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Total Qaulity Management (TQM) Implementation in Sinikrot Company

Prepared by

Ziad Nihad Abu Tafish

Supervised by

Dr. Samir Baidoun

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Thesis submitted for the master in business administration

Submitted by: Ziad Nihad Abu Tafish

Supervised by: Dr. Samir Baidoun

Approved by:
Dr. Samir Baidoun
(Chairperson of supervisory committee) .....

Dr. Nidal Sabri
(Member of supervisory committee) .....
Dr. Anis A. Al-Hajjeh
(Member of supervisory committee) .....

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DEDICATION

For my wife Nida' for her patience and fully support

Contents

المستخلص

يهدف هذا البحث إلى استكشاف عناصر الجودة الحرجة لتطبيق إدارة الجودة الشاملة في شركة سنقرط، و ذلك في محاولة لتحديد في ما إذا أمكن تطبيق إدارة الجودة الشاملة في هذه الشركة. تعتمد هذه الدراسة على التحقق التجريبي لتطبيق إدارة الجودة الشاملة في فلسطين: دراسة أنجزت من قبل الدكتور سمير بيضون (2000).

تشتمل طريقة البحث على طرق كمية ونوعية لتحديد مفاهيم عناصر الجودة المذكورة في الأدبيات التي تعتبر ضرورية للتطبيق الناجح لإدارة الجودة الشاملة من قبل الباحثين و الخبراء. هذا البحث هو وصفي وتقييمي، يختبر عوامل الجودة الحرجة و تأثيرها في لتطبيق إدارة الجودة الشاملة في شركة سنقرط. الهدف الرئيسي من هذه الدراسة فحص إمكانية تطبيق عوامل إدارة الجودة الشاملة في شركة سنقرط و كذلك إيجاد الفجوة في التطبيق عن طريق مقارنة المؤشر المقارن الحرج بين شركة سنقرط والصناعات الفلسطينية الذي تم إيجاده من قبل الدكتور سمير بيضون (2003).

البيانات التي تم جمعها تعتمد على عينة مكونة من ثلاثين مديرا و فنيا في الأقسام المختلفة في شركة سنقرط. نتيجة البحث أظهرت هوة كبيرة بين شركة سنقرط و الصناعات الفلسطينية في تطبيق إدارة الجودة الشاملة خصوصا تلك العوامل التي تعتبر حرجة في عملية التطبيق.

Abstract

Keywords: TQM, Benchmarking, Customer satisfaction, TQM implementation framework, triangulation, critical quality factors, Sinikrot Company, continuous improvement.

This research aims to explore the critical quality factors for TQM implementation in Sinikrot Company, in attempt to determine whether TQM could be implemented effectively in this company. This study is based on the empirical investigation of TQM in Palestine: a proposed generic framework of implementation developed by Baidoun (2000).

The research methodology involves obtaining quantitative and qualitative methodologies to identify the key quality factors cited in the literature and considered by consultants and experts as essential to successful TQM implementation. The current research is descriptive, evaluative study, which examines the critical quality factors and its influence in TQM implementation in Sinikrot Company. The main purpose of this study is to investigate whether TQM quality factors can be implemented in Sinikrot Company and find the gap by comparing the comparative criticality index for Sinikrot Company and that for Palestinian industries which was found by Baidoun (2003).

The data gathered is based on a sample of 30 managers and technicians in Sinikrot Company. The result of the study provides that there is a large gap among Sinikrot Company and Palestinian industries especially in quality factors that are assumed to be critical for TQM implementation.

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List of abbreviations

BRB: business process reengineering.

TQM: total quality management.

BPR: business process reengineering.

IIP: investor in people.

ISO: international organization for standards.

QC: quality control.

QMC: quality management system.

EFQM: European Foundation Quality Management.

MBNQA: Malcolm Baldrige National Quality Award.

EQA: European Quality Award.

PAF: prevention appraisal failure.

SQL: statistical quality control.

SPC: statistical process control.

SQC: statistical quality control.

CCI: comparative criticality index.

VR: variation ratio.

Chapter one: Introduction

1.1 Introduction

As mentioned in Thiagarajan et al. (2003), Crosby (1989) states that quality, as a key attribute that customers use to evaluate products and services, has emerged as a vital point of management focus in many parts of the world. Many corporate enterprises have found that the key to competitive success lies in emphasizing product and service quality as a strategic issue when doing business (Kano, 1993; Belohav, 1993; Pulat, 1994).

The emergence of quality as a top priority in many corporate entities is primarily due to the globalization of world trade and the competitive pressure brought about by the escalating demands of consumers, who want better products and services. Crosby (1989) also talks about the increased awareness of senior executives, who have begun recognizing that quality is a key strategic issue and an important focus for all levels of the organization. In particular, senior management has started to take charge of quality as part of their primary responsibilities. This all-encompassing management philosophy, termed total quality management (TQM) has generated a tremendous amount of interest and has emerged in the forefront as a major management movement, influencing many sectors of the economy in countries around the world.

Implementing TQM involves defining and developing several key elements or factors. They include both the so-called "soft" aspects of management such as leadership, employee empowerment and culture (Wilkinson, 1992) and the "hard" aspects such as systems and improvement tools and techniques (Oakland, 1993). This study tries to investigate whether these aspects can be implemented in Sinikrot Company and find the gap.

1.2 Statement of the problem

In today's complex and rapidly changing business environment there is a bewildering number of models and approaches advocated for achieving business excellence and continuous improvement.

For example: the business excellence model, the Malcolm Baldrige National Quality Award, the Deming model, total quality management (TQM), business process re-engineering (BPR), Investors in People (IIP), and ISO 9000. Even where organizations are using self-assessment techniques and employing other positive approaches to quality management, they are failing to sustain continuous improvement in the longer term

Why is continuous improvement important?

Approaches to quality have evolved significantly since the beginning of this century. Four major quality eras have been identified:

Inspection;

Statistical quality control;

Quality assurance;

Strategic quality management.

Each quality era has built on the previous era.

The strategic quality management approach, however, is still inadequate to meet today's rapidly changing business environment, characterized by uncertainty and unpredictability. To meet these challenges, a fifth quality era - competitive continuous improvement - has been identified (Kaye and Dayton, 1995). Here, the primary concern is with the organization being flexible, responsive and able to adapt quickly

to changes needed in strategy in the light of feedback from customers and from benchmarking against competitors.

For an organization to achieve flexibility, responsiveness and the ability to adapt quickly to changes within its environment, the implementation of a sound strategy for continuous improvement is essential.

What are the key criteria for achieving and sustaining continuous improvement?

From a survey of 18 organizations, the following ten criteria have been identified (Kaye, 2002):

1) Senior management commitment and involvement

When asked if senior management had developed at least one of a vision, mission or critical success factor, 94 percent of the organizations answered in the affirmative.

Most of the companies recognized the importance of senior management keeping in touch with staff and some saw this as something, which needed further development. One organization noted that "senior management walk around quite a lot and observe. Formal systems won't tell them how good quality is; they need to get out there".

Senior management must be committed to making continuous improvement work. An organization is determined by its management, i.e. those at the top.

2) Leadership

Respondents were asked whether they thought that all managers demonstrated personal involvement in quality improvement. Only 39 percent answered affirmatively. Some of the negative responses were:

There were problems with middle managers;

Management did not take an active enough role in educating staff;

Some managers were struggling with, and not keen to enforce change;

Managers were not committed to continuous improvement because of lack of commitment and direction from the board;

Quality was seen by some managers as someone else's responsibility, typically the QC department or quality manager.

3) Stakeholder focus

The organizations were found to be positive and flexible in seeking and using information from customers to determine both their long and shorter-term strategies.

Some companies even pointed out the importance of focusing on the needs of all stakeholders, not just customers, but also employees, suppliers, shareholders, the community and others.

4) Integration of continuous improvement activities

The more successful organizations in terms of achieving integration of continuous improvement activities appeared to be those, which had used the recognized frameworks (e.g. the business excellence model, Baldrige Award, etc.) to assess and improve their current quality status.

5) Culture for continuous improvement

Of the organizations, 72 percent thought that the responsibility for quality was seen as belonging to everyone.

The majority of respondents (80 percent) thought that the working culture within their organization did encourage continuous improvement and this had been influenced by:

Open communications;

Spreading the word and raising staff awareness and understanding;

Training people in quality concepts.

However, when it came to making mistakes, it appears that blame and punishment are still the order of the day. The following are some of the comments made:

"The punishment fits the crime."

"Its 'shame and blame'."

"We punish mistakes and don't learn from them."

6) Focusing on employees

This criterion concerns four specific areas:

Employee involvement - by way of performance reviews and annual appraisals, ideas systems/suggestion schemes, project teams and focus groups and training.

Employee empowerment - Few organizations thought that their staff was empowered (only 28 percent). The nature of the business and operational constraints were largely seen as the reason for limited control by staff.

Teamwork and establishing improvement teams - All of the organizations used teams for special projects or for problem-solving purposes.

Training and development - All of the organizations said that the training and development needs of staff were identified. When asked how this was achieved, eight of the organizations had implemented the Investors in People standard, four others relied on appraisal systems and another said that this was part of their quality management system.

7) Focusing on critical processes

Most (96 percent) of the organizations had identified and agreed their main processes and for many these were documented in the form of flow charts. The organizations

that appeared to be the more successful in this respect were those who had used the business excellence model for self-assessment purposes.

8) Quality management system (QMS)

Fifteen of the organizations had documented quality management systems for all or part of their operations and the majority (10) was registered to BS EN ISO 9000. A further two organizations were currently developing a QMS. The remaining organization had documented and flow-charted its procedures.

9) Measurement and feedback systems

All of the organizations confirmed that performance measurement mechanisms were established and areas for improvement identified. These were:

Customer complaints;

Audits;

Use of cross functional teams;

Use of self-assessment models;

Staff surveys;

Staff appraisals;

Identified by managers and staff;

Quality improvement programs;

Use of flowcharting of processes.

10 The learning organization

When asked whether there where mechanisms in place to capture the learning and experiences of individuals and teams 61 percent of respondents answered "yes".

The best practices outlined by the organizations included:

Management team share projects;

Through the focus teams;

Internal benchmarking informally across divisions and;

Through business planning.

Continuous improvement models revisited

It was concluded that far greater emphasis should be placed on the role of senior management and other managers than is given within a recognized self-assessment model (e.g. the business excellence model and the Baldrige Award criteria). Far from being an enabler (as represented in the business excellence model), the role of management, particularly senior management, is seen as a fundamental driver, together with:

Stakeholder focus;

Measurement and feedback; and

Learning from results.

It is these drivers that will ensure that continuous improvement is not only achieved, but also sustained over time. The drivers are the energy forces within such a continuous improvement model and if they are lacking, no matter how well the other criteria within the model have been addressed, there will be no longer-term improvements.

The enablers within the model are the foundations that must be in place if continuous improvement is to be achieved or commenced in the first place. The enablers include:

The culture for continuous improvement and innovation;

Employee focus;

Integration of continuous improvement;

Focus on critical processes and standardization of best practices in a quality management system.

Many organizations view results in financial terms only. Within this model, it is concluded that results should also be viewed in terms of organizational, team and individual performance.

Total quality management philosophy becomes interested in many sectors of the economy in many countries all over the world; it is the second in industrial revolution according to Kanji (1990).

Quality becomes a very important topic for executive thinking; senior executives become more aware with quality issues and consider it as an important strategy for all levels of the organization (Crosby, 1989, Oakland, 2000). This requires defining and implementing several quality factors such as commitment and involvement of top management, employee empowerment, and culture.

These factors are known as soft aspects of management according to some writers. Improvement tools and techniques and systems are called the hard aspects.

The objective of this study is to investigate whether total quality management factors can be implemented in Sinikrot Company.

1.3 Importance of the study

1.3.1 Lack of empirical research

According to Dean and Bowen (1994), TQM as a ubiquitous organizational phenomenon has been given little research attention. Baker and Starbird (1992) states that the bulk of the TQM literature is based on personal experiences and anecdotal evidence, with very little emphasis on empirical testing (Sitkin et al., 1994). Given this lack of empirical work, Black (1993) argues that TQM risk losing creditability as a management philosophy for improving organizational effectiveness.

There are three possible reasons for the lack of attention given to empirical investigation of TQM experience. First, TQM is relatively recent phenomenon outside Japan. Second, its origin lies mainly outside the academic world (Spencer, 1994). The third reason is highlighted by Dean and Bowen (1994):

They can draw TQ because of its interdisciplinary nature means that it often transcends the boundaries of existing theories. Thus, it is unlikely that the theories will be sufficiently broad based to support research on TQ.

1.3.2 Lack of empirically sound TQ implementation models

A number of writers including Dale (1999) and Kanji (1990) argue that implementing TQM should be a top priority of all corporate leaders. While the literature is full of "everything you need to know about TQM implementation", most of the information is based on personal experience and anecdotal evidence. It is also evident in the literature (Couclson-Thomas, 1992; Glover, 1993) that, while there is a general consensus regarding the importance of issues related to leadership and employee involvement for effective TQM implementation. There are many differences in opinion about the other relevant components and the appropriate emphasis among the

various components (Smith, 1994; Creech, 1994). There is also much disagreement concerning the details of implementation even in the areas in which there is a general consensus (Easton, 1993). Consequently, organization wanting to implement TQM are not only overwhelmed by the numerous precepts (Juran, 1993), principles (Deming, 1986), models (Oakland, 1993) and prescriptions (Crosby, 1979), but also are often left confused as to where to begin. This problem is described as "total quality paralysis" by authors such as Smith (1986).

1.3.3 Lack of empirical research in Palestine

Hard (1992) outlines how the growing importance of quality has spread to many enterprises outside the developed world, especially nations in the South East Asian region. It is appropriate, therefore, that studies in TQM implementation be conducted for the benefit of managers in Palestine, where the need is confounded by a lack of information relating to total quality management. In addition, giving the acknowledged limitations of the finding of some of earlier studies in their applicability across national boundaries (Dawson, 1994), the outcome of such systematic studies will create a new critical mass of TQM thinking under different culture environments.

1.3.4 Sinikrot Company as a focus of research

Sinikrot Food Company is one of the ten largest companies in the West Bank and Gaza Strip. It is located the city of Ramallah, the economic capital of the Palestinians which houses approximately 60% of the territories' industries.

The company is located in an excellent location; occupying over 16000, square meters with all necessary infrastructures services. This fully automated food processing

company was established back in 1982 with only wafer plant. Today, with over 230 employees, twenty will experienced- engineers, and western educated administrative staff, the company offers over ninety different products and types of chocolates, nougats par biscuits and other confectioneries.

Sinikrot Food Company has about 55% market share of the total West Bank and Gaza Strip markets with recently started markets in the states of the former Soviet Union and Eastern Europe. This exceptional growth has been accomplished by hard work, the perseverance and the emption to place Sinikrot Food Company among the world's prominent manufacturers of confectioneries and foods. Having attractive products does not allow us to relax on past performance.

Planning for the changing needs of tomorrow is essential, therefore the company is in the process of implementing the ISO 9000 worldwide known system in order to upgrade our quality control standards. We accept this challenge and believe that, in close collaboration between Sinikrot and associates and customers we will be able to live up to the world of tomorrow. Utilizing our accumulated marketing experience and extensive sales network throughout the territories, we are importing and promoting the sales of overseas brand products that meet the tastes and needs of Palestinians consumers in their daily lives.

The management of Sinikrot Food Company represented by the Sinikrot family and its highly qualified staff believes in high quality, advanced technology and excellent customer relations. The Sinikrot Family is known in the community as a leader in public relations, where they participate in the most community activities and local events help and assist schools, universities and various types of institutions and organizations.

We at Sinikrot Food Company believe that our purpose of business is to provide consumers with unique and high quality products and services. Our advanced technologies and extensive marketing and consumer research continue to be the basis of our success with not only confections, but also our expanding project lines.

1.4 Purpose of the study

The purpose of this study is to construct a TQM implementation framework that can be used as a guide in the selection and the formulation of effective TQM implementation approach in Sinikrot Company. The aim therefore is to identify the so-called critical quality factors of TQM implementation and to understand how where they can be implemented. This is the approach adopted of this study and the central to the approach are the following core requirement:

1- An understanding the current knowledge of TQM implementation is developed.

2- An analysis is conducted to identify the quality factors for effective TQM implementation in Sinikrot Company and make an assessment and gap analysis for the company

3- Identifying the foundation elements for effective TQM implementation and then suggest guidelines to be implemented in the company to achieve TQM.

1.5 Research objective

Specifically, there is a main objective of this study that is to investigate the probability of implementing quality factors that are critical to effective TQM implementation in Sinikrot Company. The effort required an in- depth review of the available literature so as to determine the critical quality factors that are most applicable for effective

TQM implementation, make an assessment for Sinikrot Company to find and determine the gap, and then suggest guidelines for effective TQM implementation.

1.6 Research methodology

This study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation. Since the characteristics are known to exist and one wants to be able to describe them more clearly by offering a profile of those factors that affect applying TQM and because the investigation is interested in delineating the variables that are associated with TQM, then a correlation study is conducted.

The unit of analysis is the managers in Sinikrot Company so the data gathered from the questionnaire from each manger and treat each employee's response as an individual data source. The primary source of the data is that taken from the questionnaire.

This study combines a quantitative research method, and a triangulation approach is employed.

1.7 Organization of thesis

Research will be presented as:

Chapter one: Introduction, this will include an overview of the study, study purpose, importance, and objectives.

Chapter two: Theoretical background, including a depth review of the available literature.

Chapter three: Research design and methodology.

Chapter four: Findings and discussion.

Chapter five: Recommendations, for the implementation and further research.

Chapter two: A Review of the literature

2.1 Introduction

Quality management as a theoretical concept, as will as a managerial practice, was developed in the industrial manufacturing sector in the early part of the last century. Later, an interest in service quality began to appear. This interest started in the private service sector and has since been followed by increasing activity in the public sector where several of the traditional quality practices were found to be useful (Dewhurst et al., 1999; Lagrosen, 1999; Robinson, 2003).

Manufacturing companies face serious quality problems caused by economic globalization processes. The global market triggers new opportunities and these, in turn, open up new markets. But new markets change, they are constantly converging and the demand for higher quality becomes their common operating characteristic. Emerging markets are increasingly competitive and quality driven (Ambroz and Breve, 2004). According to Baidoun (2003), quality factors that are needed to implement total quality management are categorized into soft and hard quality factors. Soft quality factors are considered as initial inputs and called the enablers for quality management by the European Foundation (1999). They include (Baidoun, 2003):

1- Senior executive commitment and involvement.

2- Comprehensive policy development and effective deployment of goals.

3- Entire workforce commitment to quality goals of the organization.

