TOTAL QUALITY MANAGEMENT

Dr. Raji Z. Al-Ani
Assistant Prof.

Awss Hatim Mahmoud AL-Mashhadani
M.Sc. Construction Management

Civil Engineering
Baghdad University

ABSTRACT

Total quality management is not a new concept. However, it is widely accepted as the fundamental business issue of the 1990s. Companies have started to realize the potential of TQM as a means of ensuring high quality products and services. With this realization has come implementation in manufacturing and service companies. Construction companies, like any other business, must provide a top quality finished product to its customer if it intends to stay in business. TQM is one way to work to that end.

The objective of this paper is to review the concept, definition, importance, principles, and elements of total quality management.

الخلاصة

ان إدارة الجودة الشاملة هي ليست بالمفهوم الجديد. بالرغم من أنها انتشرت بشكل واسع كانبثاق عمل أساسي في التسعينات. ان الشركات بدأت تدرك إمكانيات إدارة الجودة الشاملة كوسيلة لضمان الجودة العالية للمنتجات والخدمات. من خلال هذا الإدراك جاء تطبيق إدارة الجودة الشاملة في شركات التصنيع والخدمة. ان شركات الإنشاء كباقي الأعمال الاخرى ملزمة بتوفير منتج نهائي عالي الجودة للزبون إذا كانت ترغب في البقاء في مجال الأعمال. من خلال ما تقدم تعتبر إدارة الجودة الشاملة الطريق الوحيد للعمل من اجل الوصول إلى هذه النهاية.

ان الهدف من البحث عرض مفهوم،تعريف،أهمية و عناصر إدارة الجودة الشاملة.

KEY WORDS

Total quality management, quality, tqm, customer satisfaction, continuous improvement.

INTRODUCTION

Total Quality Management (TQM) is widely accepted as the fundamental business issue of the 1990s and the key to business improvement. Total quality management is not just meeting the requirements of quality system standard, it is about continually searching for improvements and better ways of doing things, having the right attitude, creating a sense of improvement, pride in products and services and the progress made in their performance, recognizing how dependent others are on our actions, being a part of team that really cares about what they do, and providing products and services that customers want. In other words, it is a practical approach to running a business with the involvement of employees at all levels, participation in the business and helping to eliminate problems. The focus is directed on understanding and anticipating customer

requirements through creative thinking, meeting these requirements, giving complete customer satisfaction and, in this way, building customer loyalty.

TOTAL QUALITY MANAGEMENT CONCEPT

Once upon a time there was only "product quality"... but time passed, customer requirements changed and now quality in every thing including "management quality" is improved in order to reach "business excellence". TQM can very briefly be explained as "doing the right thing, in the right way, at the right time, at the most economic cost", "right thing" is described in terms of "customer requirements and expectations". "Business excellence" words are more frequently used to mean, "total quality management", bearing in mind "excellence" is a situation which you would never reach, but keep striving for (Tekfen, 1997).

Total quality management (TQM) is the integration of all functions and processes within an organization in order to achieve continuous improvement of the quality of, goods, and services. The goal is customer satisfaction. Quality expert J.M. Juran calls it a major phenomenon in this age. This concern for quality is not misplaced (Ross, 1995).

Total quality management is business management which puts quality in its core (Armstrong, 1997).

The basic idea of TQM is that it is extremely expensive to "inspect" quality in to a company's products and much more efficient and effective to build items right in the first place. As a result, responsibility for quality has been taken a way from the quality control department and placed where it belongs-with the workers who produce the parts in the first place. This is called quality at the source. It is the heart of statistical quality control (SQC) some times called statistical process control (SPC) (Shafer & Meredith, 1998).

The beginning of TQM dates back to the 1930s when Dr. W. A. Shewart began using statistical control at the bell institute (Shafer & Meredith, 1998), the term was first formally used in 1957 by Feigenbaum "called it TQC".

Many authorities have contributed to the development of the idea; however these authorities include Feigenbaum, Deming' Juran, Ishikawa, Taguchi, and Crosby (Slack & others, 1998).

