

ROLE OF ISO 9000 STANDARDS IN TQM APPLICATIONS
A CASE STUDY : KORDSA

MBA THESIS

ERSOY ERKAZANCI

ANKARA, SEPTEMBER, 1996

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A THESIS

SUBMITTED TO THE DEPARTMENT OF MANAGEMENT

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THE GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

OF

BILKENT UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

BY

ERKAZANCI, ERSOY

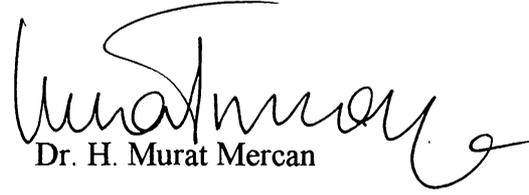
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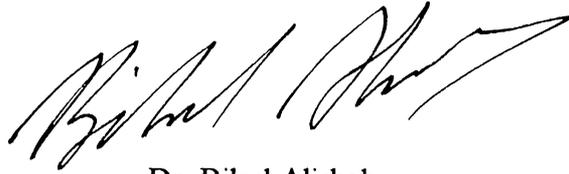
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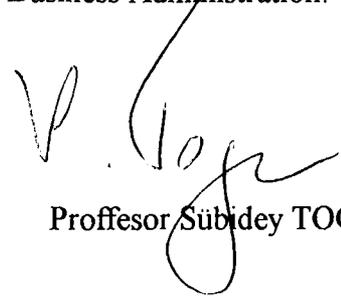
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Approved by the dean of the Graduate School of Business Administration.



Professor Sübidey TOGAN

ABSTRACT

ROLE OF ISO 9000 STANDARDS IN TQM APPLICATIONS

A CASE STUDY: KORDSA

BY

Ersoy ERKAZANCI

MBA THESIS

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Supervisor: Dr. Erdal EREL

Towards 21st century, quality has become one of the most important tools for being competitive. Quality management and quality systems have been recognized by several firms and managers today. ISO 9000 standards, as quality assurance systems and Total Quality Management (TQM), as a quality management philosophy are questioned to be alternative or complementary for each other. In this thesis, a real life case, KORDSA, which has applied the both tools had been investigated in order to see the relationship of ISO 9000 and Total Quality Management.

ÖZET

**TOPLAM KALİTE YÖNETİMİ UYGULAMALARINDA
ISO 9000 STANDARLARININ ROLÜ
ÖRNEK ÇALIŞMA: KORDSA**

HAZIRLAYAN

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İŞLETME YÜKSEK LİSANS TEZİ

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21. Yüzyıla girerken, kalite rekabet edebilmek için en önemli araçlardan biri haline gelmiştir. Bugün, kalite yönetimi ve kalite sistemleri pek çok firma ve yöneticileri tarafından bilinmekte ve kullanılmaktadır. ISO 9000 standartlarının, kalite güvence sistemleri olarak ve Toplam Kalite Yönetimi'nin (TKY), kalite yönetimi filozofisi olarak birbirlerinin yerine geçtiği veya birbirlerini tamamladığı sorgulanmaktadır. Bu tezde, örnek çalışma olarak, ISO 9000'le Toplam Kalite Yönetimi arasındaki ilişkiyi görmek için her iki araçta uygulayan KORDSA incelenmiştir.

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CHAPTER 1
INTRODUCTION

1.1. Why Quality?

Since the beginning of the last decade, many Turkish and European companies have successfully undergone a revolution in quality management systems. The dominant influence of this revolution common to all these companies has generally been to create positive quality culture and environment in their facilities. During this decade, the attitude of all management people have been formed to drive their organizations to a much more competitive system by using modern management tools.

Here, at this point, many managers have the following question in their mind; what is the use of ISO 9000 quality assurance systems in improving their overall systems as an instrument for reaching the Total Quality Management? Increasing number of companies throughout the world and especially in Europe and Turkey realize that quality provides a competitive edge in the new global market conditions. On the other hand, service quality is accepted as the competitiveness differentiate for service industries and rapid changes in consumer expectations have made the quality a serious management issue in service sector in this decade.