4- Supervisors, unit heads and divisional managers assume active new roles.

5- Empowerment.

6- Effective communication.

7- Teamwork.

8- System for recognition and appreciation of quality efforts.

9- Training and education.

According to Wilkinson (1992), these quality factors must be taken into account in the implementation plan, or TQM process will end up in failure if there is no attention to soft quality factors. However, these soft quality factors must be supported by tools and systems, which are called hard quality factors to achieve the goals (Baidoun, 2003). Hard quality factors include:

1- Benchmarking.

2- Managing by processes.

3- Self- assessment.

4- Cost of quality process.

5- Documented quality management system

6- Supplier management.

7- Customer management.

Soft and hard quality factors reflect TQM model proposed by Oakland (2000). The soft quality factors are rated highly in TQM implementation process. The hard quality factors are considered tactics rather than strategies (Black, 1993).

2.2 Soft quality factors

2.2.1 Leadership and top management commitment

In Stefan & Yvonne (2003) study (Does the talk affect your decision to walk), Bank (2000) states that an active and visible commitment from all leaders is required and managers need to act as role models for quality. Leaders need to focus on the processes rather than the outcomes. This requires a profound insight into the production processes of the company (Deming, 1986) and is relevant for

manufacturing as well as for services, where the leader need to be service leaders with a focus on quality (Zeithmal et al., 1990). Promoting organizational commitment is achieved as a result of top management commitment (Everett, 2002; Buch and Rivers, 2002). Leiter and Maslach (2002) consider commitment of senior executive as a 'more" important factor of TQM whereas, their doubts are the greatest enemy (Kano, 1993). A number of awards have been instituted to recognize organizations and individuals for commitment to quality (khan, 2003). Two of the more famous are the Deming Prize and the Malcolm Baldrige National Award that have been presented to more than a 100 organizations since 1951 and 37 organizations since 1988 respectively.

Bergman and Klefsjo (2002) state the one of the basis of TQM implementation is the commitment of leadership focus on customers' base decision of facts. In Ehigie and Akpan (2004) study of leadership, Mullins (1996) describe leadership as a dynamic process, suggesting that it could be altered to suit a particular management philosophy. In Dayton (2003) study of the demise of TQM, Saraph et al. (1998) determined that the challenge is top management leadership. Bennis (1999) claimed that the challenge for leaders is in releasing the brainpower and creativity of their people, this is mentioned in Khoo and Tan (2003) study about managing for quality in the USA and Japan. Taylor and Wright (2003) state that to be successful in implementing TQM, softer elements of TQM include:

- Leadership.
- Senior management commitment.
- Senior managers' understanding of the purpose and principles of TQM.
- People management activities that involve employees in the TQM process.

Bayazit (2003) finds that upper management commitment and involvement is the most important factor for a successful TQM implementation process. Zairi (1994a) highlights the importance of leadership in guiding organizations for the sustainability of superior competitive performance. He points out how total quality management requires leadership, which will have the impact on behavior modification and changing people's attitudes. Other writers also emphasize the importance of a leadership (Hansson, 2001; Kanji and Moura, 2001; Tammala and Tang, 1996) and the requirements of a leader who can develop trust based on past behavior (Carroll, 2000; Godfrey et al., 1997; Harris and Hartman, 1992) and ethical leadership (Gonzalez and Guillen, 2002). According to Baidoun (2004) study, top management must accept the responsibility for commitment to quality policy by developing and communicating the vision organization-wide.

The importance of top management commitment is planted of cases from large and small companies, manufacturing and service sectors, government and non-for-profit organizations (Baidoun, 2003). For example see Whitford and Bird, 1996; Olian et al., 1991, George, 1990; Easton, 1998; McAdam et al., 2002).

In this study, 70% of Sinikrot Company respondents assume top management commitment as a critical, while the other 30% of respondents assume this factor as important.

2.2.2 People management and empowerment

Deming (1986) and Juran (1991) stress the importance of empowerment or giving employees the authority and autonomy to their job. Zink (1995) emphasizes that employee empowerment is an important area of assessment of major quality awards around the world. Black and Porter (1996) state that first factor for TQM success is

people and customer management, Dayton (2003) is also mentioned this. According to Taylor and Wright (2003) consider that people management activities that involve employees in the TQM process is one of the important elements in TQM implementation process. Bayazit (2003) states that employee empowerment is on among critical factors for implementing TQM. TQM is intended to empower every member of the organization, promote continuous, sustained and long term improvement in quality and productivity, and eliminate employees' fear of change (Rahman, 2001; Magd and Curry, 2003). Anjard (1998) finds that empowerment, team based, and collaborative management are important determinants of success.

One of the issues that impact on the effectiveness of quality implementation initiatives is empowerment of employees (Keating and Harrington, 2003). Commitment at all levels of the organization (Lam, 1996a); including middle and senior management to quality initiatives, employee training and involvement, and the importance of commitment to quality throughout organizations is important for TQM implementation. The revised (April 1999) EFQM model of excellence, and indeed the April 2000 revision of the UK investors in people standard, both place increased emphasis on the consideration of culture and employee motivation in terms of delivering organizational outcomes (Bowden, 2000; Wuangneux, 2002). Kanji (1998a) proposes people management including "teamwork" and people make quality, as one of the four principles of TQM.

Employee involvement and commitment to the goals of TQM process is a condition to its successful implementation (Buch and Rivers, 2002; McAdam and Kelly, 2002; Baidoun, 2003). According to Melhem (2004), there is still a need for more systematic and efforts in investigating the role of empowerment among customer-contact employee. There is a particularly a need for further research to explore the

antecedents that impact and initiate an enduring and real empowerment in addition to investigating the consequence created by empowerment.

Companies as General Electric, Toyota, and Ford emphasize the importance of employee empowerment as a critical factor for TQM implementation (Baidoun, 2003). 11 out of 30 respondents of Sinikrot Company consider employee empowerment as critical in TQM implementation, while 13 out of 30 consider as important.

2.2.3 Middle management involvement

According to Thiagarajan and Zairi (1997), the act of maximizing employee involvement in the quality process requires middle managers within the organization to make major adjustments. They must give up some authority as power and control are pushed to lower level in the organization. In addition, managing according to the philosophy of TQM requires new attitudes and skills from middle managers (Wilkinson, 1994). According to Townsend (1992) and Manz (1993) the transition toward TQM can be uncertain and troubling process middle managers. Crosby (1989) says that unless there is a middle management buy-in they soon become barriers to rather than champions of the new system. On the road to total quality culture, the biggest obstacle to success is the middle management brick wall (Manz and Sims, 1993). The middle management have a particular role to play, since they must not only grasp the principle of TQM, they must go on to explain them to the people whom they are responsible, and ensure that there commitment is communicated (Oakland, 2000; Baidoun, 2003). Khan (2003) states that systematic management of middle managers will reduce wastage. It also ensures that all the resources are appropriately utilized and efficiency is gained by increasing output while reducing input. Taylor and

Wright (2003) state that one of the elements of TQM successful implementation is people management activities that involve employees in the TQM process.

According to Wacker (1993), middle management training and acceptance were made a priority to Norand Corporation. 14 out of 30 respondents at Sinikrot Company assume middle management, such as, supervisors, unit heads and divisional manager is a critical for TQM implementation, while 12 out of 30 assume that it is important.

2.2.4 Training and education

Introducing new systems such as TQM when people do not have the foundation skills to work in the new system is a participation of disaster (Dumas, 1989). Training and education based on total quality must be planned and provided if this is to be realized (Thiagarajan and Zairi, 1997). McAdam (2002) states that training and development are key components of all TQM initiatives. According to Garvin (1993), organizations failing to grasp the basic thought that TQM requires a commitment to learning is the reason why failed programs far out number successes and success rates remain distressingly low. One of the important key issues that impact on the effectiveness of quality-management initiatives is employee training and involvement (Lam, 1996a). Learning and creativity are also essential (Hyland and Beckett, 2002; Martensen and Dahlgaard, 1999; Roch, 2002; Pardo, 2001; Keating and Harrington, 2003). Baidoun (2004) mentions that the employees need to be aware of the TQM concepts, trained to improve interactive skills, problem identification and solving skills, and technical skills.

Workers with adequate skill, knowledge and training are an important element in the quality-related efforts of a company. The extent to which education at various levels is accessible by the public of a country will affect the availability of such workers

(Mehra and Agrawal, 2003). They add that the company should consider this in deciding the extent of training, it should be prepared to provide to its workers. In Ehigie and Akpan (2004) study about practice of TQM state that the employees' readiness for change is quite essential for change to TQM to be practicable. Zhang et al. (2000) consider investment in education and training vitally important for TQM success (also Cebeci and Beskese, 2002; Baidoun, 2003).

Successful companies such as Texas instrument, IBM, and Digital Equipment Company have recognized the value of large pool of highly skilled employees (Thomas and Philip, 1994) in Khoo and Tan (2003) study about managing for quality in the USA and Japan. 11 out of 30 respondents of Sinikrot Company consider employee training to improve interactive skills as critical, while 13 out of 30 assume it as important factor for TQM implementation.

2.2.5 Rewards and recognition

Daniel (1991) cited rewards and recognition as one of the enablers which maximizes employees' potential and involvement and, in doing so, become one of the main contributes to the company's journey to quality. Crosby (1989) considers recognition as one of the most important steps of the quality improvement process. Rewards do not have to be monetary (Hacksever, 1996). Different things motivate employees and organizations need to ascertain in each case what these are (Thiagarajan and Zairi, 1997). Quality awards such as MBNQA and Deming Prize represent their host counties' efforts in promoting quality excellence in the products and services, and provide in their frameworks the essential of TQM for achieving organizational development and long-term business success (Khoo and Tan, 2003). Two of the more famous are the Deming Prize and MBNQA, these two awards also supports the belief

that implementing TQM improves productivity (Khan, 2003). There should be consistency between reward and system quality (Akpan, 2002, 2004). Thor (1994) reasoned that meaningful reward and recognition is one of the perquisites for the practice of TQM, which will in turn influence customers' satisfaction. This suggests that reward could be essential for the implementation of TQM. Mckenna (1994) has demonstrated the importance of reward on individuals' willingness to put in his best and pointed that some forms of reward may have to be forth coming before person changes his attitude toward his job.

Several companies use this policy such as General Electric (Rao et al., 1996). 53% of respondents at Sinikrot Company assume the recognition system as an important factor in the way of implementation.

2.2.6 Teamwork

According to Khoo and Tan (2003), TQM philosophy recognizes people as valuable assets. Successful TQM application depends largely on the involvement, participation, and team effort of employees. One of the most publicized aspects of the Japanese approach to quality has been the quality circles or Keisen teams (Oakland, 2000; Gho, 2000). According to Koichi Tsukamoto, President, Wascoal Corporation, and Japan; "One step by 100 persons is better than 100 steps by one person" (Clemmer, 1990). Teamwork is a critical element if TQM is to succeed (Bank, 1992; Crosby, 1989; Manz, 1993; Kanji, 1993; Creech, 1994; Clemmer, 1993; Aune, 1991). Teamwork promotes a bottom-up thrust for quality improvement (Heath, 1989). In Bayazit (2003), it is found that teamwork is one of the most important factors for successful implementation process. The individualism/collectivism is the most relevant in the use of teams (Mehra and Agrawal, 2003). They add, the use of teams is likely to be more

successful in cultures that are high on collectivism. The company must decide whether, or to what degree, it should use teams for purposes of quality management in a particular location. Teamwork is one of the practices that will support quality philosophy (Irani et al., 2002). Anjard (1998) states that teambuilding is the fourth stage in TQM implementation. Teamwork skills are needed to have employees work together (Baidoun, 2004).

Parker (2000) summarizes teams as follows:

- Problem-solving interdepartmental teams work well in tradition organizations in stable slow growth industries with predictable markets.
- Cross-functional teams can be effective in companies with fast changing markets, where the need to move speedily to meet customer requirement is paramount.
- Self-direct teams could be used in lien of problem-solving or cross-functional teams as part of an extended employee improvement strategy.

Companies as Xerox USA (Rao et al., 1996) forms levels of teams. According to Sinikrot Company respondents, about 34% of them assume teamwork as a critical for TQM implementation.

2.2.7 Effective communication

Communication is operationalized as the extent of information sharing between customer-contact employees and their supervisors (e.g. upward and downward communication) in order to serve the customer and meet his/her expectation (Melhem, 2004). In Brunetto and Wharton (2004), Mills (2000) says that a new employee interprets the organizational work culture (rule, values) via the various dimensions that make up the organizational constructs of a workplace, which in turn, the product

of quality of organizational management and communication in place. Hence, when organizational communication processes are effective, employees develop a successful culture for solving problem, making decisions, and generally interacting (Rothwell and Scedi, 1992). In turn, the type and quality of organizational communication and management practices affects employees' job performance in a number of ways (Clampitt and Downs, 1993; Clampitt and Gerard, 1993; Johlke and Duhan, 2000). Melhem (2004) point out to past research that suggests that there are a numerous dimensions of organizational communication that can affect organizational effectiveness. Smidts et al.(2001) argue that communication refers to the process whereby individuals and/or groups transact in a variety of ways and within different areas with the aim of carrying out organizational communication processes affects the identity and organizational climate with an organization, and in turn, impacts on the performance of the organization. Employees need to be informed about quality initiative and participate in the improvement activities and through top-down and bottom-up communication (Baidoun, 2004).

Communication instruments such as a measure of satisfaction with "personal feedback". This refers to the quality of vertical communication by management, particularly between supervisors and employees about the performance (Melhem, 2004). The factors that enhance personal feedback include the extent to which management (particularly supervisors) are open to ideas and prepared to listen to employees' concerns. Robbins (2001) pasties that there is a relationship between the quality of communication processes between management and employees, and the resultant level of employee motivation and performance. Therefore, managing the communication feedback processes is fundamental to achieve both perceived and real organizational communication effectiveness.

According to Melhem (2004), different authors have examined "communication climate" (which is defined as management's attitude toward communication and the quality of "horizontal and informal communication" which examines the effectiveness of the grapevine) (Downs and Hazen, 1977). The communication climate affects employees' outcomes because it determines the environment in which personnel and organizational communication processes occur and the extent, to which these processes achieve both organizational and personal goals (Fedrico, 1996). For example, well-written formal communication via policy documentation and meetings inform employees more about the necessary information needed to undertake a job (Alder, 1999). However, it is the "informal, nonhierarchical means of communication" such as conservation with colleagues that fill in gaps between what employees want to know and what management has time, attention, or inclination to tell them" (Goris et al., 2000). In addition, the degree to which communication are formal or informal can affect the quality of vertical and horizontal interactions between different and similar hierarchical levels and the extent to which the interactions facilitate organizational problem solving and teamwork (Clutterbuck, 2001). Factors enhancing this flow of communication include the accuracy of the information and the depth and breadth of the organizational "grapevine". Mills (2000) states that the way managers communicate work changes to employees can affect how employees perceive and receive the information.

Effective communication is important in the employee empowerment (Baidoun, 2003). The use of teams is a successful means for cross-functional communication in organization, as the case of Thorn Lighting UK (Whitford and Bird, 1996). For Sinikrot Company, 14 out of 30 respondents point that effective communication is critical in applying TQM.

2.2.8 Quality policy and strategy

As pointed in Leonard and McAdam (2004) study of TQM in strategy and operation, Harber et al., (1993) states that the strategic integration of TQM, its focus and impact, has moved TQM beyond being an important element that needed to be coordinated solely at operational level, across all aspects and disciplines of an organization. A value clarification exercise should start with a review of the element of total quality management strategy, then progress to an analysis of what should be happening with the organization with that strategy to be successful (Anjard, 2003). The issue of implementing quality strategy is important as organizations attempt to benchmarking themselves against the best organization and excellence models (Keating and Hrrington, 2003). Management of quality should be a key ingredient for developing competitive strategies in any business (Mehra and Agrawal, 2003). According to Mehra and Agrawal (2003), the authors identified 45 key elements being significant issues while implementing total quality. Written quality policy is one of them. Hansson and Klefsjo (2003), state that many authors such as Becker (1993) and Shin et al., (1998) strongly believe that many of the failures of TQM are rated to bad implementation strategies and processes.

A strategy for TQM in an organization must be built on the management's continuous commitment for question concerning quality. The management must establish quality policy and support quality activities morally and by providing resources (Bergman and Klefsjo, 2002). According to Baidoun (2003), the importance of strategic planning process based on total quality is emphasized strongly by quality gurus and writers (e.g. Deming, 1986; Zairi, 1994 and 1999a; Oakland, 1993; James, 1996;

Ahire et al., 1996, Dayton, 2001; Sinclair and Zairi, 2001; Marteniz-Lorente et al., 1998; Sureschander et al., 2001; Cerpin, 2002; Hitchock and Willard, 2002).

Many companies, such as, Procter and Gamble (Bemowiski, 1992) have achieved success in developing, communicating and reviewing strategic plans at all levels in their organizations. 60% of Sinikrot Company employees consider that development and deployment of goals as an important factor in TQM implementation.

2.3 Hard quality factors

2.3.1 Supplier management

Mehra and Agrawal (2003), state that there must be adequate quality control throughout the supply chain. In some situations, this may require extension of company's supply chain to include internal production of some raw material(s) and/or components, reliable transportation, and assuring timely communication along the value chain. There must be a certification process for all vendors. This may include certifying every vendor's quality control system(s) itself. One of the strong points about Japanese products is the high quality control maintained by its suppliers (Ishikawa, 1985). Montes, Jover and Fernandez (2003) state that the relationship with customers and suppliers is one of the blocks of real implementation of a quality system in a company. This is emphasized by many studies (e.g. Ahire et al., 1996a,b; Anderson et al., 1995; Flyn et al., 1995; Grandzol and Gershon, 1998; Rao et al., 1999). According to Dayton (2003), supplier relationship is one of the factors for TQM critical success; this is mentioned in Black and Porter (1996).

Zhang et al. (2000) state that supplier quality management is an important aspect of TQM since materials and purchased parts are often a major source of quality problems. Baidoun (2003) says that many authors advocate that companies must

establish supply chain partnerships to motivate suppliers to provide materials needed to meet customer expectation (e.g. Clifton, 2001; Jabnoun, 2000; Thakur, 2002; David, 2002). As mentioned in Lee (2004) study about small manufacturers in China, the lack of bargaining power against suppliers and lack of resources are major hindrances encountered by them when implementing TQM.

Organizations worldwide should include suppliers to improve the quality of their products and services (Wong, 2000). At Shorts Brother-UK, they motivate suppliers to initiate total quality by providing training services and joint involvement teams. 13 out of 30 of Sinikrot Company respondents assume partnership with key supplier is critical for TQM implementation, while 15 out of 30 assume that it is important.

