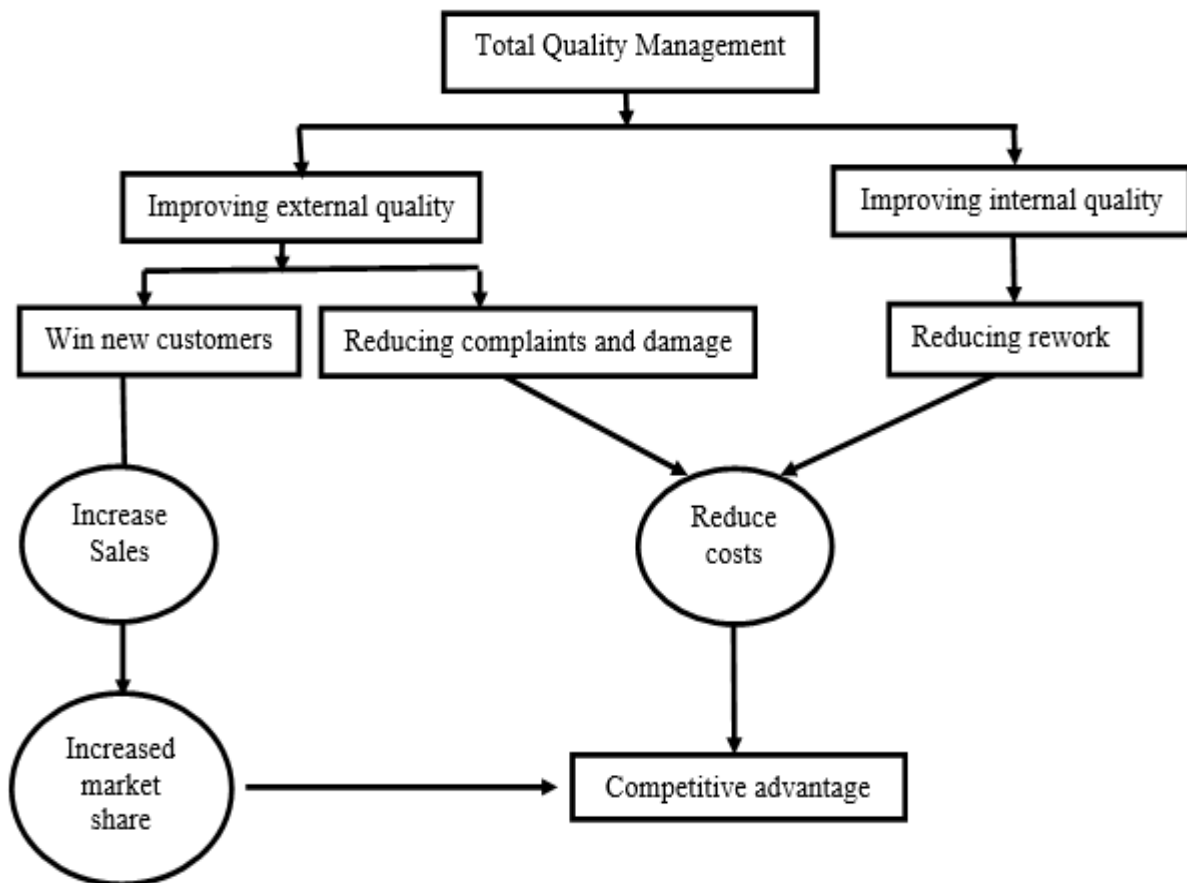
There are those who decide the fact that quality can be achieved through a set of considerations that can be determined as follows: (Feigenbuvn, 1983, 36)

- a. Quality of Design: means designing the product according to the specifications that are specified to meet the desires and needs of consumers.
- b. Quality of Conformance: means the accuracy of the conformity of the product with the design and specifications.
- c. Availability: means the time period within which the consumer guarantees obtaining the required performance of the product and within the terms of operation and maintenance.

- d. Field service or consumer services: These are the facilities that are provided to the customer after marketing the product, and they are related to how to use or guarantee the safety of the product.

Organizations concerned with quality primacy have taken a path to achieve a competitive advantage that helps them survive and grow in the competitive business environment, and have adopted modern management accounting methods

that help them implement quality programs, including total quality management. When organizations use TQM technology, they work to improve internal and external quality, which in turn will lead to reduce redundancy and damage, reduce complaints and gain new customers, which is ultimately reflected in reducing costs, improving quality, and achieving a competitive advantage as shows in following figure.