Increased quality in products or services offered, resulting people's satisfaction, customer satisfaction and positive impacts created on society are indicators of professionalism displayed by service, or manufactured product quality improvements. As a result of these facts companies having a recognized management systems are getting more preferable on the part of customers and consequently more competitive in the market. *(13)*

There is a common belief that the best model applicable among the existing management systems for an establishment is Total Quality Management (TQM). TQM is defined as "management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve its objectives" in BS 7850 Part 1 (1992).

Besides TQM, companies uses ISO 9000 quality assurance systems. ISO 9000 is a means of achieving quality assurance and is defined as "all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality" in ISO 8402 (1986).

Here, the ultimate goal of the organizations should be to implement TQM. However, it is not easy to say, "we, as a firm will apply TQM" and start applying. There are steps to implement TQM and ISO 9000 standards are believed to be one of these steps. Therefore, a company must first decide if ISO 9000 is appropriate for its needs and, if so, then decide whether to do ISO 9000 before starting on TQM or whether to start ISO 9000 program as a part of TQM process. This decision has to be unique for each company.

1.2. Objective of Thesis

The objective of this thesis is to find out the relationship between ISO 9000 standards and TQM by comparing and contrasting them. Besides, the answers for the questions “Are they supplementary?”, “Is ISO 9000 the way to TQM?”, “Is ISO 9000 more than a certificate?” are searched. By this way, the reader of this thesis can have a clear understanding of quality, ISO 9000 standards “a quality assurance system” and TQM “a quality management philosophy” and the relationships between them.

1.3. Scope

This thesis can be used as a guideline for the managers, employees, academicians, students or anyone interested in quality concepts. In order to achieve the objective of the thesis a real life case from production industry is investigated. The firm has got a ISO 9001 certificate, applies TQM and is one of the leaders in quality management in Turkey. Therefore, the reader can gain the background of quality both theoretically and practically by reading the experience of Kordsa.

1.4. Thesis Outline

After making an introduction to the quality concepts and the objectives and scope are determined in chapter 1, a literature survey will follow in chapter 2, and, quality, quality assurance system ISO 9000 and TQM will be explained in chapter 3. Chapter 4 will investigate the quality concepts in Turkey, TSE and the ISO 9000 certification in Turkey. In chapter 5 the application in Kordsa will be investigated and chapter 6 will include concluding remarks.

CHAPTER 2

LITERATURE REVIEW

There are enormous number of studies, articles and books on the concepts of quality, ISO 9000 and TQM and there are also a number of theses on these topics in Bilkent University for the degree of MBA. However, in Bilkent University this number is very few contrary to the expectations which the reason might be the concept being new and the range of topics in management being huge such as finance, marketing, accounting etc. Nevertheless, there are theses which measure service quality and case studies from production sectors. Though, the concepts dealt in this thesis can be applied both in production and service sectors, having a technical background directs my attention to the theses dealing with production. Unfortunately, the existing theses are not directly related with the topic of this thesis but they include the concepts of quality assurance and total quality management.

One of these theses is the study of Alpdoğan (1993) (31) which has investigated the quality assurance implementation in TUSAŞ Aerospace Industries Inc.(TAI). Though, at the time of study TAI has not got a ISO 9000 certificate, according to the contract they have done with US government, TAI has to comply with US government military specifications. These specifications require the establishment of a quality program by the contractor to assure compliance with the requirements of the contract. The quality program, including procedures, processes and product shall be documented and shall be subject to review by the Government Representatives. Though, this QA system resembles ISO 9000 it is not as detailed as it is. However, TAI does not see these quality program requirements (MIL-Q-9858A) as the end of

the road and TAI is trying to be prepared and implement TQM without jeopardizing the quality for more than two years. Its goal is to become a TQM oriented company.

Another study done for MBA graduation is the thesis of Uzkan (1996) (33). This thesis deals with an ISO 9001 application to a middle scaled Turkish organization named ELIMKO. Though, ELIMKO (at the time of study) has not got the ISO 9001 certificate and well behind TAI in TQM applications, the management has committed itself to quality concepts and they also believe that ISO 9000 is not the end of the road but just the beginning. From both examples, it is nice to see that Turkish companies are giving importance to quality concepts, ISO 9000 and TQM.