2.3.2 Accredited quality management system

Khan (2003) states that one of the TQM management cores is the use of systematic management. ISO 9000: 2000 is based on the following eight quality management principles that reflect best management practices (Cargill, 2001; Russel, 2000; Magd and Curry, 2003):

- Customer focused organization.
- Leadership.
- Involvement of people.
- Process approach.
- System approach to management.
- Continuous improvement.
- Factual approach to decision-making.
- Mutually beneficial supplier relationship.

The organization introducing quality mechanisms is usually seeking to gain employee commitment and co-operation rather than just compliance (Wilkinson, 1998). In the study of Dayton (2003) of 204 surveys, he finds that strategic quality management is considered to be one of the success factors. Dale (1999) states that TQM can be regard as the highest level of quality management. Quality management can be divided into strategic quality management- a systematic approach for setting and meeting goal throughout the company- and operational quality management- a structured approach for managing quality intermediate levels (Juran, 1989).

Organization have been begun to implement specific measures to achieve a high rate of quality (Dreytus et al., 1999), in order to achieve competitive advantage (Sosa and Vos, 2002; Savolainen, 2000). Oakland (2000) states that to foundation framework to the customer-supplier chain, processes and the "soft" outcomes of TQM must be added to the first hard management necessity –a quality system based on any good international standard. An element of quality management structure in place to manage the organization's quality journey is assumed to be critical by 34% of Sinikrot Company respondents. In addition, 60% of them consider that it is important.

2.3.3 Organizing for quality

According to Crosby (1989), the success of the quality improvement process depends on effective and systematic implementation. Oakland and Porter (1994) highlighted that one of the responsibilities of senior management at the outset of introducing TQM is the need to set up a defined quality organization structure in order to create a framework which will enable quality improvement to develop and flourish (Bendell et al., 1993; Davies and Wilson, 1990; Easton, 1993). In fact, they see structure as a key element in ensuring the success of TQM (Thiagarajan and Zairi, 1997).

Hansson and Klefsjo (2003) state that a strategy of TQM in an organization must be built on the management's continuous commitment for questions concerning quality. The management must establish quality policy and support quality activities morally and providing resources (Bergman and Klefsjo, 2002).

Moren-Lozen and Peris (1998) developed an integrated model for strategic management, organizational design and quality management. They classified quality organization into the quality assurance (Characterized by internal and external customer satisfaction, continuous improvement and employee involvement) including low formalization and centralization organizational structure (Jabnoun, 2000). Nilsen-Englyst (2003) state that the continuous process of strategy formulation proposed in the study consists of the overlapping and iterative phases of learning, reviewing, aligning, and redirecting. Consultants, steering committees, employees and managers play a variety of roles while they participate in different phases. The same holds for (project) management (as a function). Furthermore, the different phases drive each other, by for example creating a tension between emergent and intended strategy, and by abandoning ongoing projects, but redirecting them and motivating local units to compete for resources.

In Sinikrot Company case, 14 out of 30 respondents consider that active role as facilitators of continuous improvement, coaches of new methods, mentors and leader of empowered employees as a critical factor to implement TQM and 12 out of 30 respondents assume it important.

2.3.4 Managing by processes

Both the European Foundation for Quality Management (EFQM) Excellence model for the European Quality Award and the Performance Excellence Framework for the Malcolm Baldrige National Quality Award (MBNQA) attribute a role of fundamental importance to "processes" for evaluating an organization's progress toward TQM. The EFQM model has an evaluation section entitled "processes" which deals with the management of all the company's value-generating activities: the section examines how the processes are identified, analyzed and, if necessary, re-engineered to ensure continuous improvement in company performance (Biazzo and Bernardi, 2003).

In the process management and measurement model by Sinclair and Zairi (1995), the basic steps used to set up process management as follows:

- Identify the customers and the suppliers in process, customer demands, key activities, and points of measurement and feedback loops.
- Define process performance measurements on the basis of customer requirements.
- Define process performance targets.
- Assign responsibilities for achieving performance targets.
- Develop plans of action to achieve targets.
- Develop measures, targets, plans, and allocate responsibility to all the sub-processes.
- Operate processes.
- Measure performances and compare them with targets.
- Use information on performances to identify areas of improvement, to carry out continuous improvement activities, to update plans of action, to adjust performance targets, and to re-engineer processes.

Many quality organizations learned the importance of applying clearly defined customer-focus approaches to manage processes rather than the conventional functional approach of management (Baidoun, 2003). ICL and Shell Chemical-UK are of such companies (Sinclair, 1994). 64% of Sinikrot Company respondents consider that it is important for the company's employees to understand that each individual and each process has internal customers and suppliers.

2.3.5 Benchmarking

Planning and analysis take together account for nearly 70% of the time typically consumed during the whole benchmarking process (John and Philip, 2004). These two phases are normally judged to be critical to success. During the planning phase managers need to select what needs to be measured based on client's expectation and suggestion senior management. Managers also need to form a benchmarking team within the constraints of time and resource available.

Atkin and Brooks (2000) identify benchmarking steps:

- Identify the subject of the exercise.
- Decide what to measure.
- Identify who to benchmark both within your sector and outside.
- Collect information and data.
- Analyze findings and determine gap.
- Set goals for improvement.
- Implement new order.
- Monitor the process of improvement.

Benchmarking according to Xerox, which developed benchmarking as a part of its quality process, provides the most practical definition:

"A continuous, systematic, process of evaluating companies recognized as industry leaders, to determine business and work processes that represent best practices, establish rational performance goals (Zairi, 1994).

The primary objective of benchmarking is performance improvement. Identifying opportunities for performance improvement by comparing one organization's performance with that of another is a reflex of TQM (Bank, 1992). Zairi (1994) draws the link between TQM and benchmarking:

TQM is the wheel of improvement... during an internal, value-adding activity for the end customer. Benchmarking is the external activity for identifying opportunities and ensuring that the wheel of improvement is turning in the right direction and is making the necessary effort towards the ends destination, i.e. achieving high standard of competitiveness.

There are essentially four types of benchmarking (Zairi, 1994):

1- Competitive benchmarking comparisons with primary competitors.
2- Functional benchmarking comparisons with similar functions or processes within the same broad industry leaders as partners.
3- Generic benchmarking comparisons with similar functions or processes regardless the type of industry.
4- Internal benchmarking.

Benchmarking is a qualifying criterion for organizations aiming for the European Quality Award, and MBNQA.

In this study, about 88% of Sinikrot Company respondents consider competitive benchmarking made against primary competitors as a critical and important factor of TQM implementation.

2.3.6 Self-assessment

Internationally recognized "excellence models" for quality awards proved particularly interesting as "they provide a definition and description of TQM that give a better understanding of the concept" (Dale, 1999). The models that have the greatest conceptual value and most international importance in respect of their impact on self-assessment practices (Ritche and Dale, 2000; Van der Weile and Brown, 1999; Van der Weile et al., 1996; Biazzo and Bernardi, 2003), are the EFQM model, which is the foundation of EQA and Performance Excellence Framework for MBNQA.

Self-assessment highlights strength and improvement opportunities, and drive continuous improvement (Oakland, 2000; Conti, 1999). The implementation of self-assessment involves many employees in the organization,. Managers have to take the lead, and non-managers undertake self-assessment or are assessed (Keating and Harrington, 2003). They add that staff members are also involved in the follow-up of the self-assessment results.

The ability to assess an organization's progress against an accepted set of criteria would be most valuable (Oakland, 1993; Porter and Tanner, 1995). The MBNQA and EQA assessment models are available to organizations for self-assessment (Conti, 1991).

There are three commonly used methodologies for self-assessment, namely, discussion group methods, survey methods and award type using written reports (Finn and Porter, 1994). According to Mehra and Agrawal (2003), a global business attempting to achieve a desired quality should recognize the factors of applicable international standards, identify the competitive forces, and assess the need for quality recognition.

Organizations have the ability to judge progress against accepted set of criteria would be most valuable and informative. In this study, the use of self-assessment to track and improve performance gaps in the implementation and effective practice is considered to be important by 16 out of 30 respondents of Sinikrot Company, where 10 out of 30 say that it is critical for TQM implementation.

2.3.7 Cost of quality

Cost of quality must be kept at an acceptable level. If the cost is too high, it may have significant implication with regard to competitive pricing (Mehra and Agrawal, 2003). Cost of quality includes costs of conformance and non-conformance. An important part of such cost relates to supervision and inspection. Level of these activities and the use of the local and expatriate internal and/or external audit of quality-related processes and activities. Additionally, management must always look for wastage such as redundant equipment, non-value-adding activities, and unused capacity due to non-synchronized processes (Mehra and Agrawal, 2003).

Use of technology, including the level of such use, can also raise cost management issues. Quality costing is one quality tool that has been used to help justify the adoption of quality improvement efforts to top management (Israeli and Fisher, 1991; Plunkett and Dale, 1990). Dale and Plunkett (1991) consider quality costing as useful first step against TQM journey.

The prevention-appraisal-failure (PAF) model, developed by Feingenbaum is the most widely applied scheme for categorizing quality costs (Plunkett and Dale, 1990; Porter and Rayner, 1992). It is also adopted the quality cost for the American Society for Quality Control (Black, 1993).

Feigenbaum (1961) break down the quality costs into three categories:

1- Cost of prevention: the costs of any action taken to investigate prevent or reduce the risk of nonconformity or defects.

2- Cost of appraisal: the costs of evaluating the achievement of quality requirements.

3- Failure costs: the costs of non-conformity, both internal and external.

Both Rank Xerox and LeaRonal (UK) added two additional elements of the model (Zairi, 1997):

1- Cost of exceeding requirements: the costs incurred to provide information or services which are unnecessary or unimportant or of which no agreed requirement has been established.

2- Cost of lost opportunities: the lost profits resulting from purchases of competitor's products and services or from cancellation of products or services, which did not meet customer requirements.

Companies such as Xerox, IBM, and other (Carr, 1995), employ cost of quality calculation as an integral part of their quality program. They are flexible with the use of quality cost definitions, comfortable with cost estimation and practical with representing information. Cost of quality process to track rework, waste, reject, and for continuous improvement is considered as critical by 40% of respondents in Sinikrot Company and nearly 37% assume that it is an important factor.

2.3.8 Quality control techniques

Juran (1974) states that the quality control techniques are important tools, not only for low-defect production but also quality improvement. Shewart defines quality control as the use of statistical procedures to provide guides to produce good parts and to disclose the cause of variation (Modaress and Anssari, 1989). Other quality gurus

such as Deming and Taguchi support comprehensive quality control systems to aid management of quality. Deming says that the key to achieving high quality conformance and to overcoming process-related problems is the use of statistical quality control (SQL) techniques (Modaress and Anssari, 1989). The techniques deal with the collection, analysis and interpretation of data related to the causes of variation in quality characteristics.

According to Bayazit (2003), quality control techniques: just in time, statistical process control (SPC), quality audit, total productivity maintenance, Pareto charts, cause and effect diagrams, process charts, flow charts, multi-voting, affinity diagrams, brainstorming, histograms, and check lists are the most quality tools are the most often used.

Juran states that there are over 50 SQC techniques (Quiros, 1994). However, the fundamental ones, originally assembled by Ishikawa (1985) as the seven quality control tools are process flowcharting, check sheet or tally sheet, histograms, Pareto analysis, cause and effect diagrams, scatter diagrams, and control charts.

SQC for defect prevention is one of the cornerstones of the quality strategy at Electrolux (Cullin and Hollingum, 1987). The use of SQC techniques is also seen as one of the key elements in the development of Tioxide Group Ltd's total quality strategy.

In this study, 54% of Sinikrot Company respondents assume the use of statistical process control variability and improve processes as an important factor for TQM implementation.

2.3.9 Customer management

The intensive global competition among manufactures to co-ordinate the industry value chain from supplier to customer and produce quick responses has made customer-supplier relationship management important in the new business era (Choy, Fan and Lo, 2003). Bose (2002) states that customer relationship management is an integration customer during any given interaction. In brief, customer relationship management is a process by which a company makes good use of customer information to enhance customer loyalty (Choy et al., 2003).

The primary goals of customer relationship management are to: build long-term and profitable relationship within chosen customers, get closer to those customers at every point of contact, and maximize the company's share of the customers' wallet (Shaw, 1999). Simply stated, customer relationship management is about finding, getting, and retaining customers.

Customer relationship management focuses on leveraging and exploiting interactions with the customer to maximize customer satisfaction, ensure return business, and ultimately enhance customer profitability (Choy et al., 2003). While Seibel secured market leadership through being a technology pioneer in customer relationship management applications, latecomers like SAP and People Soft are benefiting more from already human resource packages, which can easily integrated into their customer relationship management (Kotrov, 2003).

The use of customer surveys and feedback process to assess customer satisfaction is considered to be critical quality factor by 44% of Sinikrot Company respondents and also it is assumed to important by the other 44% for TQM implementation.

2.4 Total quality management and national culture

TQM is a corporate culture, and the move to TQM requires culture change. Culture is a direct reflection and result of the mental set (belief, knowledge and skills) and other behavior (actions, decisions, and condoned activities of managers and employees) (Ambroz and Breve, 2004). To change the culture, you have to change the mental set and behavior of all employees. Changing the mental set comes from learning- to develop new knowledge, skills and beliefs. Learning can best come about through self-study and practice. A company prevailing collective characteristics can hinder, or even defeat, a change effort to implement new behaviors and actions. If a company operates through rigid rules that are supported by high power distance between management and employees, it may find it difficult to empower then entrepreneurial behavior of employees (Ambroz & Breve, 2004).

To deal with the challenges of today's global environment and to stay competitive in quality of their products and services, companies need to look beyond the sphere of traditional directive management and stable and closed collective behavior (Appelbaum and Lerroux, 1999). Research conducted by Caudron (1993) reveals that human resource strategy co-operates with the achievement of total quality if employees are involved in strategic management and decentralization of decisions in the company (Carpinetti et al., 1998).

Many organizations – in attempt to dramatically change the company's culture, which necessarily led both managers and employees to dissatisfaction, lack of motivation and frustration – have encountered experiences near disaster. Indeed, Sinclair and Collins (1994) consider the weakest point in TQM lays in the assumption that the employees will agree to adopt the new practices that are proposed to them.

2.5 Total quality management failure

The absence of senior management valuing and living the TQM process coupled with organizational inflexibility and inertia and the negative publicity beginning to be associated with TQM, (negative publicity due in a large part because many divergent ideas and consulting schemes were inappropriately clumped under the TQM banner) provided an environment that weakened and eroded the foundations of TQM (Dayton, 2003).

According to Gatchalian (1997), causes of failure are generally associated with:

1- Resistance of top management to educate themselves regarding TQM.

2- Erratic ways of quality program implementation.

3- Jolting but unconfined enthusiasm for TQM.

4- Inadequate empowerment at all levels.

5- Management of communication strategies not fully in place.

6- Quality improvement teams not functioning effectively.

2.6 Summary

Most of the previous reviews tend to be presented in anecdotal manner. This comprehensive literature review, however, is more systematic in presenting the vast array of literature on TQM and its major components.

This chapter presents the body of literature by linking all the major elements in coordinated and supportive approach. That is the effective manipulation of the "soft" factors must be supported by the "hard" factors.

This systematic effort of covering theory, concepts and applications makes a contribution to understanding the importance of each quality factor and how each

factor is implemented, and what benefits have been derived from the implementation of each quality factor.

Moreover, the chapter discusses further implementation issues related to cultural differences and why some TQM implementation attempts fail.

Chapter three: Research design and methodology

3.1 Introduction

A discussion of various social science methodological issues is carried out through this chapter.

The purpose of research is to discover answers to questions through the application of scientific procedures. Such procedures have been developed in order to increase the likelihood that the information gathered would be relevant to the question asked and be reliable and unbiased. According to Selltiz et al., (1962) there is no guarantee that any given research, undertaking actually will produce relevant, reliable and unbiased information. However, scientific research procedures are more likely to do so than any other method known to man.

The main question of this research project is related to identifying the critical factors for successful implementation of TQM within Sinikrot Company. Therefore, this chapter starts with discussing the various research designs and methodological issues related to deciding on the appropriate principal research technique to find the answer asked by this study.

3.2 Defining research

Research can be seen as a systematic process of discovering, acquiring and using knowledge. Bennett (1983) defines research as:

"A systematic, careful inquiry or examination to discover new information or relationships and to expand/verify existing knowledge for some specified purpose."

For him management research is accepted and acceptable activity. It is a systematic, careful inquiry into anything to do with management. He adds, since all enterprises are managed, the scope for such inquiry is very broad.

Sekaran (2000) emphasizes this definition by defining research as:

"A systematic and organized effort to investigate a specific problem that needs a solution. It is a series of steps designed and followed, with the goal of finding answers to the issues that are of concern."

Having said that, research, thus, encompasses the process of inquiry, investigation, examination, and experimentation. These processes have to be carried out systematically, diligently, critically, and logically. The expected end results would be to discover new facts that will help to deal with problem situation (Sekaran, 2000; Bickman and Rog, 1998).

For Sekaran (2000) most basic or fundamental research is conducted to generate more knowledge in particular areas of interest. The aim is to understand more about certain phenomena and problems that occur in several organizations and industries, and how they can be solved. Sekaran (2000) adds that the main purpose of conducting basic research is to generate more knowledge and understanding of the phenomena that occur and to build theories based on the study of the phenomena. This process of building on existing knowledge is the genesis for theory building in the management area.

In addition to creating new knowledge and improving understanding, Bennett (1983) states that management research can be used to test application by gathering information about successful management approaches in different circumstances and looking for explanation of their success. He adds that management research can be used to help in decision making by generating confirmation, concepts, frameworks,

approaches, and facts that will help managers make more effective and better decisions.

Having this understanding of research in mind. A research methodology, which combines this understanding with the objectives of this study, (which is basically about the application of management theory and concepts that deal with practical issues of organizational and managerial effectiveness), is needed to be selected carefully to achieve what Bennett (1983) demanded:

1- Understanding what management research is about and what it can and can not do.
2- Understanding and using sensible, appropriate methods and techniques.
3- Giving the results of research-wide publicity and seeking to apply them whenever possible.

This emphasis of research methods to be used is crucial aspect of conducting the research. Sekaran (1992, 1987) defines research methods as:

"The ways in which research studies are designed and the procedures by which data are analyzed"

For Nachmias et al., (1981, 1987), research methodology is:

"A system of explicit rules and procedures for the research process. Conformity to these rules and procedures are evaluated for claims for knowledge. Claims are rejected if they do not conform."

The main purpose of this study is to investigate whether TQM can be implemented in Sinikrot Company based on the critical factors for successful implementation (that is measurement of "what" needed).