But TQM is not a 'quick fix' or a magic cure. It is a management technique designed to involve all parts of the business in the pursuit of, and commitment to, the highest quality result (Spenley, 1995) and (العاني واخرون، 2002).

TOTAL QUALITY MANAGEMENT DEFINITION

TQM is a philosophy, which concentrates on process improvement, customer and supplier involvement, teamwork, and training to achieve customer satisfaction, cost effectiveness, and defect-free quality work (Oberlender, 2000).

ISO 8402 defined TQM as: "a management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society" (ISO, 1996).

"Kanji and Asher" (1993) said that: "TQM is a continuous process of improvement for individuals, groups of people and whole organizations". What makes total quality management different from other processes is the concentrated focus on continuous improvement (Kanji & Asher, 1997).

TQM considers as a new management concept, which several production organizations emphasize on implementing it (أبو نبعه و مسعد، 1999).

(العلي، 2000)and (حمود، 2000) depended" John Oakland's" definition of TQM as: "a way of managing organization to improve their, effectiveness, flexibility, and competition location". Total quality management refers to a quality emphasis that encompasses the entire organization, from supplier to customer. TQM stresses a commitment by management to have a continuing company

wide drive toward excellence in all aspects of products and services that are important to the customer (Heizer & Render, 1999) and (Render & Heizer, 1997).

Fans Wareân, psychology expert in the American navy, was the first one who called this new approach in managing and organizing "total quality management" (مرسي و العديلي، 1997).

(الطائي، 2001) defined TQM as: a management philosophy consists of two parts:

1- Art (how to manage all members in the organization).
2- Science (how to use scientific ways in decision making processes, continuous improvement, statistical tools, production processes, market studying, defect diagnosis, and cost reduction.

TQM is a person and organization trust that they will work, today better than yesterday, and tomorrow better than today (العزاوي، 2001).

Federal Quality Institute defined TQM as: "a comprehensive practical way aimed to achieve customer requirements and expectations by using quantitative methods to achieve continuous improvement in the processes and services to the organization" (الدرادكة و آخرون، 2001).

In spite of the several definitions of TQM but most of them include the following features:

1- Customer satisfaction (internal and external).
2- Continuous improvement to the information, processes products and services.
3- Employee participation.
4- Use statistical tools to measure quality.
5- Training.
6- Factual approach to decision-making.

TOTAL QUALITY MANAGEMENT IMPORTANCE

The increased acceptance and use of TQM is the result of two major trends (Ross, 1995):

1- Reaction to increasing domestic and global competition.
2- The pervasive need to integrate the several organizational functions for improvement of total output of the organization as well as the quality of output within each function.

(Armstrong, 1997) presented that the factors influencing the necessity for TQM adoption were:

1- Progressively higher demand for product quality.
2- Extremely competitive pricing, causing pressure on cost and in particular, quality cost.
3- Rapid industrial growth both domestically and internationally.
4- Demand for shorter time cycles for production.

(مرسي و العديلي، 1997) presented three reasons of TQM spreading:

1- There was a verification that TQM was succeeding in several companies, and lead to increase productivity, market shares, profits, workers relations improvement, and customer satisfaction.
2- TQM includes several management ideas which knowing them, such as problem-solving tools' training, employee involvement, continuous improvements, and integration of all functions and processes within an organization.
3- TQM agrees with the important customs, such as customers are serviced by achieving their requirements, cooperative working, and changing the problems into learning opportunities.

PRINCIPLES OF TOTAL QUALITY MANAGEMENT

(Kanji & Asher, 1997) shows that total quality management encompasses a set of four principles and these principles are:

1- Customer satisfaction.
2- Continuous improvement.
3- Employee participation.
4- Management by fact.

The researcher depended the last four principles of TQM. Because many authorities agreement about these principles.