As mentioned above, there are lots of articles written on these concepts. In the article “Beyond ISO 9000”, Kramer and Heaton (22) see the registration only the beginning and summarize ISO 9000 as: “The ISO 9000 standard provides the framework -the guidelines- for us to develop our quality system. If we use this framework as an improvement tool, it will become a totally accepted way of doing business within our organizations and will offer many paybacks. If we view it just as something we have to do, it will probably be dropped, or at best will not provide the optimum benefits”.

According to their view there are stumbling blocks to ISO 9000's future and one of these blocks is complacency. “Complacency comes from the misconception that the achievement of registration is the ultimate goal rather than the initial step. The ISO 9000 framework and guidelines are truly a continuous improvement tool, not an award for achievement”.

In the article of “Why companies fail with ISO 9000” of Louis (23), three forms of failure associated for ISO 9000 registration are mentioned. According to Louis, the two most commonly identified ones are failure to achieve registration and decertification after registration. However, the more serious one, in terms of the ultimate survival of the company, is failure to capitalize on the improvement opportunities associated with ISO 9000 compliance. He concludes his article by saying: “Failure to achieve initial registration, and decertification after registration, are clearly disappointing and costly mistakes for a company seeking an ISO 9000 certificate. However, the failure to spot key improvement opportunities can be more costly in the long run. It is only those companies that can increase their effectiveness who will survive. Those companies will also find ISO 9000 registration an easier and relatively pain-free journey”.

In the article “Companies, agencies should seek ISO 9000 certification”, Dawood (17), while the benefits of ISO 9000 are listed, the question “What about TQM?” is asked and answered it with the experience of Richard Hawort, the chief executive officer of Haworth, Inc. For nearly a decade, his company experimented with quality management and he speaks: “We floundered from guru to guru, from book to book, magazine article to magazine article. We used the right buzz terms, but we weren’t getting the message across to the employees. That began to change when we applied for and received an ISO 9000 certificate”. He believes that ISO 9000 brings a discipline and solid basis for the coming quality efforts.

The number of examples can be increased to these topics, however, to conclude this discussion, a good example that Dunn (18) mentions in his article “The unexpected benefits of

ISO 9000” worth considering. While talking about the benefits of ISO 9000 registration he states: “A parallel can be drawn with the earning of a college degree. The degree is useful in job-hunting, and gives some assurance that the graduate is a competent engineer, accountant, or historian. But for many people, the real benefit of going to college is the self-discovery that takes place, sometimes during classes but also in informal discussions, browsing the library, and at lectures unconnected to one’s major course of study. In much the same way, subjecting an organization to the rigorous analysis and discipline of ISO can teach workers and executives surprising lessons about how they and their associates do their work, and about the nature of quality”.

Despite some of its drawbacks and misconceptions, most of the articles written on these concepts sees the ISO 9000 as the beginning point of TQM. In this thesis the relationship between ISO 9000 and TQM will be investigated basing on the existing literature and a real life case; Kordsa.

CHAPTER 3
TOPICS IN QUALITY

3.1. Evolution of Quality Management

In this section, the ideas are drawn heavily from the work of Asher (2).

After centuries when the concepts of quality and quality management remained fundamentally unchanged there have been a great many changes since the second world war.

Starting with very simple *inspection* based systems where traditionally a company would employ teams of inspectors to examine, measure or test a product and compare it with a product standard, the procedure would be applied at all stages of manufacture, covering goods inward, work in progress and dispatch.

The basis of the system was that poor quality product found by the inspectors would be separated from that of good quality. This would then be scrapped, reworked or sold as lower quality. The actual results from this were several fold.

Firstly, the inspectors often failed to find the poor quality items and the customers were left with consequences.

Secondly, it was realized that an inspection based system was costly - after all, someone was paid to look for the work and someone to repair it; inefficient - it often simply did not work; and wrongheaded in that it tended to remove the responsibility for quality away from

inspectors towards inspectors. Inspection based systems had been in place since the Egyptians built the pyramids.