Chang (1994) states that not only the measurement of "what" is needed, but also detailed explanation of "how" are important to understand best practices. This is why through analysis and due to care were given to the research project is properly conducted to collect rich information for analysis to provide valuable research outcomes that contribute to the body of current knowledge.

3.3 Research methodology selection

Through the various researches involved in TQM implementation, it is evident that most approaches to research were of quantitative nature. Many authors who approached the problem used quantitative methodology (Saraph et al., 1989; Ahire et al., 1996; Porter and Parker, 1993; Black and Porter, 1996; Ramirez and Loney, 1993; Tamimi and Gershon, 1995; Badri et al., 1995; Quazi and Padibjo, 1998; Yousef and Aspinwall, 1999; Tamimi, 1998; Zhang et al., 2000; Rao et al., 1999, Baidoun, 2000). Thiagarajan (1996) reports that most widely – spread approach used in reaching TQM implementation field is largely exhibit a quantitative character. He states that even the interview approach by Mann (1992) has a predominant quantitative character.

This study is basically concerned with investigating weather TQM can be implemented in Sinikrot Company, based on assessing the degree of perception and understanding of TQM of Sinikrot managers and the identification of the critical factors for successful implementation of TQM framework.

Although the selection of either a quantitative or qualitative approach as the appropriate method for a particular research project has been recognized as problematic (Downey and Ireland, 1979), the most appropriate concerned with data collection, data processing, and analysis must be carefully considered.

The choice of the appropriate methodology depends very much on the purpose, process of investigation and the desired outcomes. Downey and Ireland (1979) state: "Methodologies are neither appropriate nor inappropriate until they are applied to a specific research problem. This perspective treats methodologies as tools of inquiry; each inquiry requires careful selection of the proper tools."

In this addition to this, the level of scientific sophistication of the research project and the cumulative knowledge and understanding of the topic in question would govern the best choice of research methodology. In this regard Bennett (1983) points out four types of research and three of rigor when choosing among research methods.

Types of research

1- Description

In this case the research is concerned with describing what exits. This is the most basic level of research. It is used to improve our knowledge of management process in different countries.

However, Bennett (1983) states that describing "what is" may not necessarily improve our knowledge of management.

2- Classification

This type of research allows researchers to classify, or categorize, the things they are studying, on the basis of known, natural characteristics.

3- Explanation

While descriptive and classificatory work establishes a basis for building a theory, explanation research starts when the researcher seeks to understand what is happening and why to present this in theoretical developments, models, and propositions.

4- Prediction

This type is concerned with "predicting" using established theories and formulae. Bennett (1983) states that in the field of management, truly predictive theories are rare.

Whilst the testing of hypotheses may take on this predictive form, we are still trying to understand and explain what managers do.

Another factor to consider when choosing among research methods, the researcher must consider the amount of rigour required.

Rigour is used to refer to the extent to which the method employed strictly adheres to the fundamental requirements of research design (Bennett, 1985).

3.3.1 Quantitative research methods

This methodology involves finding answers whenever there is a need to determine what, how many, where and when (Higson, 1987). Hence, this methodology focuses on structural issues rather than more complicated issues related to the process (Van Maanen, 1979, 1985).

Large mail surveys using a standardized questionnaire is a major tool "instrument" used in quantitative methodology in the field of management research. This approach of data collection provides the following advantages (Brannon et al., 1979; Sekaran, 2000)

1- Providing data representations and generalisability by reaching a large number of respondents with practical and convenient mean.
2- Ensuring validity and reliability of the results by applying statistical techniques to data analysis.

It is because of this, (Brannon et al., 1979) characterized quantitative methodology as generalisable, hard and thin.

Wong (1992) identified some disadvantages of this methodology:

1- Focusing on social structure without addressing the social process itself.

2- Over simplifying and abstracting the subject matters.

3- Insularity from the real context of the problem under investigation.

Sekaran (2000) adds that response rate is always low.

3.3.2 Qualitative methodology

Although qualitative methods are used only to a limited degree, they provide powerful tools for research in management and business administration (Gummesson, 1991)

According to Van Maanen (1985), qualitative researchers describe the unfolding of the social process. This removes the need for data interpretation by the researcher. According to Bryman (1992), the emphasis in qualitative research tends to be individual's interpretations of their environment and of their own and other's behavior. The data presentation tends to be sensitive to the nuances of what people say and to the context in which their actions take place. He continues to state that the emphasis tend to be on the understanding of what is going on in organizations in participant's own terms rather than those of the researcher.

The qualitative techniques are termed "qualitative" for they are generally intended to determine "what things" exist than to determine how many things there are (Van Maanen, 1985; Smith and Manning, 1982)

Qualitative techniques are not concerned with measurement; they are more responsive to needs of respondents and to the nature of the subject matter enabling the researcher

to understand the situation at the first hand (Walker, 1985; Bryman, 1992; Wong, 1992).

There are many occasions when qualitative methods are used. When there is insufficient or inadequate theory on which to ground. When a survey has already been conducted but has produced confusion results. When the subject of inquiry is inherently complex and understanding of this complexity is part of the research brief. When the subject is sensitive. Finally, when the objective is to study an institution with a focus on understanding the relationship within it (Walker, 1985; Wong, 1992; Van Maanen, 1979 & 1985; Sekaran, 2000).

According to Walker (1985) qualitative methods yield large volumes of exceedingly rich data obtained from a limited number of individuals and whereas the quantitative approach necessitates standardized data collection, qualitative researchers exploit the context of data gathering to enhance the value of the data (see also Aaker et al., 1998).

Case study approach to qualitative research method has been used by many researchers (see Yin, 1984; Taylor and Bogdan, 1984; Patton, 1990; and Tesch, 1990). Gummesson (1991) states that the use of the case study for research purposes is becoming widespread in management research. In many counties, doctoral theses dealing with marketing, strategy, organization, and so forth are often based on case studies.

Robenowitz (1980) in Gummesson (1991) states that:

"Obviously, case studies, irrespective of how well they are planned, lack of scientific weight and general applicability of conventional research methods. However, in certain areas they present the only possible research strategy. Moreover, if a sufficiently large number of cases are examined, they can serve as a basis for fruitful theoretical developments."

A case study approach involving interviews to collect data using semi-structured and open-ended question is used to study situations from the respondent's perspective. (Burgess, 1982 and 1984). This enables the researcher to discover the world as perceived by the interviewee (respondent) (Wong, 1992), making the data comprehensive and realistic (Bryman, 1992). Aaker et al. (1998) support this by stating that a case study is a comprehensive description and analysis of a single situation. The data for a case study usually are obtained from a series of lengthy, unstructured interviews with a number of people involved in the situation.

As quantitative methods have advantages and disadvantages, qualitative methods are of no exception. The criticism of case studies as scientific method can be summarized under the following (Gummesson, 1991).

They lack statistical validity as they are flexible, lack rigid experimental control and prone to subjectivity.

Wong (1992) adds that these methods are unrepresentative and indefiniteness and do not readily permit comparison over a large number of cases. (Also see Sykes et al., 1991; Kaplan et al., 1988; Nackmias and Nackmias, 1987; and Burgess, 1982; Aaker et al., 1998).

It is obvious up to this stage of discussion, that both the quantitative and the qualitative methods have advantages and disadvantages. Therefore, in undertaking a piece of research, inevitably the researcher must choose between these different approaches in making an area of interest researchable (Gill and Johnson, 1994). The nature and content of the problem, as well as the extent of the available resources, clearly influence this choice. It is also important to be aware that the different methods available have differing inherent strengths and weaknesses, which need to be

taken into account in relation to the goals of the research when an approach is selected (Gill and Johnson, 1994).

Therefore, the important thing is to be flexible in selecting the most appropriate method for the research project. Thus, there is no reason why one cannot combine research methods to get the most out of the situation being researched.

According to Van Maanen (1979 and 1985) different approaches may be applied at different parts of the research to collect information, as the approaches are not necessarily mutually exclusive.

It is attractive for the purpose of this study to combine the research methods to get the most out of the situation applying different approaches at different parts of the study to achieve balance and intellectual breadth and rigour (Silverman, 1985). This combination of methods is known as triangulation research strategy.

3.3.3 Triangulation methodology

Denzin (1970) defines triangulation as:

"The combination of methodologies in the study of the same phenomenon."

He adds, multiple and independent methods, especially if undertaken by different research workers investigating the same problem, should, if reaching the same conclusion, have greater validity and reliability than a single methodological approach to a problem.

Triangulation is also described as multi-method/ multi-trait or convergent validation. It is seen as complementary qualitative and quantitative methodologies rather than competing approaches (Jick, 1979; Fielding and Fielding, 1986).

In Miller and Freisen's (1982) advocacy of longitudinal designs to analyze organization, both qualitative and quantitative methodologies are suggested.

Atkinson et al. 91983) see triangulation's role as strengthening qualitative research findings by combing participant observation, interviewing and documentary source. Smith (1975) advocates multiple methods to address the same problems, on the basis that in this way, different methodological strengths and weaknesses will be cancelled out to produce more convincing findings. In addition, Mason (1994) states that triangulation allows a holistic picture to develop. it is useful in capturing a more complete, holistic and contextual portrayal of the topic under study.

Triangulation enriches our understanding by allowing new and deeper dimension to emerge. Jick (1979) adds that more than one method should be used in his validation process to ensure that the variance reflected that of the traits and not of the method. Thus, the convergence or agreement between two methods enhances our belief that the results are valid and not a methodological artifact. Sekaran (2000) emphasis the need for multi-methods of data collection as almost all data collection methods have biases associated within them, therefore, collecting data through multi-methods and from multiple sources lends rigour to research. If the responses collected through interviews and questionnaire are strongly correlated with one another, then we will have more confidence about the goodness of the collected data.

3.3.4 The selected methodology

For all above discussed reasons, triangulation seems to be appropriate and suitable research methodology for this study. Moreover, this research methodology of triangulation has been used by other studies in general (Jick, 1979) and Total Quality Management in particular (Thiagarajan, 1996; Ali, 1997; Baidoun, 2000).

3.4 Survey design, the questionnaire and the validity of instruments

According to Johnson et al., (1982) survey is defined as:

"The only way to learn many types of information".

By questioning, one can know information about respondent behavior, expectation and events. The researcher developed the research instrument after a comprehensive search of literature is undertaken.

The questionnaire developed by Thiagarajan (1996) is used to identify the critical quality factors as perceived by respondents. Baidoun (2003) also uses this questionnaire.

The questionnaire consists of thirty-one questions attached by a cover letter interest respondent with the study results. It is in the English language and translated to Arabic when needed.

The questionnaire developed by Thiagarajan (1996) and used by Baidoun (2003). It is based on a measurement scale, to solicit respondents to explicitly identify a quality factor as critical or not, and which permits objective judgments to be made. In addition, the questionnaire focuses on the organization by asking respondents to indicate how they perceive each of the quality factors, as to the level of importance to success of TQM implementation in their organizations. 31 factors were derived to construct the questionnaire for this study.

Respondents were asked to rate each of the quality factors (labeled as quality-related factors in the questionnaire) as to its level of importance to a successful implementation of quality management processes in their organization, using the following criteria:

- Critical: Factors that you feel are critical and absolutely essential. The process stands a good chance of ending in failure if these factors are not part of the quality management process.
- Important: Factors that you feel are important but not absolutely essential. The process will survive if these are not addressed, but the organization may experience some unnecessary delays to its quality management process until these factors are eventually addressed.
- Minor Importance: Factors that you feel are of minor importance. These factors will not seriously affect the success or failure of the quality management process.

Thiagarajan (1996) states that analysis and interpretation of the responses to the questionnaire will then allow objective judgment to be used in identifying consensus on the level of perceived importance of the quality factors, a requisite to developing a hierarchical critical quality factor structure.

3.5 Sampling process

A sample is a subset of elements from a population (Aaker et al., 1998). Sekaran (2000) defines sampling as the process of selecting a sufficient number of elements from the population so that by studying the sample, and understanding the properties or the characteristics of the sample subject, it would be possible to generalize the properties or characteristics to the population elements.

The effort involves one company, namely Sinikrot Company that has a quality initiative.

The study targeted the whole population and a response rate of 100% was set from the beginning. Therefore, thirty usable questionnaires are distributed to cover all parts of the company and the thirty are collected.

3.5.1 Respondents

The information source for the research with measuring perception of TQM understanding and awareness are senior managers and quality-related managers.

The individuals are likely to be the general manager, managers of different departments of the company, such as, administration manager, employees manager, marketing manager, accounting manager, purchasing manager, house ware manager, technical manager, production manager...), and quality-related manager, as they are in a position to answer the questions as a currently as possible.

3.6 Data analysis

The main aim of the data analysis is to investigate the gap on the level of importance of the quality factors to the successful implementation of TQM in Sinikrot Company by finding a comparative criticality index, and compare it with the index of comparative criticality of Palestinian industry.

The level of measurement used in the survey questionnaire in a 3-point ordinal scale with critical, important, and minor importance as categories. Although the categories are ordered, they are nonnumeric, i.e. there is no indication of distance between them. Integer scoring to assign numbers to the critical, important, minor importance categories (1, 2, 3 respectively) is used.

Weisberg (1992) suggests organizing the data into a frequency distribution to allow examination and description on the patterns of the responses to be made, which can be exhibited effectively in tabular or graphic form (see also Sekaran, 2000).

For this level of investigation, frequency distribution is most appropriate for the data organization as it allows the response distribution for a variable to be summarized by computing the typical value (point of central tendency) and it can be seen how typical this value is (measure of spread) (Weisberg, 1992; Carlson & Thorn, 1997). This is exactly what is needed to achieve the objective identification of consensus and the quantitative comparison of criticality of the quality factors.

Identification of the point of central tendency of a distribution can be achieved using three common methods (Levin & Rubin, 1994) these common methods are the mean, the median, and the mode. The measure of the center must allow ease of identification of perceived importance of each the quality factors in an objective manner (Thiagarajan, 1996).

The mode is the measure of central tendency indicating the category that contains the largest number of responses (Levin & Rubin, 1994). The mode measures the most typical category and objectively shows what the consensus on a quality factor is. Therefore, the modal category can be equated to a quality factor being perceived rated as of critical, important or minor importance to the success of TQM in the organization. This makes the selection of the mode as the measure of central tendency appropriated for this investigation.

As a distribution may have similar centers with different amount of variation, the organization of data into frequency distribution and calculating the point of central tendency will not provide a satisfactory description of the problem. Weisberg (1992) states that measuring a center finds the typical value for a variable, while measuring

the variability or speared distribution tells us how typical that value is. This highlights the importance of finding the variability (spread) of the distribution.

The range, variance and standard deviation are the commonly used measures of dispersion or spread. For metric variables, the appropriate measures of spread are the variance and the standard deviation. Therefore, the variance and standard deviation are not considered in this study. The other appropriate measure of spread is the range, variation ratio and the index of diversity (Weisberg, 1992). In the context of this investigation, the range is the difference between the extreme end categories when responses cluster. The range will indicate how much the perceived criticality of a quality factor varies in practice.

The variation ratio is the proportion (percentage) of responses that do not fall into the modal category. It is an appropriate measure of spread for the ordinal (non-numeric) data in this investigation. Variation Ration (VR) is calculated using the following simple formula:

VR=1-frequency distributions of the mode.

Unless the extent of consensus is indicated, knowing what the consensus is on a quality factor is not satisfactory, as what the consensus is by itself says little. So, a variation ratio is a very useful measure of spread for the purpose of this study as it shows how descriptive the mode is of the data (Weisberg, 1992). Therefore, the variation ratio does not take into account the full distribution of responses. The measure of the spread that does take such an account when dealing with non-metric data is the index of diversity.

The index of diversity is defined as dispersion measure based on a proportion of responses in each category (Weisberg, 1992). In mathematical terms:

Index of Diversity = $1 - (p1^2 + p2^2 + \ldots + p\kappa^2)$

Where p_K is the proportion of responses in category k and k is the number of categories.

The index shows the degree of concentration of responses in a few large categories, as squaring proportion emphasizes large proportion much more than the smaller ones (Weisberg, 1992). Thus, in the context of this investigation, the index of diversity can be considered as a surrogate measure of agreement amongst respondents concerning the response distribution of each of the quality factors.

A low index value means general agreement on the importance of a quality factor, whereas, high index value means general disagreement on the importance of the quality factor. This means that an index value close to zero will imply near unanimity. A value closes to 0.5 represents equal clustering (concentration) around two large categories.

A near uniform distribution in the three categories will give a maximal value close to 0.667 (1/3), which in this case will mean high level of disagreement.

Comparative Criticality Index (CCI)

Thiagarajan (1996) suggests that the quantitative measure of how critical is a critical factor is useful. By definition, a critical factor is an absolutely essential to the success of TQM implementation, which means that the process stands a good chance of ending in failure if this quality factor is not part of TQM.

As mentioned in Baidoun (2003) study, Thiagarajan (1996) develops a self-assessment tool for the TQM implementation process using comparative criticality index.

The comparative criticality index for this study will be based on the index of diversity. The index of diversity is divided by the maximal value (0.667) to provide a scale that ranges between 0 and 1, where 0 represents unanimity in returning the quality factor

as critical, and 1 means that the quality factor is the least critical (Baidoun; 2003). In other words, the comparative criticality index is calculated as follow:

CCI = (index of diversity / maximal value

Maximal value = (k-1) / k where k is the number of categories.

Chapter four: Findings and research

4.1 Introduction

As this study aims to investigate, the probability of implementing quality factors that are critical to effective TQM implementation in Sinikrot Company and to find the gap by comparing the comparative criticality index of Sinikrot Company and the comparative criticality index of the Palestinian industry that found by Baidoun (2003). The same procedure that used in the study made by Baidoun (2003) for the Palestinian Industry is followed.

4.2 Analysis of responses

Based on the identification of the mode for each quality factor, 19 factors were identified as critical.

Using the variation ratio helps separate the quality factors with majority consensus from other quality factors with no majority consensus, which are perceived by some respondents as of no consequence to the success or failure of the implementation process of TQM. The index of diversity shows the degree of concentration of responses in a few large categories. The findings, therefore, represent the fundamentals to build the stratified structure of the critical quality factors.

Table 1 shows the computed variation ratio and the index of diversity for the 19 quality factors for Sinikrot Company. These 19 quality factors returned as critical in the study made by Baidoun (2003) about the Palestinian Industry. In this study the same 19 quality factors are used to find the gap.