Customer Satisfaction

Historically customers were considered outsiders who used a company's products and suppliers were outsider who provided the materials needed to produce the products. A more contemporary view is that every organization has both internal and external customers. An external customer is the one spoken to in the traditional definition. An internal customer is any employee whose work depends on that of employees whose work precedes theirs. In a total-quality setting, customers define quality. Therefore, customer satisfaction must be the highest priority-customer satisfaction is achieved by producing high quality products that meet or exceed expectations. It must be renewed with each purchase. Customer needs are not static. Therefore, constant contact with customers is essential in a total- quality setting (Goetsch & Davis, 1997).

(Hradesky, 1995) said "in any business there are both internal as well as external customers. Companies with a commitment to excellence need a commitment to satisfying their customer needs at every level, i.e., internal as well as external".

(Cakmak, 1997) said, "TQM requires satisfaction of all kinds of customer (internal, external)".

(Goetsch & Davis, 1997) depended Irwin Bross saying, "The purpose of studies in customer satisfaction is to adjust the product to the public, rather than, as in advertising, to adjust the public to the product."

Continuous Improvement

One of the most fundamental principles of total quality is continuous improvement. The concept applies to processes and the people who operate them. It also applies to products. Continuous improvement is fundamental to success in the global marketplace. Customer needs are not static they change continually. A special product feature that is considered innovative today will be considered just routine tomorrow. A product cost that is considered a bargain today will be too high to compete tomorrow. The only way a factory can hope to compete in the modern marketplace is to continually improve (Goetsch & Davis, 1997).

Continuous improvement means improvement both incremental and "breakthrough" as a part of daily operations and of all work units of a factory. It is the essence of total quality management (TQM). Problems should be eliminated at their source, and opportunities to do better should be sought (Evans, 1997).

(ISO, 2000) defined continual improvement as "recurring activity to increase the ability to fulfill requirements".

In a highly competitive environment; the key to success is in staying a head of the opponent, not the standard. The operation of continuous process improvement includes (Ross, 1995):

1- Defining the problem and possible solutions.
2- Selecting and implementing the most cost-effective solution.
3- Re-evaluating, standardizing, and then repeating the process.

To improve the process, therefore, people must know what to do, how to do it, have the right methods to do it, and be able to measure the improvement of the process and the current level of achievement (Kanji & Asher, 1997).

Employee Participation

Employee participation, also called employee involvement, is a key tactic for improving quality. One way to achieve employee participation is by the use of teams, which are small groups of people who have a common purpose. Quality is a responsibility to be shared by the entire organization, specially the workers who actually make the product or service. With TQM, every one is expected to contribute to the overall improvement of quality-from the administrator who finds cost-saving

measures to the salesperson who learns a new customer need to the engineer who designs a product with fewer parts to the manager who communicates clearly with other department heads (Krajewski & Ritzman, 1996).

Involving people in decisions made relating to their work is a fundamental principle of good management. With total quality, this principle is taken even further. First, employees are involved not only in decision making but also in the creative thought processes that precede decision-making. Second, not only are employees involved, they are empowered. Employee involvement is a way of engaging employees at all levels in the thinking processes of an organization. It's an understanding that people at all levels of an organization possess unique talents, skills, and creativity that can be of significant value if allowed to be expressed. Many companies emphasize programs that encourage first-line workers to develop ideas for improvements, but the best companies also foster in their employees the ability to execute those improvement ideas. Ideas conceived by the workers should also be executed by the workers. Without empowerment, involvement is just another management tool that doesn't work. Creative thinking and initiative from as many employees as possible will increase the likelihood of better ideas, better decisions, better quality, better productivity, and therefore, better competitiveness (Goetsch & Davis, 1997).

Management by Fact

Fact-based management is built on a framework of measurement, information, and analysis. The type of measurement used depends on the company's strategy. All key processes and the output and results of those processes should be measured. Information needed for performance assessment and improvement should be gathered on customers, product and service performance, operations, market, competitive comparisons, suppliers, employees, and cost and financial data. Analysis refers to extracting larger meaning from such data to support evaluation and decision making at all levels of the company-thus supporting company planning, performance review, operations improvement, and the comparisons with competitors or "best practices"(Evans, 1997).