The first evolutionary change came at the time of the second world war when aircraft technology became more complex and the costs, in both people and equipment, of relying on inspection based systems for such things as military aircraft were seen to be unacceptable.

The change was to a system of *quality control*, under which product testing and documentation control and reduced non-conformance. Also typical of such systems were performance data collection, feedback to earlier stages in the process and self-inspection. Final inspection was still regarded as the customer's final safeguard.

The third stage came with the change away from product quality towards system quality. Here the company sets in place a system for controlling what is done and the system is audited to ensure that is adequate both in design and use. A major part of this change involved the use of both second party and third party audits to assess the efficiency of the system. Typical of this stage were quality manuals, quality planning and advanced document control.

Their fundamental difference is that *quality assurance* is prevention based whilst quality control is inspection based.

In all of these areas the emphasis was on product quality and on manufacturing. Little if any attention was paid to service industries, service departments are the "soft" areas of quality such as delivery.

The fourth stage of development remedied this by applying the concepts of quality management to all parts of the business. Typical of a company going through a total quality process would be a clear and unambiguous vision, few interdepartmental barriers, time spent on training, excellent customer relations and the realization that quality was not just product quality but the quality of the company as a whole. Fundamental to *total quality management* are the ideas that everyone in the organization has a customer, internal or external; the improvement comes from understanding and improving business processes and that quality that has to be seen to be led from the most senior levels in the organization.

Because of the all encompassing nature of total quality, companies therefore have included both suppliers and customers in their total quality processes.

3.2. Understanding Quality

Quality is a word which is on everyone's lips. Definitions of quality jump out from text books, seminar presentations, course notes and consultancy packages- not necessarily concurring definitions either! Quality terminology abounds: total quality management (TQM), quality assurance (QA), quality control (QC), quality systems, quality manuals etc. Not surprisingly many people are confused by the definitions and by the terminology and may even feel too frightened to give clear thought to the concept of quality in their own working environment.

3.2.1. Quality

Before beginning to talk about quality perhaps some definitions of quality should be listed. This gives the idea that quality does not still have a unique definition.

- The totality of features and characteristics of a product or service that bear its ability to satisfy stated or implied needs. TS 9005 (ISO 8402)
- Fitness for use. Juran (24)
- Conformance to requirements. Crosby (24)

In the context of supplying, providing or delivering products and services there is general agreement that “quality” means “what the customer wants” i.e. that the product or service should satisfy customer perceptions and expectations both at the time of purchase and, if a product, during its useful life. This means not less than and not more than the given need. The misconception which many people hold is that quality implies a degree of excellence or a grade and this often results from a production- oriented rather than a customer-oriented approach.

In understanding “what the customer wants”, factors such as availability, delivery, servicing and price are just as important as the design and use of the product or service. These factors are normally translated into a specification in a contractual situation.

Everyone in the company has a role to play in assessing and satisfying the needs not only of the ultimate customer but also the needs of the intermediate customers within the

company e.g. production department as a customer of the stores and distribution department. This reinforces the principle behind the well-used phrase: “Quality is everybody’s business”
(14)

3.2.2. Quality Assurance and Quality Control

The definitions of quality assurance and quality control are as follows: Quality assurance means all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality. ISO 8402 (1986)

Quality control means the operational techniques and activities that are used to fulfill requirements for quality. ISO 8402 (1986) These two terms are very often confused and used incorrectly. Many companies are familiar with term “quality control” which may have been used in the context of inspection, although that is a rather restricted interpretation. More generally, quality control is concerned with processes and operational techniques to achieve and sustain the planned quality criteria, using feedback from inspection at various stages in the process.

“Quality assurance” is concerned with providing adequate confidence to external clients or regulatory authorities that products and services will meet stated or implied needs. This confidence comes from the objective evidence that their system and controls are in place and working effectively i.e. quality manuals, procedures, audits and reviews.