Table 4.2 Variation ratio and index of diversity

	Quality factor	Variation ratio	Index of diversity
1	Q1	0.300	0.420
2	Q7	0.667	0524
3	Q2	0.500	0.580
4	Q27	0.600	0.658
5	Q20	0.733	0.604
6	Q3	0.600	0.480
7	Q4	0.700	0.540
8	Q30	0.733	0.604
9	Q9	0.667	0.631
10	Q15	0.633	0.638
11	Q6	0.667	0.647
12	Q12	0.533	0.604
13	Q16	0.667	0.647
14	Q8	0.800	0.531
15	Q21	0.733	0.580
16	Q31	0.567	0.558
17	Q19	0.467	0.571
18	Q25	0.600	0.651
19	Q28	0.733	0.604

4.2.1 Stratification of the identified critical quality factors

The methodology of data analysis so far has identified the critical quality factors that are absolutely important and essential to the successful TQM implementation process. Two more requisites are needed to achieve the objectives of this study. These are the ordering of the critical quality factors into a hierarchical structure and (based on the level of majority consensus in returning the quality factor as critical) stratifying the hierarchical structure.

Using the range and the variation ratio provides an opportunity for objective judgment in the process of ordering and stratifying the critical quality factors, exactly as the mode did in the identification of these quality factors. Based on the modal category, the quality factors were identified as critical, important, and of minor importance. Thus, 19 quality factors were identified objectively as critical factors. Sorting and ordering these quality factors according to the level of consensus is measured by the variation ratio, which shows how descriptive the mode is of the responses.

As a measure of the extent of consensus in rating quality factors as critical, the variation ratio is appropriate as a surrogate measure of relative importance. The sorting and ordering of the 19 critical quality factors using the variation ratio and the diversity index provide a hierarchical structure in a descending order of criticality, which is presented as follows.

Three-tier Critical Quality Factors Structure

4.2.2 Critical quality factors stratified in tier 1

- Senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive.
- Elements of quality management structure in place to manage the organization quality journey.
- Visibility of senior executive commitment to quality and customer satisfaction.
- A formal documented quality management system in place.
- Problem solving and continuous improvement processes based on facts and systematic analysis.
- Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus.
- Comprehensive policy development and effective deployment of goals.
- Comprehensive identification of customers and customer needs and alignment of processes to satisfy the needs.
- The entire workforce understands, and is committed to the vision, values, and quality goals of the organization.

4.2.3 Critical quality factor stratified in tier 2

- Training employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leading skills).
- Effective top-down and bottom-up communication.

- Supervisors, unit heads and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods, mentors and leaders of empowered employees.
- Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.
- The entire organization understands that each individual and each process has internal customers and suppliers.
- Application of total quality approach to the management of support services and business processes.
- The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.
- Systematic review and analysis of key process measures that have a direct and indirect impact on value-addition to customer satisfaction.

4.2.4 Critical quality factors stratified in tier 3

- Cost of quality process to track rework, waste, and rejects and for continuous improvement.
- Reliance on reasonable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.

Having identified the critical quality factors using the modal category, and developed the hierarchical structure using the variation ratio, the stratification of these critical quality factors becomes essential.

As mentioned in Baidoun (2003) study, many researchers stratified the hierarchical structure of the critical quality factors in the process of building their TQM

implementation models (Ramirez &Loney, 1993;Black, 1993;Mann, 1992;Thiagarajan, 1996;Ali; 1997;Thiagarajan *et al.*, 2001). All of these researchers stratified the quality factors into three hierarchical tiers of importance to develop their models. Thiagarajan & Zairi (1998) stratified the quality factors applying the modal category in the identification process of the quality factor –the variation ratio to rank the criticality of the identified quality factors – and used the variation ratio and the range as the objective criteria for three-tier stratification of the quality factors. A three-tier structure is appropriate for these research objectives. Stratification of the quality factor therefore describes the identified quality factors with regard to their degree of impact on the successful implementation of TQM applying the prioritization process of these quality factors according to their perceived criticality.

Based on this stratification of 19 quality factors into three tiers, the comparative criticality index will then found for Sinikrot Company and will be compared with the comparative criticality index of the Palestinian industry developed by Baidoun (2003). Table 2 shows the comparative criticality index for Sinikrot Company.

Table 4.2.4 Comparative criticality index for Sinikrot Company Index

Value Quality factor

TIER I CRITICAL QUALITY FACTORS

0.630 senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive

0.786 Elements of quality management structure in place to manage the organization's quality journey.

0.870 Visibility of senior executive commitment to quality and customer satisfaction.

0.987 A formal documented quality management system in place.

0.906 Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus.

0.720 Comprehensive policy development and effective deployment of goals

0.810 Problem solving and continuous improvement processes based on facts and systematic analysis.

0.906 Comprehensive identification of customers and customer needs and alignment of process to satisfy the needs.

0.946 The entire workforce understands, and is committed to the vision, values and quality goals of the organization.

TIER II CRITICAL QUALITY FACTORS

0.960 Training employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leadership skills).

0.970 Effective top-down and bottom-up communication.

0.910 Supervisors, unit heads and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods and leaders of empowered employees.

0.970 Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.

0.796 The entire organization understands that each individual and each process has internal customers and suppliers.

0.870 Systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction.

0.837 Application of total quality approach to the management of support service and business process.

0.856 Cost of quality process to track rework, waste, rejects and for continuous improvement.

TIER III CRITICAL QUALITY FACTORS

0.976 The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.

0.906 Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.

4.3 Discussion

Most of the critical quality factors stratified in tier 1 are known in the TQM literature as fundamental components to be emphasized in the early stages of the implementation process (Baidoun 2003). In particular, top management commitment to lead the quality drive and their visible involvement in quality and customer satisfaction; communication of mission statement; strategic quality planning (policy development is an effective deployment of goals); organizing for quality to manage the organization's quality journey; maximizing employees' commitment and understanding of the vision, values and quality goals of the organization; management by fact to solve problems and continuous process improvement and aligning processes to improve customer satisfaction (Baidoun 2003 & 2004).

The vast majority of organizations that were studied by Baidoun (2003) returned the critical quality factor (senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive) as absolutely essential to the success of the implementation process. Near unanimity of consensus

(77 out of 78 respondents) was achieved, returning this factor as critical. In this study, 21 out of 30 respondents returned this factor as critical.

This is in tandem with all previous studies (Saraph *et al.*, 1989; Mann, 1992; Ramirez & Loney, 1993; Flyn *et al.*, 1994; Black & Porter, 1996; Thiagarajan, 1996; Ali; 1997; Ahire *et al.*, 1996; Tamimi, 1998; Rao *et al.*, 1999; Zhang *et al.*, 2000; Thiagarajan *et al.*, 2001), with the literature review and all major quality awards (EQA, MBNQA, and Deming's prize). This is evident as there is unanimity in opinions amongst all quality gurus and every author of TQM on the importance of top management commitment, involvement and leadership (Zairi, 1999a).

As mentioned in Baidoun (2003) a formal documented quality management system in place is considered as the communication means of the standards of organizational practice through documented procedures and records (Crosby, 1989). James (1996) considers an accredited quality management system as a major pillar supporting the development and operations of TQM in an organization. Moreover, several case studies (see Whitford & Bird, 1996; Quasi & Padibjo, 1997) and empirical work (Quasi & Padibjo, 1998) have pointed out the importance of a formal documented quality system in the journey towards TQM. Only 10 out of 30 respondents in Sinikrot Company returned this factor as critical, which means that there is a gap.

A clear and consistent communication of a mission statement and the objectives defining quality values, expectations and focus, is considered the major indication of top management commitment, giving priority to customer satisfaction based on a comprehensive identification of customers and customer needs and alignment of processes to satisfy the needs (Smith, 1994; Zairi, 1999b; Oakland, 2000; Feigenbaum, 2002; Baidoun, 2004). In harmony with this, the development of a comprehensive policy and the effective deployment of the goals is the essence of

strategic quality planning to be assumed by top management (Deming, 1986; Zairi, 1999b; Oakland, 2000; Crepin, 2002; Leiter & Maslach., 2002; Baidoun, 2003 & 2004). Consequently, organizing for quality to manage the quality journey of the organization requires achieving the commitment to the vision, values and quality goals by the entire workforce through effective communication, so that the workforce understands them (Crosby, 1979; Kanji & Asher, 1993; Salegna & Fazel, 2000).

This is a natural prerequisite to maximize employees' commitment and involvement, which is stratified in tier 2 critical quality factors. A systematic approach to problem-solving and continuous process improvement as an essential factor of TQM is identified to emphasize the concept of management by facts (Oakland, 2000; Kanji, 1998) where a formal documented management system appears to be one of the means (Baidoun, 2004).

As for the tier 2 critical quality factor, maximizing employees' commitments and involvement starts by middle management buying-in as supervisors, unit heads and divisional managers assuming active roles as facilitators of continuous improvement, coaches of new methods, mentors and leaders of empowered employees (Thiagarajan & Zairi, 1997; Crosby, 1989; Ishikawa, 1985; Oakland, 2000; Wuagneux, 2002; Buch & Rivers, 2002). This leads to a common understanding by the entire organization that each individual and each process has internal customers and suppliers (Oakland, 1993, 2000).

To empower employees and to develop an appropriate culture for continuous improvement requires training employees to improve interactive skills (such as communication, effective meeting, empowerment and leadership skills), and training in problem identification and solving skills, quality improvement skills, and other

technical skills (Deming, 1986; Rao *et al.*, 1999; Oakland, 1993, 2000; Cebeci & Beskese, 2002; Baidoun, 2003 & 2004).

To support continuous process improvement and improve customer satisfaction, systematic review and analysis of key processes (Rao *et al.*, 1996; Kurdupliski *et al.*, 1993), measures that have a direct or indirect impact on value-addition to customer satisfaction (Oakland, 2000), the application of total quality approach to the management of support service and business processes and the use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction (Zhang *et al.*, 2000; Kanji & Asher, 1993; McAdam & Kelly, 2002) are all required.

However, for tier 3 critical quality factors, the emphasis is on the operational level of the organization, which is related to having a system for measuring key indicators that impact the way the organization operates to add value to customers. This is apparent from applying cost of quality process to track rework, waste and rejects and for continuous improvement and reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money. The identified 19 critical quality factors are in accord with many Quality Awards' principles (MBNQA and the EQA), as in the following:

(1) *Top management commitment and involvement*

Top management commitment and responsibility for sustainable quality environment. Top management commitment and involvement are demonstrated by providing role models, developing a clear mission and defining quality values (strategic quality planning), developing comprehensive policy and goal setting and planning process,

promoting quality awareness, and creating the elements of a quality management structure.

(2) *Employee involvement and empowerment*

Directing active involvement of employees to the vision, values and quality goals of the organization to meet its expectation. Maximizing employee empowerment by training and education, and active roles of middle management.

(3) *Continuous process improvement*

Using quality tools (systematic approach to problem identification and solving) to create a culture of continuous process improvement emphasizing management by facts.

(4) Importance of external customer focus and understanding the internal customer concept

(5) Selecting reasonably few dependable suppliers based on evaluation of their capability and commitment to product and service quality.

(6) Having systems for measuring key indicators that impact the way the organization adds value to customers (cost of quality and the use of customer surveys).

Baidoun (2003) study reveals that 17 out of 19 critical quality factors share most of the values covered by the key principles espoused by the Malcolm Baldrige National Award (2000) and the European Quality Award (2000).

4.4 Conclusion

According to Thiagarajan & Zairi (1998), a useful analysis to perform is benchmarking using the comparative criticality index (CCI). The information gathered from benchmarking analysis could be used as the basis to prioritize areas for improvement. For this purpose, the comparative criticality index (CCI) is used as the

standard against which the assessed degree of implementation is compared. This benchmarking analysis identifies the gaps in the implementation.

A simple and practical gap analysis is performed on the gap analysis chart presented in Figure 1. critical quality factors in order of their criticality measured by the comparative criticality index are listed on the *Y*-axis from top to bottom. The CCI values representing the benchmark scores are incorporated on the chart using horizontal lines. Implementation scores of the respective critical quality factors are presented in the same manner using horizontal lines. These scores are modified to represent the percentage not implemented. That is, by deducting the percentage of implementation degree from 100%. This is because the CCI is calculated based on the index of diversity (see Table 1), where the small value of CCI indicates high criticality of the quality factor while a large value of CCI indicates low criticality of the quality factor. In the context of this analysis, a small value of CCI can be interpreted as a large degree of implementation, and a large value of CCI can be interpreted as a low degree of implementation. The difference is, then, plotted on the gap analysis chart for each critical factor. The modified implementation scores (which represent the difference), which are less than the benchmark scores, are negative gaps that need to be addressed. Positive gaps occur when the modified implementation scores are greater than the benchmark scores. This can be illustrated on the Gap Analysis Chart.

The gap analysis could be used as the basis to prioritize improvement or implementation actions. The prioritization of actions is performed according to the criticality order of the quality factors presented in the Gap Analysis Chart (figure 1).

Table 3 below shows the comparative criticality index for the Palestinian Industry, which was developed by Baidoun (2003)

Table 4.4 Comparative criticality index for Palestinian industry Index

Value Quality factor

TIER I CRITICAL QUALITY FACTORS

0.038 Senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive.

0.416 Elements of quality management structure in place to manage the organization's quality journey.

0.489 Visibility of senior executive commitment to quality and customer satisfaction.

0.532 A formal documented quality management system in place.

0.639 Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus.

0.639 Comprehensive policy development and effective deployment of goals.

0.639 Problem solving and continuous improvement processes based on facts and systematic analysis.

0.666 Comprehensive identification of customers and customer needs and alignment of process to satisfy the needs.

0.679 The entire workforce understands, and is committed to the vision, values, and quality goals of the organization.

TIER II CRITICAL QUALITY FACTORS

0.703 T raining for employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leadership skills).

0.727 Effective top-down and bottom-up communications.

0.733 Supervisors, unit heads and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods and leaders of empowered employees.

0.769 Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.

0.816 The entire organization understands that each individual and each process has internal customers and suppliers.

0.819 Systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction.

0.821 Application of total quality approach to the management of support service and business process.

0.835 Cost of quality process to track rework, waste, rejects and for continuous improvement.

TIER III CRITICAL QUALITY FACTORS

0.868 The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.

0.887 Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.

Comparing these values above and the values that found for Sinikrot Company (Table 2), it is clear that the gap is very large in all of quality factors stratified in tier 1, tier 3, and the first four quality factors in tier 2. While the other four quality factors in tier 2 is almost the same.

For example, the quality factor: senior executive assume active responsibility for evaluation and improvement of management system, and leading quality drive has a

CCI value of 0.038 for the Palestinian Industry, while it is 0.63 for Sinikrot Company (around 16 times of the Palestinian Industry). The quality factor: the entire organization understands that each value and each process has internal customers and suppliers, is implemented more than in Palestinian Industry (CCI value for Sinikrot Company is 0.796 while it is 0.816 for the Palestinian Industry). The gap is illustrated fully in figure 2. There is a large gap in Q1, Q7, Q2, Q27, Q20, Q30, Q9, Q15, Q16, Q12, and Q16, while it is nearly the same in Q4, Q8, Q19, Q21, Q25, Q31, and Q28).