(ISO, 2000) show that, effective decisions are based on the analysis of data and information.

The collection and analysis of data is key to the process of quality improvement. If you can't measure something, how do you know if there has been an improvement? , on the other hand, it is important not to over do it: the data must be useful, relevant and accurate (Spenley, 1995).

Measurement needs to be made continually against a series of key results indicators, both internal and external. The latter are the most important because they relate to customer perceptions of product and/ or service improvement. The indicators should be developed from existing business measures and external (competitive and functional) and internal benchmarking, as well as from customer surveys and other means of external input. This enables to management by fact (Dale & others, 1997).

(البر وارى، 2000) said that, strategies that depend on fact lead to big success in achieving aims.

Organizations which implementing TQM depending on true fact and data not personal prospects, so those organizations will take distinct location in the competitiveness (سعيد، 1997).

IMPLEMENTING TOTAL QUALITY MANAGEMENT

The first thing executives must realize from the outset is that TQM is a long-term and not a short-term intervention. It is an arduous process. They must also realize that TQM is not the responsibility of the quality function. There are no (Dale & others, 1997):

1- Quick fixes.
2- Easy solutions.
3- Universal panaceas.
4- Tools, techniques and /or systems that will provide all the answers.
5- Ready-mode packages that can be plugged in and that will guarantee success.

(Hill, 2000) presented eight elements for implementing TQM:

1- Commitment and leadership from the top (Top- management support).
2- Strategic planning.
3- Statistical quality control tools.
4- Education and training.
5- Teamwork.
6- Measurement and feedback.
7- Culture changes.
8- Process approach.

(Ross, 1995) added:

9- Contracting for the consultant's services.

(Oberlender, 2000) added:

10. Relationship with suppliers.

Commitment and Leadership from the Top (Top-Management Support)

As with many approaches, the belief and commitment by those at the top of an organization coupled with the leadership to make these changes happen are critical to the success of a TQM initiative. Without the allocation of resources and time, and a clear statement of the priority that needs to be given to this initiative, then TQM will not succeed (Hill, 2000).

Without exception, top- management commitment and leadership is the key "driver" in the successful implementation of TQM. Top managers, must become the organization's TQM leaders and provide the vision, encouragement, and recognition necessary to overcome old habits (Evans, 1997).

The commitment must be coupled with a through understanding of TQM that enable members of senior management to lead their company in a quality revolution. Supported by this commitment and understanding, senior management can personally establish new goals and directions for the company and then lead the management teams toward the attainment of those goals and directions (Oberlender, 2000).

Strategic Planning

High quality is not achieved instantaneously. It is the result of long-term strategic planning that reflects commitments to customers, employees, suppliers, the public, and the community. Of course, different resources, systems, and constituent relationships require different strategies. Any strategy should integrate quality into all aspects of business planning. Strategies are long-term and focus on investment in research and development, training, process design, and continuous improvement-factors important to long-run effectiveness, not just short-term efficiency (Evans, 1997).

Strategic planning is the process by which an organization answers such questions as the following: Who are we? Where are we going? How will we get there? What do we hope to accomplish? What are our strengths and weaknesses?. Strategic planning involves developing a written plan that has the following components: an organizational vision' organizational mission, guiding principles, broad strategic objectives, and specific tactics, project, or activities for achieving the broad objectives (Goetsch & Davis, 1997).

Total quality begins with a strategic decision that can only be made by top- management-and that decision, simply put, is the decision to compete as a world-class company (Ross, 1995).