In a typical company, an example of quality control might be a system (mechanical or manual) for marking products with identification tags or numbers. Quality assurance would be the documentation of the procedures to ensure the system works properly, that the responsibilities are correctly assigned and understood, that there is a system to check that the type of identification meets the customer requirements (per the specification), and that the system is reviewed and audited regularly to maintain its effectiveness.(14)

3.2.3. Quality System

Quality system can be defined as follows: Quality system is the organization structure, responsibilities procedures, processes and resources for implementing quality management ISO 8402 (1986). In practice every company has systems of one sort or another in place, which may or may not be documented and, may or may not fully meet the company's quality objectives. When considering embarking on a quality program, many companies are intimidated by the mistaken belief that they will have to start with a clean list which will involve significant operational and organizational changes. Each company's quality system is unique and there is no such thing as a "model system", notwithstanding the fact that there are standards which specify their minimum requirements against which quality systems can be assessed, and certified, e.g. ISO 9000 standards.

3.2.4. Quality Management

The definition of quality management is as follows: Quality management is the aspect of the overall management function that determines and implements the quality policy ISO 8402 (1986). In a literal sense, quality management is responsible for setting quality policies and objectives and providing resources to implement the quality system. This narrow definition implies that “quality” is another management function along with finance, administration, marketing, etc.

More and more emphasis is now being given to the broader concept of “total quality management” (TQM) which is based on the philosophy of quality improvement through the reduction of waste - human effort , machine time, materials and knowledge. This philosophy encompasses every individual in the organization and promotes the concept of a quality chain where there is a supplier- customer relationship in every link.

3.2.5. Standards and Certification

Standards are used to specify the requirements against which products, processes or services are defined or assessed. Traditionally, standards were developed for particular products or processes and certification was based on conformance to design and function. An alternative form of certification is to assess a company’s capabilities consistently meet customer requirements, i.e. its systems rather than its individual products. While the first type of certification is still very relevant in a number of cases, more and more companies are now seeking certification of their quality systems. Certification involves assessment by an

independent authority against the requirements of the standards which, if acceptable, results in a certificate which provides the necessary quality assurance to the customer.

It is important to bear in mind that certification of a company's quality system does not imply any "level" or "grade" of quality. Neither does it assess the effectiveness of the company's total quality management. The only measure of TQM is the market-place.

3.2.5.1. Advantages and Disadvantages of Standards

Some advantages of having quality system standards are:

- clearly defined requirements so that the customer gets the necessary quality assurance;
- the establishment of minimum requirements for companies to supply quality controls and produce documentation;
- a uniform basis for comparing suppliers

Some disadvantages of quality system standards are:

- the perception that achievement of the required standard is the ultimate goal, whereas in fact it only lays down minimum requirements;
- their generic nature which sometimes makes it difficult to apply certain elements across a range of industries and types of company

3.2.5.2. Certification

Third party certification means having your company's quality system assessed by an independent body against one of the quality system standards, resulting in a certificate, if satisfactory. "Second-party assessment" by a purchaser or customer, i.e. someone who has a direct interest in your company's business, does not generally result in a certificate. The term "assessor" means the third party certification body.

Some of the main, internationally recognized, third-party certification bodies include:

- Lloyds Register;
- Bureau Veritas;
- Det Norske Veritas; and
- in most countries, the national standards organization also operates in a separate capacity as an assessor, e.g. SIRIM (Malaysia); SISIR (Singapore); BS (United Kingdom).

All of these bodies charge fees for the certification process, depending on the size of the company and the scope of the certification. The choice of assessor may also depend on the industry involved.

The certification process is normally undertaken in two stages:

- Documentation review and pre-assessment visit
- Final assessment (on site)

A certificate is issued, stating standard and scope of the assessment and it is valid for three years. The certificate also bears the certification mark of the assessor and you are entitled to use that mark on company literature. During the three year period, surveillance audits will be carried out (normally two a year) to ensure the required standards are being maintained.

3.2.6. The Cost of Quality

There is another, much debated misconception about quality: that is too costly to implement or that is some kind of luxury which the company cannot afford. This type of thinking usually comes from the perception of levels or grades of quality rather than the quality in the sense of fitness for purpose. The smart answer is that companies cannot afford to implement effective quality systems.

Quality costs can be split into direct costs, which appear in one form or another in the company's accounts, and indirect costs, which relate to the company's position in the market-place.