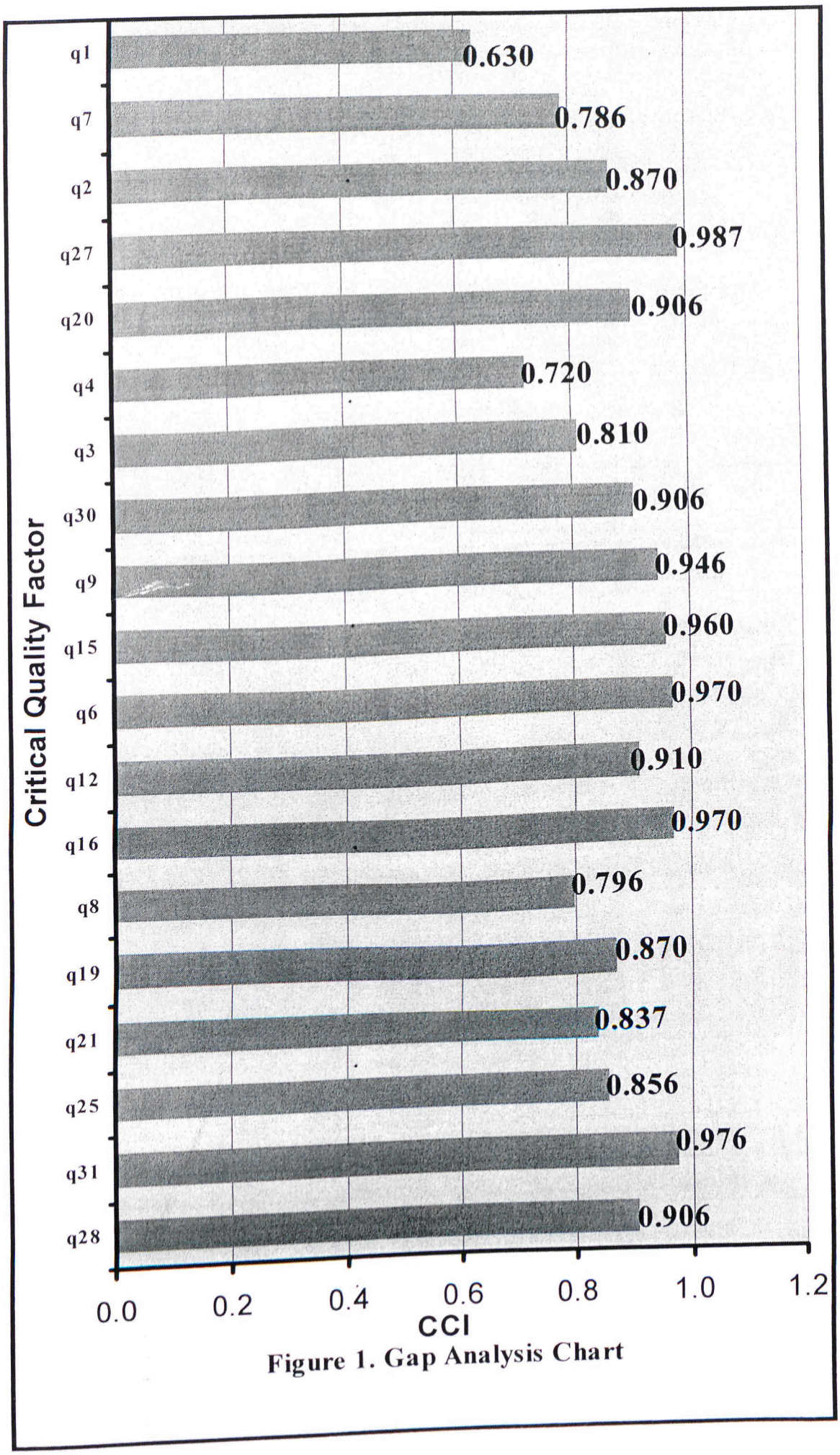

Figure 1. Gap Analysis Chart

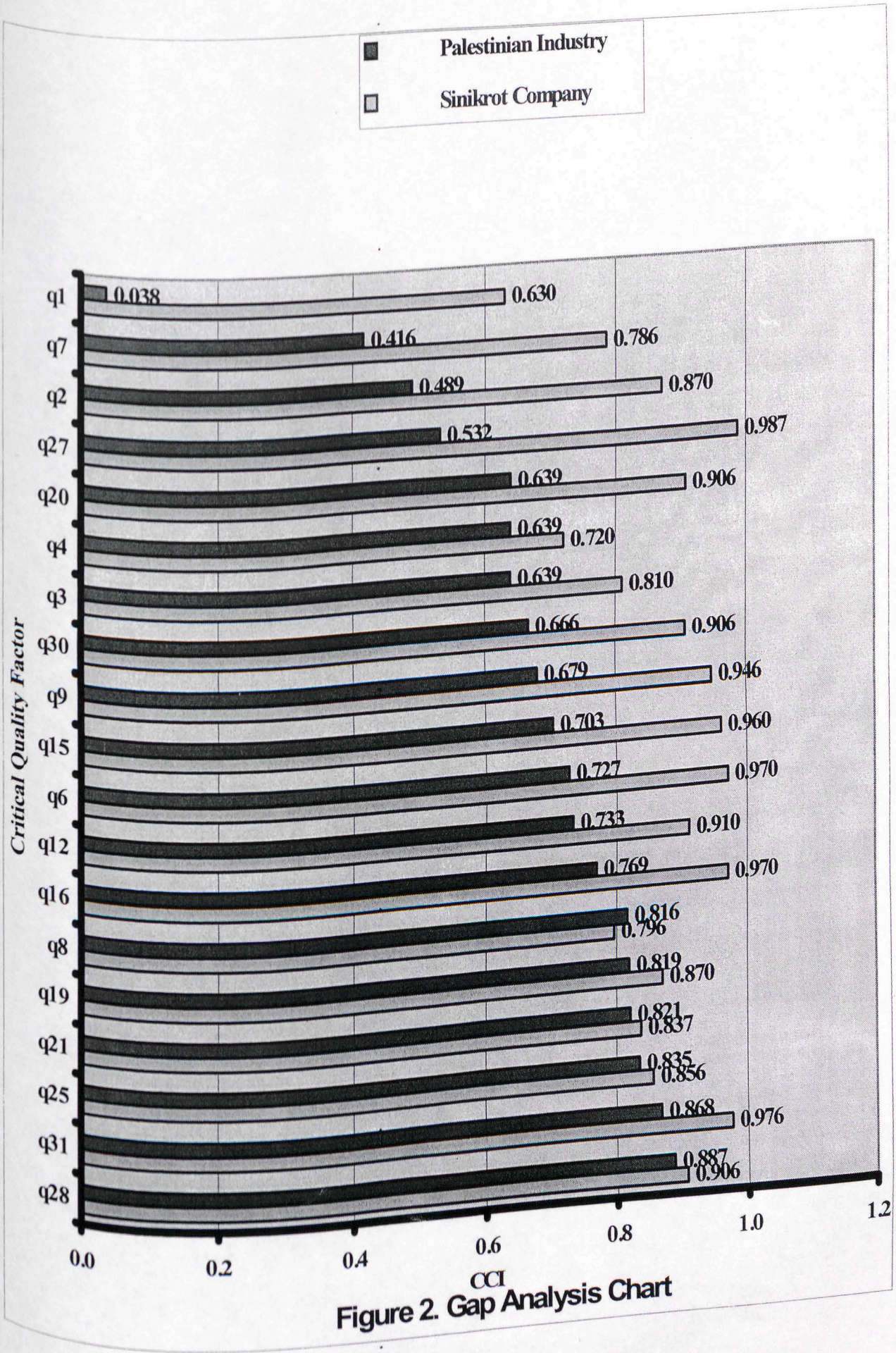

Figure 2. Gap Analysis Chart

4.5 Guidelines for TQM implementation

In this study of Sinikrot Company, the model developed by Baidoun (2003) for the Palestinian context will be the guide. Since, it is the first and the only model developed for the Palestinian Industry; therefore, it will be appropriate for Sinikrot Company.

4.5.1 Demonstrate for TQM implementation

Top management must accept the responsibility for commitment to a quality policy that deals with the organization for quality and the satisfaction of customer needs. This commitment to quality and leadership must be demonstrated by developing and communicating the vision organization-wide. As evident from the findings from the in-depth interviews, in the pre-launch stage, commitment of top management is achieved when the rewards of implementing TQM are realized. That is, the tangible business and operating benefits of TQM must be realized by top management as a prerequisite for their serious commitment.

To manage the organizations quality journey, a quality council led by the general manager is set-up and a full time quality related manager is hired to provide support for the quality council. Whenever needed, an external consultant can be appointed to assist in the implementation process.

Senior managers who are members of the quality council are responsible for developing.

A comprehensive policy based on clear vision and mission statements, including the quality goals deployed effectively at all levels of the organization. This unites the efforts of all employees and determines the corporate expectations. This

comprehensive quality policy should be communicated effectively to ensure common understanding of the organization's expectations and direction to achieve organization-wide commitment.

At the departmental level, quality committees headed by the department heads are established to implement the quality policy to achieve the organization's goals. These committees have a direct reporting relationship with the quality council through committees' heads.

4.5.2 Ensure employee commitment and involvement

In order to ensure the commitment and involvement of everyone in the organization in the quality improvement, top management must enable all employees in the preparation, implementation and evaluation of improvement activities.

Practical assistance, training, recognition and participation should be given to ensure that all employees, in order to attain the quality goals of the organization, acquire the relevant knowledge and experience. The issue of employee commitment and involvement as a critical quality factor for successful TQM implementation is unanimously addressed by writers (see for example Zairi, 1999; Kanji, 1990, 1995, 1996, 1998; Oakland, 1993, 2000; Rao *et al.*, 1996, 1999; Zhang *et al.*, 2000; Mak, 2000; Sun, 2000; Dale *et al.*, 2001; Claver *et al.*, 2001; Buck & Rivers, 2002; McAdam & Kelly, 2002).

As employees become committed and involved and the entire workforce understands, and is committed to, the vision, values and quality goals of the organization, empowerment becomes a necessity. Employees need to be aware of the TQM concepts, trained to improve interactive skills, problem identification and solving skills, and technical skills. Employees need to be informed about the quality initiative

and participate in the improvement activities and through top-down and bottom-up communication. Teamwork skills are needed to have employees work together, and a review of the reward and recognition schemes is another important factor to ensure and reinforce employee commitment and involvement.

4.5.3 Manage by a customer- driver system and processes

Managing by a quality management system will enable the objectives set out in the quality policy to be achieved. In this regard, the ISO 9000:2000 series set out methods by which a system can be implemented to ensure that the specified customer requirements are met. The quality management system should apply to, and interact with, processes in the organization. Therefore, managing by customer-driven systems and processes requires deploying the human and other resources along the processes to add values for customer satisfaction.

This approach of managing by customer-driven systems and processes is associated with the concept of the internal customer–supplier relationship. Throughout all organizations there are a series of internal suppliers and customers. These form the quality chain, which is considered as the core of company-wide improvement (Oakland, 2000). The internal customer–supplier relationships must be managed to add value to customer satisfaction, which makes measurement of capability vital.

Many TQM writers have pointed out the importance of focusing on system processes and internal customer–supplier relationships and their management. They emphasized that TQM is centered on the effective management of processes and continuous customer satisfaction (Kanji, 1995; Zairi, 1994; Oakland, 2000; Braganza & Mayers, 1997; Beskese & Cebeci, 2001; Kolka, 2002; Stahan, 2002).

An early stage in the implementation process is to seek certification of a formal documented quality system to determine the assembly of components, such as the organizational structure, responsibilities, processes and resources for implementing total quality management. This also requires a comprehensive identification of customers and customer needs and the alignment of processes to satisfy the needs. The effort involves promoting internal customer–supplier relationships in the quality chain, recognizing that each person and each activity affects, and in turn is affected by, others to deliver values for the customer.

In this regard, it is very important to understand the core processes and gain process sponsorship to ensure that appropriate resources are made available to map investigate and improve the process. Moreover, it is important to break down the core processes into subprocesses, activities and tasks. This requires understanding customer needs at each level.

Quality has to be managed—it will not just happen (Oakland, 2000). This means that it must involve everyone in the process and be applied throughout the organization. Many people in the support functions of organizations never see, experience or touch the products or services that their organizations buy or provide, but they do handle or produce things such as purchase orders or invoices. If every fourth invoice carries at least one error, what image of quality is transmitted? (Oakland, 2000). This makes the application of total quality approach to the management of support services and business processes important.

The setting up of performance measurement procedures to track the performance of the processes and for their continuous improvement is a vital component of this construct. Clearly, suppliers need to be evaluated and selected on their ability to supply the product or service in accordance with the organization's requirement.

4.5.4 Create a continuous improvement culture

Continuous, or never-ending, improvement is a powerful concept related to the pursuit of never-ending improvement in meeting external and internal customer needs. This concept must be firmly tied to a continuous assessment of customer needs and depends on a flow of ideas on how to make improvements, reduce variation and generate greater customer satisfaction. It also requires a high level of commitment and a sense of personal responsibility in those operating the processes (Oakland, 2000). Continuous improvement requires management by facts (Kanji, 1995, 1998), and commitment of all employees with an emphasis on teamwork to promote a bottom-up thrust for quality improvement (Oakland, 2000; Homan & Mehra, 1999; Dale *et al.*, 2001; McAdam & Kelly, 2002; Cebeci & Beskese, 2002). Tools and techniques such as cost of quality should be used to identify continuous improvement opportunities (Hiezer & Render, 2001).

Figure 3 illustrates these components of TQM implementation framework.

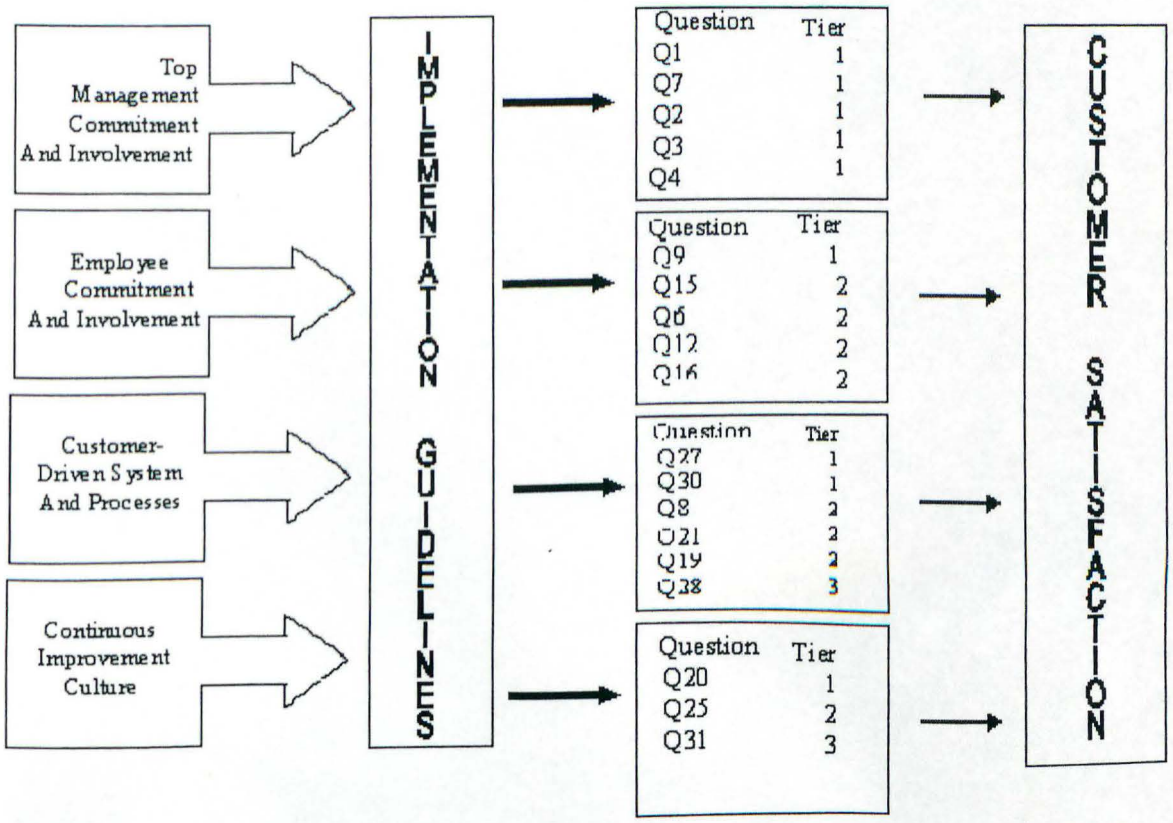

Figure 2. Components of the TQM Implementation frame work

(Source: Baidoun, 2000)

4.5.5 Implementation guidelines checklist

The table below provides a checklist of the critical quality factors associated with each quality construct.

Construct	Critical Quality Factor	Tier	In place
Construct 1. Demonstrate top management commitment and involvement	□ Senior executives assume active possibility for evaluation and improvement of management system, and leading quality drive .	1	
	□ Elements the quality management structure in place to manage the organization's quality journey.	1	
	□ Visibility of senior executives communication of mission statement and objectives defining quality values, expectations and focus.	1	
	□ Clear and consistent communication of mission statement and objective defining quality values, expectations and focus.	1	
	□ Comprehensives policy development and effective deployment of goals.	1	
Construct 2. Ensure employee commitment and involvement	□ The entire workforce understands, and is committed to the vision, values and quality goals of the organization.	1	
	□ Training for employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leading skills .(	2	
	□ Effective top-down and bottom-up communication.	2	
	□ Supervisors, unit head and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods and leaders of empowered employees .	2	
	□ Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.	2	
Construct 3. Manage by customer-driven system and processes	□ A formal documented quality management system in place.	1	
	□ Comprehensive identification of customers and customer needs.	1	
	□ The entire organization understands that each individual and each process has internal customers and suppliers .	2	
	□ Application of total quality approach to the management of support services and business processes.	2	
	□ Systematic review and analysis of key process measures that have a direct and indirect impact on value-addition to customer satisfaction.	2	
	□ Reliance on reasonable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.	3	
Construct 4. Create continuous improvement culture	□ Problem solving and continues improvement process based on facts and systematic analysis.	1	
	□ The use of the customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.	2	
	□ Cost of quality process to track rework, waster rejects and for continuous improvement.	3	

(source: Baidoun, 2003)

4.6 Summary

The previous guidelines for TQM implementation are based on the discussion and the findings of the investigations of the practices of Sinikrot Company TQM and knowledge of literature. The framework illustrates the relative criticality of the critical quality factors and their interrelationships, and the framework is constructed using inputs from the TQM Palestinian organizations studied by Baidoun (2003), in order to offer Sinikrot management relevant guidelines for decision making for TQM implementation.

Most of the critical quality factors identified and used in the construction of the framework are used in other current frameworks of the implementation provided by researchers, experts and consultants, and the national quality awards such as MBNQA and EQA.

Chapter five: Summery, Conclusion, and Recommendation

5.1 Conclusion

The increasing acceptance of TQM as a management philosophy for improving organizational competitiveness and effectiveness left the development of empirical research behind. The problem is much more apparent in the developing countries where knowledge of TQM is in the early stages (Baidoun, 2003). This research attempts to find the gap between the body of the literature and approaches of effective TQM in Palestinian Industries and Sinikrot Company.

Baidoun (2003) suggested in his empirical study of critical factors of TQM in the Palestinian organizations that addressing the 19 critical factors as part of the quality management process increase its chance of success in the Palestinian context. This research tried to check the degree of implementation of the 19 critical quality factors in Sinikrot Company, by comparing the comparative criticality index of Palestinian Industries that found by Baidoun (2003) and that of Sinikrot Company.

Baidoun (2003) empirical research revealed that 17 out of 19 critical quality factors identified in his investigation share most of the values covered by the key principles espoused by the Malcolm Baldrige National Quality Award (2000) and the European Quality Award (2000) in the following:

- Top management commitment and involvement. Top management commitment and responsibility for sustainable quality environment. Top management commitment and involvement are demonstrated by providing role models, developing clear mission and defining quality values (strategic quality planning), developing comprehensive policy and goal setting and planning process, promoting quality awareness,

and creating the elements of quality management structure. In Sinikrot Company, there is a large gap in implementing these critical quality factors, for Palestinian Industry, the comparative criticality index is 0.038 where it is 0.63 (about 17 times larger).

- Employee involvement and empowerment. Directing active involvement of employees to the vision, values, and quality goals of the organization to meet its expectation. Maximizing employee empowerment by training and education, and active roles of middle management. In addition, in this study of Sinikrot Company, a large gap is found in implementing these critical quality factors.
- Continuous process improvement. Using quality tools (systematic approach to problem identification and solving) to create a culture of continuous process improvement emphasizing management by facts. The comparative criticality index for this critical quality factor is 0.906 for the in Sinikrot Company, while it is 0.639 for the Palestinian Industries (about 1.4 times larger).
- Importance of external customer focus and understanding the internal customer concept. In Sinikrot Company, the degree of implementation of this critical quality factor is nearly the same of that in the Palestinian Industries.
- Selecting reasonably few dependable suppliers based on evaluation of their capability and commitment to product and service quality. The implementation of this critical quality factor in Sinikrot Company is almost the same of that in the Palestinian Industries.

- Having systems of increasing key indicators that impact the way the organization adds value to customers (cost of quality and the use of customer surveys). It is found that the comparative criticality index for this critical quality factor is 0.8856 for Sinikrot Company and it is 0.835 for Palestinian Industries, which is nearly the same.

5.2 Findings

The findings of the survey questionnaire also proved that TQM is a generic philosophy of management as all the quality factors identified as important by TQM organizations in the West (Thiagarajan and Zairi, 1998). they returned as critical or important except one factor (the role of labor unions) by Palestinian TQM organizations (Baidoun, 2003). In Sinikrot Company, most of these critical quality factors are considered to be important for TQM implementation. Therefore, the stratified critical factors can be used to construct a framework for TQM implementation in Sinikrot Company. Such a framework is based on the implementation of the 19 critical quality factors ordered according to their criticality (Baidoun, 2003). Moreover, it is evident that TQM organizations aim to excel in certain areas, regardless of their place of incorporation. This supports Juran (1993) when he says that the culture does not influence the approaches to TQM implementation.

This study confirms that there are differences in the order and degree of emphasis of the quality factors. This is evident by comparing the identified critical quality factors in this study and the study that made by Baidoun (2003) on the Palestinian Industries. However, the success of a business practice like TQM depends on its ability to satisfy the interests of multiple stakeholders. It may, therefore, be

appropriate to consider gathering information from various stakeholders such as customers, employees, competitors and suppliers (Baidoun, 2003).