Statistical Quality Control Tools

Companies use these tools and techniques to evaluate how well processes and systems consistently meet the product and service specifications and hence the expectation of their customers, identify problems and their most likely causes and assess the effect of corrective actions. These tools and

techniques provide different and complementary analysis and so using a combination of these provide greater insights and more information by which to manage and control quality (Hill, 2000).
Statistical quality control tools enable today's employees, whether engineers, technologists, production workers, managers, or office staff to do their jobs. Virtually no one can function in an organization that has embraced total quality without some or all of these tools. They are tools for collecting and displaying information in ways to help the human brain grasp thoughts and ideas that, when applied to physical processes, cause the processes to yield better results (Goetsch & Davis, 1997).
No single tool or technique should be regard as more important than other; they all have a role to play in a process of continuous improvement. It is a mistake to single out for special attention one tool or technique (Dale & others, 1997).
The seven tools are (Oberlender, 2000):
1- Histogram.
2- Cause-and-effect diagram.
3- Pareto diagrams.
4- Check sheets.
5- Flow charts.
6- Control charts.
7- Scatter diagrams.

Education and Training

One of the most fundamental elements of total quality is the ongoing development of personnel. This means education, training, and learning. Training is defined as follow: training is an organized, systematic series of activities designed to enhance an individual's work-related knowledge, skills, and understanding and / or motivation. Education is a broader term; training is a subset of education. Also, education tends to be more philosophical and theoretical and less practical than training. The purpose of both education and training is learning. Training is an essential ingredient in total quality, but training is not automatically good. In fact, training sometimes fails. There are many reasons why training fails when it does. Poor teaching, inadequate curriculum materials, poor planning, insufficient funding, and a lack of commitment are all reasons why training sometimes fails (Goetsch & Davis, 1997).
Regardless of whose teachings you look to-Deming, Juran, Crosby or others-there is a common agreement: for a company to drive the benefits of the TQM, every one must be trained. Training was the initial and major element in implementing the TQM (Ross, 1995).

Teamwork

Teamwork is an essential element of TQM, providing an opportunity for co-operative action in pursuit of continuous improvement. Senior managers need to give more thought to the means by which teamwork may be facilitated and how the achievements of effective team members can be recognized. The use of teams is a way of involving everyone in a continuous improvement initiative. Teams (Dale & others, 1997):
1- Aid the commitment of people to the principles of TQM.
2- Provide an additional means of communicating between individuals, management and their direct reports, across function, and with customers and suppliers.
3- Provide the means and opportunities for people to participate in decision making about how the business operates.
4- Improve relationships, develop trust and facilitate co-operative activities.
5- Help to develop people and encourage leadership traits.
6- Build collective responsibility.
7- Aid personal development and build confidence.

8- Develop problem-solving skills.
9- Facilitate awareness of improvement potential, leading to behavior and attitude change.
10- Help to facilitate a change in management style.
11- Solve problems.
12- Improve morale.
13- Improve operating effectiveness as people work in a common direction.

Measurement and Feedback

There is a need to provide positive feedback and recognize and reward achievement. People must not only see the results of their actions and endeavors but also see that their improvements really count and contributions are recognized by the organization. This requires regular feedback and constant support. For TQM to be successful, the results of improvement need to be extensively communicated to all involved. Part of this communication needs to include results against key internal and external targets, including internal and external benchmarking. This enables true measures to be made and will, in turn, identify gaps and help develop new improvement programs (Hill, 2000).

Measures are needed for each activity. Standards are needed for comparison against past performance, the experience of competitors, and as a basis for action plans to improve. Garl G. Thor, president of the American Productivity and Quality Center in Houston, is a pioneer in the productivity measurement process and has worked for many years on the development of a measurement system. His principles of measurement for both productivity and quality include (Ross, 1995):

1- Meet the customer's need. The customer may be external or internal.
2- Emphasize feedback directly to the workers in the process that is being measured.
3- The main performance measure should measure what is important.
4- Measures should be controllable and understandable by those being measured. This principle may be enhanced by the participation of those being measured.

Culture Changes

(Ross, 1995) defined culture as: "the philosophies, ideologies, value, assumptions, beliefs, expectations, attitudes, and norms that knit an organization together and are shared by employees".

While (Dale & others, 1997) defined culture as "a socially constructed system of shared beliefs, meanings and values".