Direct costs can be split into three main categories: *(14)*

- Prevention costs - planning , control, verification, auditing, training, etc.
- Appraisal costs - inspection, evaluation, reporting.
- Failure costs - internal costs, such as rejects, reworks, defects diagnosis etc.

- external costs, such as customer complaints/refunds, returned goods

Studies have found that these direct costs alone can often amount to 30 percent of a company's total revenue. Theses studies have also found a direct correlation between high

total quality costs and low prevention costs. Investment in an effective quality system to prevent failures can have extremely high returns. Figure 1 shows how expenditure can be revised to produce cost savings in a typical company.

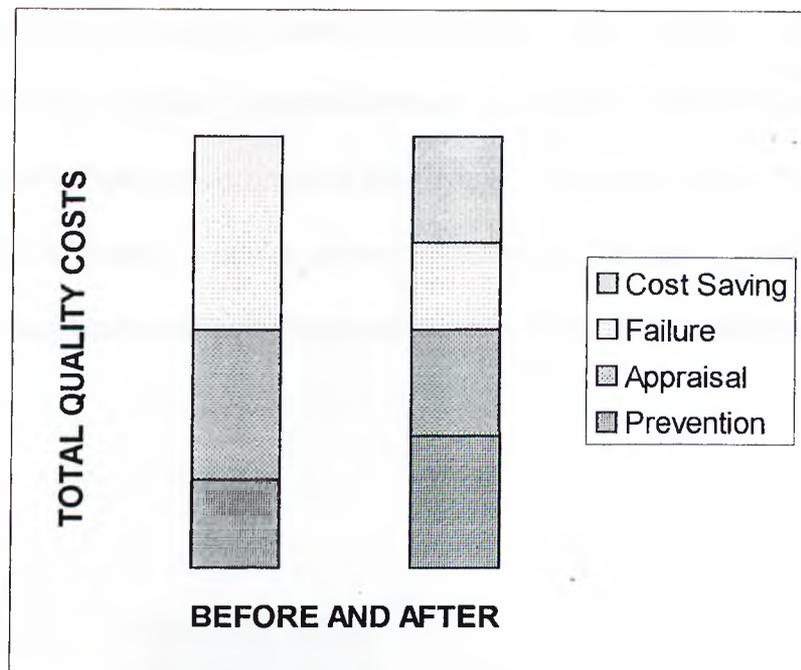


FIGURE 1: RESULTS OF AN EFFECTIVE QUALITY SYSTEM (14)

Indirect costs are less easy to categorize and to measure but they include:

- loss of sales through dissatisfied customers;
- loss of market-share to quality oriented competitors
- loss of opportunities to maximize employee productivity through motivation and commitment
- warranty and liability costs

The iceberg theory shown in figure 2 is vividly relevant in this context, i.e. that the majority of quality related losses occur below the surface and are not readily visible. The costs that occur above the surface are obvious costs such as returns, scrap, rework etc. And the costs that occur below the surface are consequential losses such as lost sales, design problems, unproductive time, waste etc. (14)

Implementation of a quality system to an ISO 9000 series standard is not guaranteed to instantly transform your company's profitability and the benefits must be looked upon as long-term. They are undoubtedly recurring and improving. In the short-term, there are obviously costs associated with getting a quality system in place and having it certified, if necessary. These costs are: man-hours and equipment, education and training, consultancy assistance and certification fees.