5.3 Recommendations to implement TQM in Sinikrot Company

In order to implement TQM in Sinikrot Company, the Company must close the gaps that found in the various critical quality factors discussed earlier, especially the following items:

1- Top management commitment and involvement. Taking the responsibility for sustainable quality environment, providing role models, developing clear mission and defining quality values (strategic quality planning), developing comprehensive policy and goal setting and planning process, promoting quality awareness, and creating the elements of quality management process.

2- Employee involvement and empowerment, by training and education, and active roles of middle management, involving employees to the vision, values and quality goals of the organization to meet its expectation.

3- Continuous process improvement by using quality tools to create a culture of continuous process improvement emphasizing management by facts.

4- Concentrating on the importance of external customer focus and understanding the internal customer concept.

5- Focusing on a few dependable suppliers according to their capability and commitment to product and service quality.

6- Using key indicators that impact the way the organization adds value to customers such as cost of quality and the use of customer surveys.

5.4 Implications of implementing TQM

One of the main objectives of this research was to provide some guidelines that might be of importance to promote TQM strategy implementation by Sinikrot Company. Based on the results of analysis, the following are the managerial implications drawn:

- The study demonstrates that results of forces that promote or prohibit TQM implementation obtained in Sinikrot Company may be applicable to other companies.
- The findings of the current study enhance the understanding of the impact of top management support and employee involvement upon the introduction of TQM strategy by Sinikrot Company.
- The successful implementation of TQM strategy in Sinikrot Company would help to improve the quality of goods and services, enhance corporate performance and may boost the demand for Sinikrot products in international market.
- TQM strategy can be used as a strategic weapon whether to face recent changes in the domestic and international environment or increasing trend to privatize state- owned enterprises, i.e. transformation era, through strengthening quality improvement efforts by the adoption of TQM.
- Improving workers' skills and quality consciousness through enhancing training programs is important for TQM implementation.
- Policy makers and industry leaders should be aware that the imminent competitive pressures affecting the domestic markets can be appeased through improving firms' performance and this hinges on the adoption of TQM strategy.

- Because the implementation of TQM strategy takes a long time, manufacturing firms that are willing to implement it should be patient and persistent and also embracing customer orientation philosophy.
- Policy makers in the Palestinian industrial sector should enhance the capability of manufacturing firms that are willing to implement TQM strategy through increased funding, grants, incentives, and educational programs.
- Sinikrot Company's leaders should know that there is a difference between ISO certification and TQM strategy where the former is a prerequisite for the last.

5.5 Directions and further research

Several channels of future research can be pursued to better understand the critical driving and resisting forces affecting TQM implementation, as illustrated below:

- Developing a deeper understanding of the driving and inhibiting forces to TQM implementation in practice remains a task that requires further attention from researchers, whatever their motivations. In so doing, it also hopes to encourage researchers to go deeply with such forces by conducting case studies.
- Further research needs to be conducted with regard to exploring the driving and inhibiting forces to TQM implementation in other types of operations, such as transportation, construction and communication.
- Consistent with previous studies, the present research results indicated that management and employee involvement in introducing TQM were important. Thus, the impact of management and employee

involvement upon the introduction of TQM strategy may be investigated.

- The current study is specific to Sinikrot Company. Hence, further study could be carried out with regard to specific types of manufacturing industry.
- Further study needs to undertaken concerning the impact of the organizational culture on TQM implementation. Moreover, empirical research should be conducted to evaluate driving and restraining forces based on customers' point of view.

Finally, any research in this area will be determining in nature, and should place the foundation for enabling manufacturers to remain competitive while satisfying the requirements of emerging environmental constraints.

References:

Aaker, D., Kumar, V., & Day, G., (1998), *Marketing research,* 6th edition, John Wiley and Sons.

Ahire, S. and Golkar, D., (1996), "Quality management in large vs. small firm

Ahire, S.l. Golhar, D. and Waller, M.A. (1996), "Development and validation of TQM implementation constructs", *Decision Sciences,* vol. 27, pp. 23-56.

Ahire, S.l., (1996), "An empirical investigation of quality management in small firms", *Production and Inventory Management Journal,* 2nd quarter,

Akpan, R. C., Ehigie, B. O., (2004), "Rules of perceived leadership styles and reward in the practice of total quality management", *Leadership & Organization Development Journal*, vol. 25, No. 1, pp. 24-40.

Alder, R., (1999), *Communicating at Work: Principles and Practices for Business and the Professions*, McGrow – Hill, Boston, MA,

Ambroz & Breve, M., (2004), "Total quality system as a product of the empowered corporate culture", *The TQM Magazine*, vol. 16, No. 2, pp. 93-104.

Anderson, J. C., Rungtusanathan, M., Schroeder, R. G. and Devaraj, S., (1995), "A path analytic model of a theory of quality management underlying the Deming management method: preliminary empirical finding", *Decision Science*, vol. 26, No. 5, pp. 637-657.

Atkin, B. & Brooks, A., (2000), *Total Facility Management*, Blackwell, Science, Oxford, 132-134.

Aune, A., (1991), "A recipe for success", *TQM Magazine*, pp. 33-37.

Badri, M., & Davis, D., (1995) A study measurement the critical factors of quality management, *International Journal of Quality and Reliability Management,* vol. 2, No. 2, pp. 36-53.

Baidoun, S., (2000), An empirical investigation of total quality management in Palestine: A proposed generic framework of implementation, University of Bradford, *Unpublished ph. D. Thesis.*

Baidoun, S., (2003), "An empirical study of critical factor of TQM in Palestinian organizations", *Logistics Information management*, vol. 16, No. 2, pp. 156-171.

Baidoun, S., (2004), "The implementation of TQM philosophy in Palestinian organizations: a proposed non-perspective generic framework", *The TQM Magazine,* vol. 16, No. 3, pp. 174-185.

Baidoun, S., (2004), "Toward an Index of Comparative Criticality: an Empirical Study of TQM Implementation in Palestinian industry", *Total Quality management*, vol. 15, No. 1, pp. 127-144.

Baidoun, S., & Zairi, M., (2003), "A proposal model of TQM implementation in the Palestinian context", *TQM & Business Excellence,* vol. 14, No. 10, pp. 1193-1211.

Baker, G. & Starbird, S. (1992), "Managing quality in California food processing firms", *Agribusiness,* vol. 8, No.2, pp. 155-164.

Bank, J., (1992), *The Essence of Total Quality Management*, London, Printice Hall.

Bank, J., (2000), *The Essence of Total Quality Management*, FT/Printice-Hall, Harlow.

Bayazit, O., (2003), "Total Quality Management (TQM) practices in Turkish manufacturing organizations", *The TQM Magazine*, vol. 15, No. 5, pp. 345-350.

Bennett, R., (1983), *Management research: Guide for institutions and professionals,* Management Development series, No. 20, International Labor office, Geneva.

Bennis, W., (1999), "Recreating the Company", *Executive Excellence*, vol. 16, No. 9, pp. 5-6.

Bergman, B., Klefsjo, B., (2002), *Quality from Customer Needs to Customer Satisfaction.*

Beskese, A. and Cebeci, U. (2001), "Total quality management and ISO 9000 applications in Turkey", *The TQM Magazine,* vol. 13 No.1, pp. 69-73.

Biazzo, S., & Bernardi, G., (2003), "Organizational self-assessment options", *International Journal of Quality & Reliability Management*, vol. 20, No. 8, pp. 881-900.

Bickman, L., & Rog, D., (Eds.), (1998), *Handbook of applied social research methods,* London: Sage.

Black, S. (1993), Measuring the Critical Factors of Total Quality Management, *Unpublished PhD thesis*, University of Bradford, Bradford.

Black, S., & Porter, L., (1996), "Identification of critical factors of TQM", *Decision Science*, vol.27, pp. 1-21.

Bowden, P. (2000), "Delivering organizational excellence by employee values management", *Total Quality Management,* vol. 11 No. 4/5/6, pp. 636-40.

Braganza, A. & Mayers, A. (1997), " *Business Process Redesign: a View from the Inside",* (London, International Thomson Business Press).

Brannon, D., McClintock, C., and Maynard-Moody, S., (1979), "Applying the logic of sample surveys to qualitative case studies", *Administrative Science Quarterly,* vol. 24, No. 4, pp.612-629.

Brunetto, Y., and Wharton, R. F., (2004), "Does the talk effect your decision to walk", *Management Decision*, vol. 42, No. 3–4, pp. 579-600.

Bryman, A., (1992), *Quantitative and qualitative research: Future reflection on their integration, in Mixing Methods: Qualitative and quantitative Research* (Ed: Brannen, J.).

Burgess, R., (1984), *In the Field: An introduction to field research,*

Hemel Hembstead: Goerge Allen & Unwin. Bush, K. and Rivers, d., (2002), "Sustaining a quality initiative", *Strategic Direction*, vol. 18, No.4, pp. 15-17.

Carlson, W. and Thorne, B. (1997), *Applied Statistical Methods for Business, Economics and the Social Sciences,* Prentice Hall, Upper Saddle River, NJ.

Carr, L., (1995), "How Xerox sustains the cost of quality", *Management Accounting*, August, pp. 26-33.

Cebeci, V. and Beskese, A., (2002), "An approach to the evaluation of quality performance of the companies in Turkey", *Managerial Auditing Journal*, vol. 17, Nos. 1-2, pp. 92-106.

Cerpin, D., (2002), "From, design to action: Developing a corporate strategy", *Quality Progress*, vol. 35, No. 2, pp. 49-56.

Chang, S., (1994), The Development of quality executive information system for health care: A benchmarking approach, University of Bradford, *Unpublished PhD. thesis.*

Choy, K. L., Fan, K. H. and Lo, V., (2003), "Development of an intelligent customer-supplier relationship management system: the application of case-based reasoning", *Industrial Management & Data Systems*, vol. 103, No. 4, pp. 263-274.

Clampitt, P., and Downs, C., (1993), "Employee perception of the relationship between communication and productivity", *The Journal of business Communication*, vol. 30, No.1, pp. 5-28.

Clampitt, P., and Girard, D., (1993), "Communication satisfaction: a useful construct?", *NewJersy Journal of Business Communication*, vol. 11, No. 2, pp. 84-102.

Claver, E., Gasco, J., Llopis, J. and Gonzalez, R. (2001), "The strategic process of a cultural change to implement total quality management: a case study", *Total Quality Management,* vol. 12 No.4, pp. 469-482.

Clifton, N., (2001), "System supplies towards "best practice"?", *Benchmarking An International Journal*, vol. 8, No. 3, pp. 172-190.

Clutterbuck, D., (2001), "The communicating company", *Journal of communication Management*, vol. 91, No. 70.

Crepin, D. (2002), "From design to action: developing a corporate strategy", *Quality Progress,* vol. 35 No.2, pp. 49-56.

Crosby, P. (1979) *Quality is Free: The Art of Making Quality Certain,* New York: Penguin Hili, New York. NY.

Crosby, P., (1989), *Let's talk quality: 96 questions that you always wanted to ask Phil Grosby*, McGrow-Hill, N.Y.

Dale, B. & Plunkett, J., (1999), *Quality Costing*, 3rd edition, Hants:Gower.

Dale, B. G., (1999), *Managing Quality*, Blackwell, Oxford.

Dale, B., Y-Wu, P., Zairi, M., Williams, A. and Van Der Wiele, T., (2001), "Total quality management and theory: an exploratory study of contribution", *Total Quality Management,* vol. 12 No.4, pp. 439-49.

David, J., (2002), "Strategic sourcing: benefits, problems and a contextual model", *Management Decision,* vol. 40 No.1, pp. 26-34.

Davies, B. & Wilson, D., (1990), "*TQM – organizing for success*", Oakland, J. S., Proceeding of the third International Conference on Total Quality Management, Warwick, IFS Ltd., Bedford.

Dawson, P., (1994), "Quality Management: Beyond the Japanese Model", *International Journal of Quality and Reliability Management,* vol.11, No. 7, pp. 51-59.

Dayton, N. A., (2001), "Total quality management critical success factors, a comparison", *The TQM Magazine*, vol. 12, No. 3, pp. 293-298.

Dayton, N. A., (2003), "The demises of total quality management", *The TQM Magazine*, vol. 15, No. 6, pp. 391-396.

Deming, W.E., (1986), *Out of the Crisis,* Cambridge University Press, Cambridge.

Denzin, N. K., (1970), *The research art: A theoretical introduction to sociological methods,* Aldine, Chicago.

Dewhurst, f., Martinez-Lorente, A. R., Dale, B. G., (1999), *"TQM in public Organizations: an examination of the issues".*

Downey, H., and Ireland, R., (1979), "Quantitative versus qualitative environmental assessment in organizational studies", *Administrative Science Quarterly,* Vol. 24, No. 4, pp.630-637.

Dumas, R., (1998),"Organizational quality: how to avoid common pitfalls", *Quality Progress*, vol. 22, No. 5, pp. 41-44.

Easton, G., (1998), *Learning from case studies*, 3rd edition, Printice-Hall, UK.

EFQM (1999), *The EFQM Business Excellence Model,* The European Foundation for Quality Management, available at: www.efqm.org

Englyst, L., (2003), "Operations strategy formulation – a continuos process", *International Management Systems*, vol. 14, No. 8, pp. 677-685.

Everett, C. (2002), "Penn states commitment to quality improvement", *Quality Progress,* vol. 35 No.1, pp. 44-9.

Fedrico, V., (1996), "Relationship between communication satisfaction and organizational commitment in three Guatimala organizations", *The Journal of Business Communication*, vol. 33, No. 2.

Feigenbaun, A. V., (1961), *Total Quality Control*, McGraw-Hill, London.

Fielding, N., & Fielding, J., (1986), "Linking data", *Sage university paper series on qualitative research methods,* Vol.4, Sage, Beverly Hills, CA.

Finn, M., & Porter, L. J., (1994), "TQM self-assessment in the UK", *The TQM Magazine*, vol. 6, No. 4, pp. 56-61.

Flyn, B., Schroeder, R. G. and Sakakibara, S., (1995), "A framework for quality management research and an associated measurement instrument", *Journal of Operations Management*, vol. 11, pp. 339-366.

Garvin, D. A., (1993), "Building a learning organization", *Harvard Business Review*, vol. 71, No. 4, pp. 78-91.

Gatchalian, M., (1997), "People empowerment: The key to TQM success" *The TQM Magazine*, vol. 9, No. 6, pp. 33-34.

George, D., (1990), *The routine involvement of senior managers in the quality improvement process*, in Proceeding of the 3rd International Conference on Total Quality Management.

Gho, M., (2000), "Quality circles: Journey of an Asian public enterprise", *International Journal of Quality & Reliability Management*, vol. 17, No. 7, pp. 623-631.

Gill, J., & Johnson, Ph., (1994), *Research methods for management,* London: Paul Champan.

Goris, J., Vaught, B., and Pettit, J., (2000), "Effects of communication direction on job performance and satisfaction: A moderate regression education", *Sociological Review*, vol. 47, No. 3, pp. 461-490.

Grandzol, J. R. & Gershon, M., (1998), "A survey instrument for standardizing TQM modeling research", *International Journal of Quality Science*, vol. 3, No. 1, pp. 80-105.

Gummesson, E., (1991), *Qualitative methods in management research,* Sage publications, Inc.

Hansson, J., (2001), "*Implementation of TQM in small organization. Experiences from award winner in Sweden*".

Harber, D., Burgess, K., Braclay, D., (1993), "TQM as a cultural intervention: an integrative review", *International Journal for Quality & Reliability Management,* vol. 15, No. 6, pp. 18-27.

Heath, P. M., (1989), "The path to quality achievement through teamwork plus commitment", *International Journal of Quality & Reliability Management*, vol. 1, No. 2, pp. 51-59.

Higson, A., (1987),"An empirical investigation of the external. Audit process",University of Bradford, *Unpublished PhD thesis.*

Hili, New York. NY.

Hitchock, D. & Willard, M., (2002), "Sustainability: Enlarging Quality's Mission", *Quality progress*, vol. 35, No. 2, pp. 43-48.

Hyland, P., Beckett, R., (2000), "*Learning to* compete: the value of internal benchmarking", *Benchmarking: An International Journal*, vol. 9, No. 3, pp. 1463-1477.

Irani, Z., Choudrie, J., Love, P. E. D., and Gunasekaran, A., (2002), "Sustaining TQM through self-directed work teams", *International Journal of Quality & Reliability Management*, vol. 19, No. 5, pp. 157-163.

Ishikawa, K., (1985), What is total quality control? The Japanese way, Englewood Cliffs, NJ: Printice-Hall, Inc.

Jabnoun, N. (2000), "Restructuring for TQM: a review", *The TQM Magazine,* vol. 12 No.6, pp. 395-9.

James, P. (1996), *Total Quality Management: An Introductory Text,* Prentice-Hall, Englewood Cliffs, NJ.

Jick, T., (1979), Mixing qualitative and quantitative methods: Triangulation in action, *Administrative Science Quarterly,* Vol. 24, No. 4, pp. 602-611.

Johlke, M. and Duham, D., (2000), "Supervisor communication practices and service employee outcomes", *Journal of Service Research*, vol. 3, No. 2, pp. 154-165.

Johns, G., (1981), "Difference score measures of organizational behavior variables: A critique", *Organizational Behavior and Human Performance*, vol. 27, pp. 443-463.

Juran, J. M., (1991), *Juran on quality by design*, New York: Free Press.

Juran, J.M. (1993), "Made in USA: a renaissance in quality", *Harvard Business Review,* vol. 71 No.4, pp. 42-50.

Juran, M., (1974), *Quality Control Handbook*, McGraw-Hill, London,.

Kanji, G.K. (1998a), "Measurement of business excellence", *Total Quality Management,* Vol.9, No.7, pp. 633-43.

Kanji, G.K. (1998b), "An innovative approach to make ISO 9000 standards more effective", *Total Quality Management,* vol. 9, No. 1, pp. 67-78.

Kanji, G.K. (I990), " Total quality management: the second industrial revolution", *Total Quality Management,* vol. 1, No. 1, pp. 3-11.

Kanji, G.K. (I995), Quality and statistical concepts. In: G.K. KANJI (Ed.) *Total Quality Management Proceedings of the First World Congress,* (London, Chapman & Hall).

Kanji, G.K. (I996) Implementation and pitfalls of total quality management, *Total Quality Management,* vol. 9, pp. 331-343.

Kanji, G.K. and Asher, M. (1993), "Total quality management process - a systematic approach", *Advances in Total Quality Management Series,* Carfax Publishing, Abingdon.