The culture is different in each country, each society, even in a company. Within a company, people can be grouped into different professional categories, such as engineers, managers, clerks, and workers. In addition, individuals are staying in distinct levels of existence and getting corresponding values during professional lives (Cakmak, 1997).

Success is very often directly related to an organization's ability to create an environment that empowers and challenges its staff to change and improve their performance continually (Spenley, 1995).

Organization in which the prevailing culture is based on traditional management practices is not likely to succeed in the implementation of total quality. Successful total quality requires cultural change (Goetsch & Davis, 1997).

Process Approach

ISO 8402 defined process as: "set of inter-related resources and activities, which transform inputs into outputs" (ISO, 1996).

While (Kanji & Asher, 1997) defined process as "a combination of methods, materials, manpower and machines that, taken together, produce a product or service". All processes contain inherent variability and one approach to quality improvement is progressively to reduce variation. This can

be done, first, by removing variation due to special causes and, secondly, by driving down the common cause of variation, thus bringing the process under control and then improving its capability. Finally Kanji and Asher, said that all work is process.

A desired result is achieved more efficiently when activities and related resources are managed as a process. For organizations to function effectively, they have to identify and manage numerous interrelated and interacting processes. Often, the output from one process will directly form the input into the next process. The systematic identification and management of the processes employed within an organization and particularly the interactions between such processes is referred to as the "process approach" (ISO, 2000).

Consultant's Services

Some companies are very comfortable with consultants, others not so. It should also be noted that most of the 'gurus' have their own consultancy activities to help organizations to implement their ideas and principles. It is important for an organization to understand that the use of a consultant organization does not relieve the senior management team of their own responsibilities of TQM (for example, demonstrating commitment and giving direction to the improvement process). Executives should never allow the consultant to become the 'TQM champion' or the company expert on TQM. A key part of consultancy is transfer of skills and knowledge, and the training and guidance provided by the consultant must remain within the organization in order for the process of improvement to progress and develop. The consultant should be perceived by the organization as an asset to assist with implementation and not as an initiator of TQM. It may be that the consultant is also learning on the job and any ideas (Dale & others, 1997).

(العلـــي، 2000) said, for the successful implementation of TQM the organizations need to contract for the consultant's services.

Relationship with Suppliers

TQM emphasizes co-operating with suppliers of products and services to the organization. Many organizations treat suppliers with indifference, and often with hostility. In an organization that implements TQM, suppliers are treated as business partners, with all parties working to deliver a quality product (http://WWW.tqm.organizedchange.com/tqmelem.).

The ability to produce a quality product depends largely on the relationships between the parties involved in the process: the supplier, the processor, and the customer. The quality of any process downstream is dependent upon the quality of the process upstream. Traditionally, in the construction industry, contractors, subcontractors, and suppliers are all pitted against one another to compete on the basis of low bid contracts. TQM stresses that organizations should end the practice of awarding business on the basis of a price tag alone (Oberlender, 2000).

It is recognized that a closer, long-term collaborative relationship is vital to both parties for the achievement of quality objectives, desired market share and profitability. The supplier has become an essential part of any strategy aimed at improving the effectiveness of business (Spenley, 1995).

DIFFERENCES BETWEEN TRADITIONAL ORGANAZATIONA AND TQM ORGANIZATIONS

We can see the main differences between traditional organizations and TQM organizations in the **Table (1)** (البر واري، 2000):

Table (1)
Differences between Traditional Organizations and TQM Organizations
Source: (2000 ،البرواري)

Difference Elements	Traditional Organizations	TQM Organizations
1.Organizational structure.	Pyramidal and vertical with rigidity feature.	Flat, horizontal, flexible and less complex.
2. Towards.	Towards productivity.	Towards customer.
3. Philosophy.	Undeclared management cultures.	Cultures putting by all members.
4. Decision.	Short-term (based on automatically feeling).	Long-term (based on fact).
5. Error emphasis.	Remedial principle (after error occurrence).	Prevention principle (before error occurrence).
6. Control type.	Police control (emphasis on defects).	Control by self-commitment (emphasis on benefits).
7. Problem solving.	By managers.	By teamwork.
8. Manager role.	Plan, employment, control.	Authorization, training, education and tasks facilitating.
9. The relation between managers and personnel.	Dependence and control.	Trust and commitment from the two.
10. Personnel vision to the managers.	Observer vision according to the authority.	Teacher, trainer and facilitator vision.