Source: Researchers' preparation based on Bergman & Kelefsjon, 1994, 38

Figure 6. The role of total quality management in improving quality

3. Time

The rapid transformations taking place in the world today, whose impact has been reflected in organizations, has led to increased interest in the time component, which has become a primary competitive dimension through organizations and expresses time a competitive dimension through

three dimensions: (Krajewski & Ritzman, 1999, 34)

a. Fast Delivery Time

Also called Delivery Speed, which is the time spent between customer ordering and processing, and is calculated by the difference between receiving a customer's order and its fulfillment.

b. On time Delivery

It is also called Delivery Dependability, and it represents the organization's commitment to the delivery times agreed with customers and the more the organization's commitment to these dates, the better reputation it has compared to competitors.

c. Development Speed

It is concerned with measuring the speed of product development in the organization, as it includes the time taken from the moment the idea of development is developed until achieving the final design and production.

From the foregoing, it can be said that organizations are increasingly aware that time is an important and essential variable in competition. Therefore, they must benefit from adopting the time precedence to achieve a competitive advantage, and that is done by adopting management accounting techniques represented in production on time, which depends mainly on the pull system. That is, production for sale, not for storage, and on-time production (Jit) is integrated with TQM technology, because TQM aims to do the right work from the start, which in turn will lead to speed in the quick delivery time, delivery on time and speed of development.

4. Flexibility

Flexibility has become an important competitive dimension in the nineties as a result of the continuous movement of markets. It includes the ability to produce new products in a large amount and at the same time the ability of the organization to make adjustments to its existing products for the purpose of adapting to the change and diversity in the requirements and advances of the customer in order to achieve his satisfaction. (Russell & Taylor, 1998, 32)

(Dilworth, 1992,58) defines flexibility as the response to changes in the amount of production or the values of the product or production mix. (Krajewski & Ritzman, 1999,40) indicated that the types of resilience are:

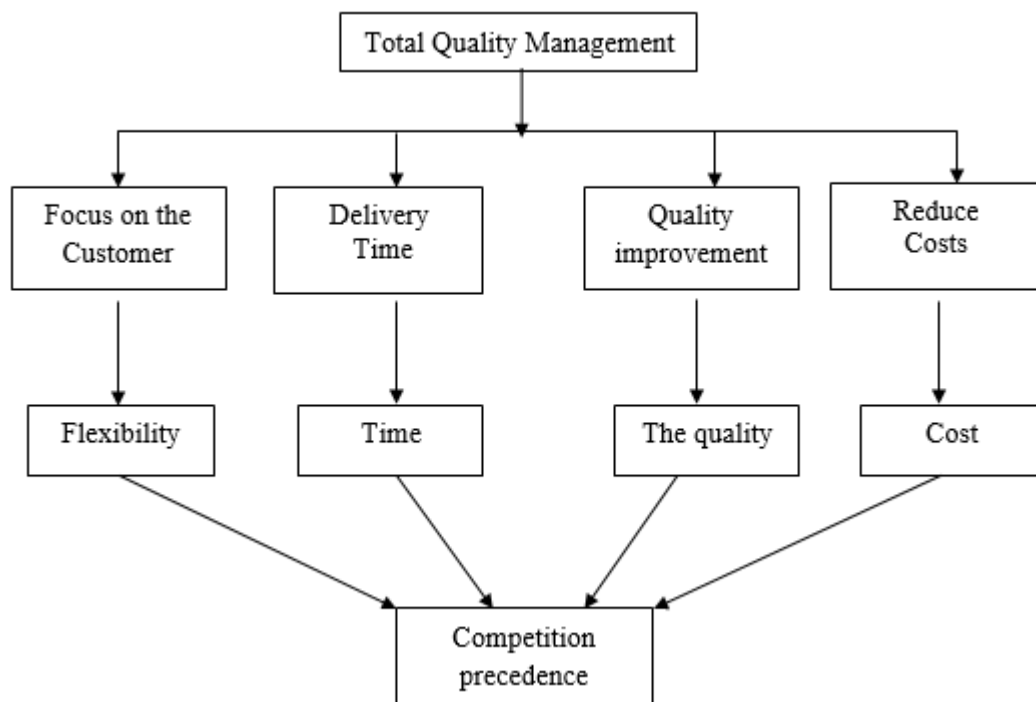
- a. Flexibility of scale: means the ability of the organization to respond to changes in the level of demand.
- b. Product flexibility: means the organization's ability to provide a mix of products that keep pace with changes that occur in the customer's desires.
- c. Flexibility of production processes: means flexibility in machinery and equipment, job specialization, distribution, and flexibility of systems and instructions.