Kanji, G.K. and Wallace, W. (2000), "Business excellence through customer satisfaction", *Total Quality Management,* vol. 11 No.7, pp. 979-98.

Kano, N. (1993), "A perspective on quality activities in American firms", *California Management Review,* vol. 35 No.3, pp. 12-31.

Kaplan, B., & Duchon, D., (1988), "Combining qualitative and quantitative methods in information system research", *MIS Quarterly,* Vol. 12, No. 2, pp. 163-174.

Kaye, M., Andeson, R., (2002), "Continuous improvement: the ten essential criteria" *International Journal of Quality & Reliability Management*, vol. 16, No. 5, pp. 485-509.

Keating, M., & Harrington, D., (2003), "The challenges of implementing quality in the Irish Kotel industry", *Journal of European Industrial Training*, vol. 27, No. 9, pp. 441-453.

Khan, J. H., (2003), "Impact of total quality management on productivity", *The TQM Magazine*, vol. 15, No. 6, pp. 374-380.

Khan, M.K. and Hafiz, N. (1999), "Development of an expert system for implementation of ISO 9000 quality systems", *Total Quality Management,* vol. 10 No.1, pp. 47-59.

Khoo, H. H., Tan, K. C., (2003), "Measuring for quality in the USA and Japan: difference between the MBNQA, DP and JQA", *The TQM Magazine*, vol. 15, No. 1, pp. 14-24.

Klefsjo, B., Hansson, J., (2003), "A core value model for implementing total quality management in small organization", *The TQM Magazine*, vol. 15, No. 2, pp. 71-81.

Kolka, J. (2002), "ISO 9000 and 9004: a framework for disaster preparedness", *Quality Progress,* vol. 35 No.2, pp. 57-62.

Kotrov, R., (2003), "Customer relationship management: strategic lessons and future directions", *Business Process Management Journal*, vol. 9, No. 5, pp. 566-571.

Lagrosen, S., (1999), "TQM goes to school: an effective way of improving school quality", *The TQM Magazine* , vol. 11, No. 5, pp. 328-332.

Lam, S. K., (1996), "Total quality management and its impact on middle managers and front line workers", *Journal of Management Development*, vol. 15, No. 9, pp. 13-17.

Lee, C.Y., (2004), "TQM in small manufacturer: an exploratory study in China", *International Journal of Quality & Reliability Management,* Vol. 21, No.2, pp. 175-197.

Leiter, M. and Maslach, C. (2002), "Beating burn-out", *Human Resource Management International Digest,* vol. 10 No.1, pp. 6-9.

Levin, R. & Rubin, D. (1994) *Statistics for Management,* 6th edn. (Prentice Hall).

Li, E., Zhao, X. and Lee, T-S., (2001), "Quality management initiatives in Hong Kong's banking industry: a longitudinal study", *Total Quality Management,* vol. 12 No.4, pp. 451-68.

Magd, H., & Curry, A., (2003), "ISO 9000 and TQM: are they complementary or contradictory to each other?", *The TQM Magazine*, vol. 15, No. 4, pp. 244-256.

Mak, W.M. (2000) The Tao of people-based management, *Total Quality Management,* vol. 11, Nos. (4/5 & 6), pp. 636-640.

Mann, R.S. (1992), *The development of a framework to assist in the implementation of TQM*, University of Liverpool, Unpublished PhD thesis.

Manz, C., & Sims, H., (1993), *Business without Boses*, New York, John Wiley.

Martensen, A., Dahlgaard, J. J., (1999), " Strategy and planning for innovation management – supported by creative and learning organizations", *International Journal of Quality & reliability Management*, vol. 16, No. 9, pp. 878-891.

Mason, J., (1994), *Analytical qualitative data,* London, Routledge.

McAdam, R. and Kelly, M., (2002), "A business excellence approach to generic benchmarking in SMES", *Benchmarkings: An International Journal*, vol. 9, No. 1, pp. 7-27.

McAdam, R. and McKeown, M. (1999), "life after ISO 9000: an analysis of the impact of ISO 9000 and total quality management on small business in Northern Ireland", *Total Quality Management,* Vol. 10 No.2 pp. 229-41.

McAdam, R., Leonard, D., (2004), "Total quality management in strategy and operation: dynamic grounded models", *Journal of Manufacturing Technology Management,* Vol. 15, No. 2, pp. 254-266.

Mehra, S., Sirias, D. and Hoffman, J. (1998), "A critical analysis of total quality management implementation", *International Journal* of *Applied Quality Management,* vol. 1 No.1, pp. 12-26.

Melhem, Y., (2004), "The antecedents of customer-contact employees' empowerment", *Employee Relations*, vol. 26, No. 1, pp. 72-93.

Miller, D.,& Friesen, P., (1982), "The longitudinal analysis of organizations", *Management Science,* Vol. 28, No. 9, pp. 1013-1034.

Mills, C., (2000), "The interfaces of communication, sense making, and change", *Australian Journal of Communication*, vol. 27, No. 1.

Montes, F., Jover, A. and Molina, L., (2003), "Factors affecting the relationship between total quality management and organizational performance", *International Journal of Quality & Reliability Management*, vol. 20, No. 2, pp. 189-209.

Mullins, L.J., (1996), *Management and Organizational Behavior*, Pitman Publishing, London.

Nachmias, C., & Nachmias, D., (1981), *Research methods in the social sciences,* London: Edward Arnold.

Nachmias, C., & Nachmias, D., (1987), *Research methods in the social sciences,* New York: St. Martin's.

Oakland, J. (2000) *Total Quality Management - Text with Cases,* 2nd edn (Butterworth-Heinemann).

Oakland, J. S. (1993), *Total Quality Management,* (Oxford: Butterworth-Heinemann).

Oakland, J. S. & Porter, L., (1994), *Cases in total quality management*, Oxford: Butterworth Iteinemann.

Pardo, J.C., (2001), "Beyond quality circles and improvement terms", *Total Quality Management*, vol. 12, no. 6,pp. 789-798.

Patton, M.Q., (1990), *Qualitative Research: Analysis, types and software tools,* NewYork: Flamer.

Porter, L, J. & Rayner, P., (1992), "Quality costing of total quality management", *International Journal of Production Economics*.

Quazi, H.A. and Padibjo, S.R. (1998), "A journey toward total quality management through ISO 9000 certification: a study on small and mediumsized enterprises in Singapore", *International Journal* of *Quality & Reliability Management,* Vol. 15, pp. 489-508.

Quiros, G. M., (1994), *Integrated performance measurement,* Unpublished MBA dissertion, University of Bradford.

Ramirez, C. and Loney, T. (1993), "Baldrige award winners identify the essential activities of a successful quality process", *Quality Digest,* January, pp. 38-40.

Rao, A., Carr, L., Dambolena, I., Kopp, R., Martin, S., Rafii, F., & Schlesinger, Ph., (1996), *Total quality management A cross functional prespictive* , John Wiley and Sons.

Rao, S., Solis, L. and Raghunathan, T. (1999), "A framework for international quality management research: development and validation of a measurement instrument", *Total Quality management,* vol. 10 No.7, pp. 1047-75.

Sinclair, D. A. C. (1994), *Total quality-based performance measurement: An empirical study of best practice*, University of Bradford, Unpublished PhD thesis.

Sinclair, D. and Zairi, M. (2000), "Performance measurement: a critical analysis of the literature with respect to total quality management", *International Journal* of *Management Review,* Vol. 2 No.2, pp. 145-68.

Sinclair, J. & Collins, D., (1994), "Toward a quality culture?", *International Journal of Quality & Reliability Management*, vol. 11, No. 5, pp. 19-29.

Smidts, A., Pruyn, A., and Van Ricl, C., (2001), "The impact of employee communication and perceived external prestige on organization identification", *Academy of Management Journal*, vol. 44, No. 5, pp. 1051-1062.

Smith, H. W., (1985), *Strategies of social research: The methodological imagination,* Prentice-Hall International, London.

Smith, R., & Manning, P., (Eds.), (1982), *A handbook of social science methods,* vol. II: Qualitative methods, Cambridge, Ma, Ballinger.

Stahan, J. (2002), "Transition ISO 9000:2000", *Quality Progress,* Vol. 35 No.3, pp. 27-30.

Sykes, W. & Warren, M., (1991), Taking stock: Issues from the literature on validity and reliability in quantitative research, *Journal of Marketing Research,* vol.33, No. 1, pp. 3-17.

Tamimi, N. & Gershon, M., (I995), " A tool for assessing industry TQM practice versus Deming philosophy", *Production and Inventory Management Journal*, vol. 36, pp. 27-32.

Tamimi, N. and Sebastianelli, R. (1998), "The barriers to total quality management", *Quality Progress,* June, pp. 57-60.

Taylor, S. J., & Bogdan, R., (1984), *Introduction to qualitative research methods,* New York, John Wiley.

Taylor, W. A., Wright, G. H., (2003), "The impact of senior managers' commitment on the success of TQM programs", *International Journal of Manpower*, vol. 24, No. 5, pp. 535-550.

Robinson, L., (2003), "Committed to quality: the use of quality schemes in the UK public leisure service", *The TQM magazine*, vol. 10, No. 5, pp. 378-386.

Rothwell, W., Scedl, H., (1992), *The ASTD Reference guide to professional human resources, Development Roles, and Competence*, Vol. 1, 2nd edition, HRD Press, Amherst, M. A.

Russell, S., (2000), "ISO 9000: and the EFQM Excellence Model: Competition or Cooperation?", *Total Quality Management*, vol. 10, No. 7, pp. 1047-1075.

Salegna, G. & Fazel, F. (2000), " Obstacles to implementing quality", *Quality Progress.* July, pp. 53-57.

Saraph, J.V., Benson, P.G. and Schroeder, R.G. (1989), "An instrument for measuring the critical factors of quality management", *Decision Sciences,* vol. 20 No.4, pp. 810-29.

Savolainen, T., (2000), " Leadership strategies for gaining business excellence through total quality management: a finished case study", *Total Quality Management Magazine*, vol. 11, No. 2, pp. 211-225.

Sekaran, U. (2000), *Research Methods for Business. A Skill Building Approach,* 3rd ed., John Wiley and Sons, New York, NY.

Sekaran, U., (1992), *Research methods for business: A skill building approach,* 2nd edition, John Wiley and Sons, Inc.

Selltiz, C., Jahoda, M., Dentsch, M., and Cook, S. W., (1962), *Research methods in social relations, revised,* Holt Rinehart and Winston, Inc.

Shaw, R., (1999), "*CRM definitions – defining customer relationship marketing and management, SCN Education BV, Customer relationship management, The ultimate Guide to the Efficient Use of CRM*", HOTT Guide, 2001, www.hottguide.com

Shin, D., Kalinowski, J. G. and El-Enein, G. A., (1998), "Critical; implementation issues in total quality", *Sam Advanced Management Journal*, vol. 63, No. 1, pp. 10-14.

Sinclair, D. & Zairi, M., (2001), "An empirical study of key elements of total quality – based performance measurement system: A case study approach in service study", *Total Quality Management*, vol. 12, No. 4, pp. 535-550.

Tesch, R., (1990), *Qualitative research: Analysis, types and software tools*, New York: Flamer, P.

Thakur, D., (2002), "9 Reasons to switch to a Single Supplier System", *Quality Progress*, vol. 35, No. 3, pp. 61-65.

Thiagarajan, T. (1996), "An empirical study of total quality management (TQM) in Malaysia: a proposed framework of generic application", *Unpublished PhD thesis*, University of Bradford, Bradford.

Thiagarajan, T. and Zairi, M. (1998), "An empirical analysis of critical factors of TQM: a proposed tool for self-assessment and benchmarking purposes", *Benchmarking for Quality Management & Technology*, vol. 5 No.4, pp. 291-303.

Thiagarajan, T., & Zairi, M., (1997), "A review of total quality management in practice: understanding the fundamentals through examples of best practice applications", *Part 1, The TQM Magazine*, vol. 9, No. 4, pp. 270-286.

Thiagarajan, T., Zairi, M. & Dale, B. (2001), " A proposed model of TQM implementation based on an empirical study of Malaysia industry", *International Journal of Quality & Reliability Management*, vol. 18, No. 3, pp. 289-306.

Thor, C. and Jarrett, J. (1999), "Benchmarking and reengineering: alternatives or partners?", *International Journal* of *Technology Management,* vol. 17 No. *7/8,* pp. 786-96.

Thor, L. M., (1994), "Introducing the human side of total quality management into educational institution community college", *Journal of Research and Practice*, vol. 18, No. 4, pp. 359-368.

Townsend, P. L., & Sims, H., (1993), *Let's talk quality: 96 questions that you always wanted to ask Phil Crosby*, McGrow-Hill, N.Y.

Van Maanen, J., (1985), *Epilogue: Qualitative methods reclaimed, Qualitative methodology,* Ed: John Van Maanen, Beverly Hills, CA: Sage.

Wacker, K., (1993), "Uncommon common sense", *Quality Progress*, vol. 26, No. 7, pp. 97-100.

Walker, R., (1985), *An introduction to applied qualitative research, In applied Qualitative Research,* (Ed: Walker, R.), Grower.

Weisberg, H.F. (1992), *Central Tendency and Variability,* Sage University Paper Series on Quantitative Applications in the Social Series on Quantitative Applications in the Social Sciences, Sage, Newbury Park, CA, pp. 7-83.

Wilkinson, A. (1992), "The other side of quality: 'soft' issues and the human resource dimension", *Total Quality Management,* vol. 3 No.3, pp. 323-9.

Wilkinson, A., Redman, T., and Snape, E., (1994), "Quality management and the manager", *Employee Relations*, vol. 16, No. 1, pp. 62-70.

Wong, A. (2000), "Integrating supplier satisfaction with customer satisfaction", *Total Quality Management,* vol. 11 No. *4/5/6,* pp. 427-32.

Wong, A., Tjosvold, D., Wong, W. and Lin, C., (1999), "Relationships for quality improvement in the Hong Kong-China supply chain", *International Journal* of *Quality & Reliability Management,* vol. 16, No.1, pp. 24-41.

Wuagneux, D. (2002), "Quality from the inside out", *Quality Progress,* vol. 35 No.4, pp. 60-5.

Yin, R. K., (1984), *Case study research,* Beverly hills, CA: Sage", *Journal of Small Business Management*, vol. 34, No. 2, pp. 1-13.

Zairi, M. (1999), Managing excellence: leadership, *The TQM Magazine,* vol.11, No.4, pp. 215-220.

Zairi, M. (1999a), "Managing excellence: policy and strategy", *The TQM Magazine,* vol. 11 No.2, pp. 74-9.

Zairi, M. (1999b), "Managing excellence: leadership", *The TQM Magazine,* vol. 11 No.4, pp. 215-20.

Zairi, M. (2000), "Managing customer satisfaction: a best practice perspective", *The TQM Magazine,* vol. 12, No. 6,pp. 389-494.

Zairi, M. and Youssef, M.A. (1995), "Benchmarking critical factors for TQM: part I: theory and foundation", *Benchmarking for Quality Management & Technology,* vol. 2 No.1, pp. 5-20.

Zairi, M., (1994), *Measuring Performance for Business Results*, Chapman & Hall, London.

Zhang, Z., Waszink, A. and Wijngaard, J, (2000), "An Instrument for measuring TQM implementation of Chinese manufacturing companies", *International Journal of Quality & Reliability Management*, vol. 17, No. 7, pp. 730-755.

Zink, K., (1995), *Total quality management and people management*: in Total quality management: proceeding of the first world congress (Ed: Kanji, G.K.), London: Champan & Hill.

Appendix A

Survey questionnaire

Please rate the following quality-related factors as to their level of importance to the successful implementation of the quality management process in your organization, by circling the appropriate column- "1", "2", "3"- as the following:

1- CRITICAL

Factors that you feel are critical and absolutely essential. The process stands a good chance of ending in failure if these factors are not part of the quality management process.

2- IMPORTANT

Factors that you feel are important but not absolutely essential. The process will survive if these are not implemented, but the organization will experience some unnecessary delays to its quality management process until these factors are eventually addressed.

3- MINOR IMPORTANCE

Factors that you feel are of minor importance. These factors will not seriously affect the success or failure of the quality management process.

1-critical **2-important** **3-minor importance** **Responses**

Quality factor

Q1- Senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive.	1	2	3
Q2- Visibility or senior executive commitment to quality and customer satisfactions.	1	2	3
Q3-Clear, consistent communications of missions statement and objectives defining quality values, expectations and focus.	1	2	3
Q4- Comprehensive policy development and effective deployment of goals.	1	2	3
Q5-Top management push decision-making to the lowest practical level.	1	2	3
Q6- Effective top-down and bottom-up communications.	1	2	3
Q7- Elements of quality management structure in place to manage the organization's quality journey.	1	2	3
Q8- The entire organization understands that each individual and each process has internal customers and suppliers.	1	2	3
Q9- The entire workforce understands, and is committed to the vision, values, and quality goals of the organization.	1	2	3
Q10- The use of employee surveys and tracking of other key measure to assess employee of, and involvement in the quality initiatives.	1	2	3
Q11- Employee suggestion scheme in place, with target time scales for management response.	1	2	3
Q12- Supervisors, unit heads and divisional managers assume active roles as facilitators of continuos improvement, coaches of new methods, mentors and leaders of empowered employees.	1	2	3
Q13- Employees' union support of the organization's quality initiatives.	1	2	3
Q14- System for recognition and appreciation of quality efforts and success of individuals and teams.	1	2	3
Q15- Training for employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leadership skills).	1	2	3
Q16- Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.	1	2	3
Q17- Informal benchmarking and other forms of information acquisition and sharing with organizations in different sectors and industries to identify best practices for improvement.	1	2	3
Q18- Competitive benchmarking made against primary competitors.	1	2	3
Q19- Systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction.	1	2	3
Q20- Problem-solving and continuous improvement processes based on facts and systematic analysis.	1	2	3
Q21-Application of total quality approach to the management of support services & business processes.	1	2	3
Q22- The use of self-assessment tools and other mechanisms to track and improve performance gaps in the implementation and effectiveness of systems processes and practices.	1	2	3
Q23- A team approach (such as quality circles, cross-functional teams) in problem solving and continuous improvement.	1	2	3
Q24- The use of SPC (Statistical process control) variability and improve processes.	1	2	3
Q25- Cost of quality process to track rework, waste, reject, and for continuous improvement.	1	2	3
Q26- A formal documented quality management system in place.	1	2	3
Q27- Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.	1	2	3
Q28- Comprehensive identification of customer and customer needs and alignment of process to satisfy the needs.	1	2	3
Q29- The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.	1	2	3
Q30- Zero defects as the quality performance standard.	1	2	3
Q31- long-term relationship and working partnership with key suppliers.	1	2	3