Table (1)
Differences between Traditional Organizations and TQM Organizations
(Continued)
Source: (2000 ،البرواري)

Difference Elements	Traditional Organizations	TQM Organizations
11. Responsibility.	Individuality elements.	Include all members of the organization.
12. Training.	Costing element.	Investment element.
13. Interest scope.	Keeping historical data.	Recording and analyzing results, and comparisons performing.
14. Working way.	Individuality working ways.	Team working way.

ISO 9000 AND TOTAL QUALITY MANAGEMENT

TQM has a deep dimension in the quality management field from the ISO series standards, but there is no conflict between them .ISO series standards stay as a preliminary introduction to achieve TQM goals, and first step toward setup TQM on a strong foundation (2001 ،محجوب و الرزو) and (2002 ، العاني وآخرون) as shown in **Fig. (1)**.

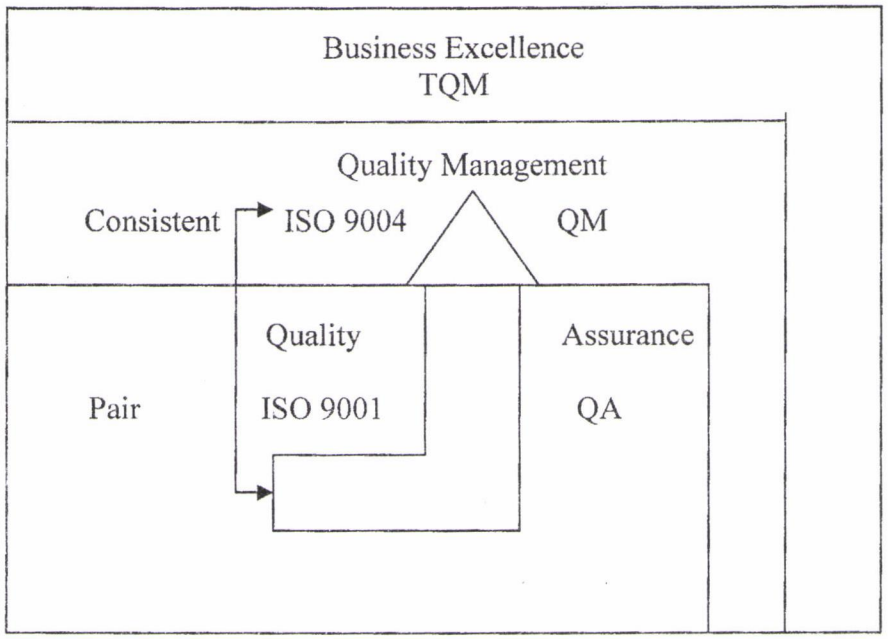

Fig. (1)
Relationship between ISO 9000 and TQM
Source: (2002 ،العاني و آخرون)

SUMMARY

Quality requires building a total quality management environment because quality cannot be inspected in to a product. TQM is a philosophy of management that strives to make the best use of all-available resources and opportunities by constant improvement. TQM is the key business improvement strategy and the key management issue of the future because it is essential for efficiency and competitiveness. TQM is a way of managing an organization so that every job, every process, is carried out right, first time and every time. TQM is that quality has to be built in from the beginning and that the achievement of quality standards is the responsibility of everyone. Quality is the result of every single step or job process being seen as an opportunity to eliminate error or waste and that every one should take responsibility for and participate in this. There are no quick fixes for the TQM success, executives are always on the lookout for the universal panacea; unfortunately, there is none.

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