It is clear from the above that the focus of precedence of flexibility is primarily on achieving customer satisfaction that generates loyalty to the organization and at the same time leads the organization to adopt cost management tools that enable it to achieve customer satisfaction by providing products of high quality and low prices at the required time and one of these technologies is TQM.

The Relationship between TQM and Competition Primacy

There is an integrative and interrelation relationship between the objectives of total quality management and the achievement of competition priorities.

TQM aims to reduce costs (evaluation costs, internal failure costs, external costs), improve quality (through the use of quality improvement methods), develop product quality (through the right work from the start, continuous improvements, and focus on the customer) and deliver on time through quality and form planning as showing in the following figure:



Source: prepared by the researchers

Figure 7. The relationship between TQM and competition primacy

Third Section: Conclusions and Recommendations

Conclusions

1. Cost management and its modern technologies provide organizations with appropriate information to benefit from them in achieving competitive advantage.
2. One of the modern technologies that emerged in the eighties of the twentieth century is the management of total quality and its slogan that achieving total quality is the responsibility of everyone in the organization and is based on a set of principles and requirements.
3. Quality costs can be divided into two main groups: costs of conformity (which include costs of prevention and evaluation) and costs of non-conformity (include costs of internal failure and external failure).
4. There are two main entries for the optimum level of quality costs, a traditional approach that believes in the existence of a defective and assumes that the lowest level of quality costs is at a quality level less than 100% and a contemporary entrance does not believe in the existence of a defective in production and it is assumed that the lowest level of quality costs is at a qualitative level 100% and this approach In line with Zero Defects
5. The public accountants report showed that the organizations that received the Boulderger Quality Award showed quality improvements in motivating workers, improving relationships among themselves, and increasing customer satisfaction.
6. The statistical techniques used in quality are the monitoring maps, the Pareto chart, and the cause and effect chart.
7. The concepts that characterized the competitive advantage varied, and they were described in more than one description, but they all serve to achieve the unit's events and mission.
8. There is agreement between writers to define four dimensions of competitive advantage, which are cost, quality, time and flexibility.

9. TQM contributes to achieving the dimensions of competitive advantage by reducing evaluation costs, internal failure and external failure and improving quality by reducing business rework, gaining new customers, and delivery on time and focusing it with the customer.

Recommendations

1. The possibility of adopting strategic management accounting techniques to provide information that contributes to achieving a competitive advantage.
2. Focusing on the main success factors, which are cost, quality, time, and flexibility, whose impact is reflected in achieving customer satisfaction and this is achieved through the use of modern costing technologies represented by total quality management.
3. The necessity for all organizations to adopt the philosophy of total quality management and not be limited to productive organizations.
4. It is preferable for organizations to adopt advanced statistical techniques in the field of control because of the information these technologies provide to diagnose defects in the production stages and avoid the arrival of the defective product to the customer by describing these technologies as preventive rather than corrective methods.
5. Focusing on prevention costs because of their implications for the costs of evaluation and failure, because the higher the costs of prevention, the other quality costs decrease so as to ensure the quality of products and lower costs and achieve competitive advantage.
6. Establishing specialized centers for comprehensive quality management, just as the international specialized centers in this field provide technical assistance, advice and information necessary for organizations to successfully implement TQM technologies.
7. The necessity for organizations to publish scientific concepts and foundations of

quality tools, quality dimensions and dimensions of competition and make quality a strategic goal among the goals that the organization seeks to achieve.

8. Organizations should pay more attention to training and personnel rehabilitation, as training programs must take place in the organization in the light of specific goals and not be limited to a specific category within the organization but rather to involve all employees with training courses that contribute to developing their competency.

References

- [1] Al-Barwari, Nizar Abdul Majeed Rashid, *"Requirements for Total Quality Management and the Possibilities for its Application in Iraqi Organizations: A Future Vision,"* Al-Mansour Magazine - Volume 1, First Issue 2000.
- [2] Al-Bakri, Riyadh Hamzah, "Uses of the Specific Costs System in QCS Industrial Establishments", *Journal of Economic and Administrative Sciences*, Volume VII, Number Twenty-Second, 2002: pp. 289-316.
- [3] Al-Khatib, Samir Kamel, *Measuring the Role of Benchmarking in Improving Organizational Performance - A Case Study with a Proposed Form*, Unpublished PhD thesis in Business Administration, College of Administration and Economics, Al-Mustansiriya University, 2002.
- [4] Al-Zaidi, Muthanna Faleh, *Determining and Measuring Quality Costs for Planning Purposes in the Textile Factory in Mosul*, Unpublished Master Thesis in Accounting, College of Administration and Economics, University of Mosul, 2005.
- [5] Al-Shabrawi, Adel, *"The Practical Guide to Implementing Total Quality Management: ISO 9000 - Benchmarking"*, The Arab Scientific Media Company "Shuaa", Cairo, Egypt, first edition, 1995.