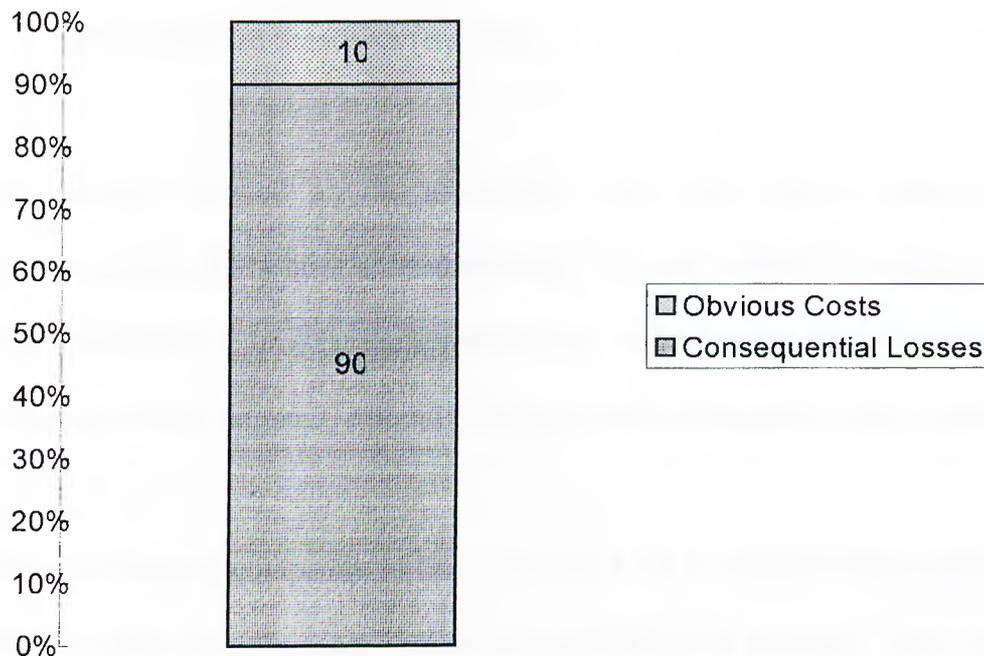


FIGURE 2: THE ICEBERG THEORY (14)

3.3. The ISO 9000 Concept and Application

3.3.1. Evolution of ISO 9000 Standards

Before getting into the concept of ISO 9000 standards, the historical development is seen necessary to be presented here; (7)

- 1963 MIL-Q-9858 (US Defense Technology)
- 1968 AQAP Standards (NATO members)
- 1970 10-CFR-50 QA Criteria for Nuclear and Liquid Sourced Energy Central
- 1971 ANSI-N-45.2 QA for Nuclear Plants
- 1973 ASME.3.NCA. 4000 QA Standards
- 1978 QA for Atom Energy Centrals
- 1979 CSA Z299 1-4 (In CANADA)
- 1979 BS 5750 (In ENGLAND)
- 1979 ANSI Z-1.15 (In USA)
- 1987 ISO 9000 Series (By ISO)
- 1988 EN 29000 Standards (By CEN)

The concept is based on the assumption that certain generic characteristics of management practice could be standardized resulting in mutual benefit to producers and users. Opinions have differed as to how far the concept can be carried but the facts show that the ISO 9000 standards have been adopted, without change, as national standards in 86 countries.

Surveys of leading companies in Europe, carried out a couple of years ago, indicated that over 80% of the companies were familiar with the ISO 9000 standard and over 60 % were seeking audit and registration.(13)

Third party assessment and registration services exist in over thirty countries. In some countries there is an assessment resource deficiency which results in companies having to undergo self assessment. This matter is being resolved as more registered assessors, with internationally recognized credentials, become available.

Although ISO 9000 was originally created for the industrial manufacturing market it has been adopted in all areas of manufacturing and process industries and, also, in service industries.

The introduction of the ISO 9000 series in 1987 has brought harmonization on an international basis and has supported the growing impact of quality as a factor of international trade.

International standards can be beneficial to certificated companies as they can compete on an equal footing with competitors on a worldwide basis while, at the same time, satisfying their own requirements. The need to achieve certification is voluntary but buyers may require compliance as a requirement. This has been the case with numerous large governmental purchasers including Defense Ministries in the United Kingdom and Singapore and the Department of the Navy in the United States. They have required contract suppliers to have ISO 9000 registration.

The following, further, advantages are also claimed:

- Efficiency, productivity and competition are improved factors beneficial to both supplier and buyer.

- Corporate customers can be saved the cost of much of their second party (vendor) assessment task. Some major organizations will not fully accept third party assessment, specially where high level technology, safety or security is involved but, nevertheless, the scale of the second party assessment is dramatically reduced.

- Suppliers subject to the same qualifications should be saved much of the cost of multiple vendor assessments.

- The scope of the third party assessments would be wider than second party evaluations. This should lead to improved quality management procedures, especially in those companies not previously subject to vendor assessment, again leading to improved effectiveness and efficiency.