- [6] El-Sherbiny, Abdel-Aziz, *Where is the administration from competitive advantage*, *Bulletin of Administration, Arab Administrative Development Organization*, No. 16, March 1997.
- [7] Al-Ani, Khalil Ibrahim. Al-Qazzaz, Ismail Ibrahim. Corel, Adel Abdul-Malik, *Total Quality Management and ISO 2000-9001 requirements*, Baghdad, first edition, 2002.
- [8] Al-Abbasi, Mohammed Jalal, *ISO 9000, a tool for continuous development*, 1997.
- [9] Al-Musawi, Abbas Nawar Kahit, *Integration of the targeted cost and continuous improvement techniques and their reflection in the competition strategies of economic units*. Unpublished PhD thesis in Accounting, College of Administration and Economics, Al-Mustansiriya University, 2006.
- [10] Hussein, Ahmed Hussein Ali, *Advanced Management Accounting*, University House for Printing and Publishing, Alexandria, Egypt, 2000.
- [11] Hamdi, Hossam El-Din Talib, *"Using Quality Control Tools to Diagnose and Analyze Internal Causes of Concentration by Focusing on Ishikawa and Barreto Planners"*, An Applied Study in the General Establishment for Dairy Products aseptic Milk Factory, Master Thesis in the Department of Business Administration, College of Administration and Economics, Al-Mustansiriya University 1996.
- [12] Najm, Insight Majeed, *The Role of Accounting Information in the Application of Total Quality Management - A Budget Study at the General Company for Vegetable Oil Industry*, Unpublished Master Thesis in Accounting, College of Administration and Economics, Al-Mustansiriya University, 2003.
- [13] Nasrallah, Nazmi, *ISO 9000, issued in 2000, a new step on the road to developing the administrative system*. Egyptian Industry Federation Publications Series (4), 2000.
- [14] Hormuz, Amir Hanna. Al-Samman, Thaeir Ahmad, *"The Use of Standards in Quality Control"*, Al-Sina'a Magazine, First Issue, 12th year 1989.
- [15] Atkinson, Anthony A., Banker, Rajiv D., Kaplan, Robert S. & Young S. Mark, *"Management Accounting"*, 2nd ed., Prentice Hall Inc., USA. 1997.
- [16] Blocher, Edward D., Chen, Hing H., and Hin Thomas W., *"Cost Management: A Strategic Emphasis"*, 1st ed., McGraw Hill Co, 5th ed., Thomson Learning, 1999.
- [17] Czepiel, John, *Competitive Marketing Strategy*. Prentice- Hall, Inc., New Jersey, 1992.
- [18] Drury, Colin *"Management & Cost Accounting"*, 2000.
- [19] Evans, James R. *"Applied Production & Operations Management"*, 4th ed., West Pub. Co, 1993.
- [20] Juran, J.M., *"Quality Control"*, 5th ed., McGraw-Hill, Inc, 1988.
- [21] Maher, Michael *"Cost Accounting: Creating Value for Management"*, 5th ed., McGraw – Hill Companies, Inc., USA, 1997.
- [22] Maher, Michael W. & Deakin, Edward B, *"Cost Accounting"*, 4th ed., IRWIN, Inc., USA. 1994.
- [23] Pitts, Robert & Lei, David, *"Strategic Management: Building & Sustaining Competitive Advantage"*, West Publishing, USA, 1996.
- [24] www.GraphicProducts, *"Kaizen: the Key to Understanding Japanese Success"*, Graphic Products, Inc, 2005.
- [25] Bounds, Grey & Yorks, Lyle & Adams, Mel & Ranney, Gipsie, *"Beyond Total Quality Management"*, 1st ed., McGraw-Hill, Inc., 1994.
- [26] Dilworth, J.B., *"Operations Management"*, 1st.ed., McGraw-Hill, 1992.

- [27] Feigenbaum, A.V., *"Total Quality Control"*, 2nd ed, McGraw-Hill, Co., New York, 1983.
- [28] Hick Jr. James O., *Management information systems; Anser Perspective*, 3rd ed., Wes Publishing, Co. USA, 1993.