- End users should have greater confidence in products and services on the market.

The ISO 9000 standards are not end in themselves; they are tools to be used to meet objectives, total quality management being the principal objective. Business enterprises have recognized that quality improvement is being pursued by all levels in today's society and, accordingly, those who intend to remain in a competitive position have to shift emphasis from the price to the quality side of the equation, especially in the global markets. Politicians and government departments have introduced national quality policies to stimulate competitiveness in their nation's productive capacity coupled with client satisfaction.

The role of the ISO 9000 standards is to set basic rules to determine what elements are required for quality systems, from concept to implementation, for the delivery of any product or service. They should enable the supplier to ensure that they have the capability to produce the required goods or services so that deliveries fully meet customer expectations, on time and repeatable.

3.3.2. The ISO 9000 Series of Standards

ISO 9000

This document provides guidelines for the selection and use of quality management and assurance standards.

ISO 9001

Applies where the supplier takes responsibility for the design and development as well as the production, installation and servicing of the product. It contains a complete set of generic requirements for the quality system of the supplier, starting from top management responsibility and providing objective criteria to verify the existence of key elements in the Total Quality Management approach.

ISO 9002

This document, and ISO 9003 are as ISO 9001 in the framework of a more limited scope. ISO 9002 is applicable where the supplier is not responsible for the design, development or servicing of the product.

ISO 9003

This is limited to quality assurance during final inspection and test.

ISO 9004

Provides general guidelines for the development and implementation of quality management systems which are requirements of ISO 9001, ISO 9002 and ISO 9003. ISO 9004 part 2 deals with quality management systems in the service sector.

It should be appreciated that the ISO 9000 standards are interrelated to and rely on the practical use of other international standards. ISO standards, together with their supporting structure , provide a reference to the state of the art in Total Quality Management. Generic quality management standards were, initially, devised as a tool for the benefit of big buyers and suppliers. Such companies and government agencies were the first to stipulate, in contracts, that suppliers should operate specific types of quality assurance programs. Each “big buyer” set their own rules and requirements which were then checked by inspection and audit teams. It was soon obvious to “big suppliers” who had more than one “big buyer” that something had to be done to reduce the variety and the number of different inspections and audits. A single common standards had to be devised for quality assurance management which, if implemented, and checked by periodic audits , would meet most of the needs of all of their clients.(13)

3.3.3. ISO 9000 Certification in Practice- an Independent Survey

The analysis of an independent survey (13) based on 400 in depth interviews from a random sample of certificate organizations in the United Kingdom, resulted in the following conclusions:

Nearly 9 out of 10 companies said that certification and the benefits of implementing a QMS had either met or exceeded their expectations. In general, most companies sought approval for external reasons, primarily the ability to tender for contracts and to maintain or increase market share. The sole exception to this was the food industry, which cited internal rather than external reasons for obtaining certification, such as increased efficiency and productivity.

The vast majority of companies said that they had, in fact, realized the external benefits sought, which increased market share, tendering for contracts and anticipating customer needs. In most cases, despite the focus on external needs, companies had gained significant internal benefits as a result of their certification, including improved planning and control, better customer service and increased efficiency and productivity.

These internal benefits were both greater than expected and generally outweighed the impact of external benefits.

Overall, the longer an organization had held its approval, the greater the reported benefits, confirming that the costs of certification should be seen as along term investment. Around half of the companies surveyed were actively developing or in the process of implementing Total Quality Management (TQM). The overwhelming majority (97%) said that TQM was complementary to, not a substitute for, QMS and ISO 9000.

The benefits of certification applied to small and large companies alike, with 83% and 70% of small firms reporting an improvement in management control and customer service respectively.

Reported disappointments with the standard were extremely low only 3% said that there was an increase in paperwork and only 6% felt that the certification was too costly. The results of the survey can be summarized as: reasons for seeking the certification include; improved ability to tender for contracts, maintain or increase market share, anticipate future customer needs, improve customer service, improve efficiency, reduce waste, gain marketing/competitive advantage.

Reported benefits of certification and QMS: Improved planning and control, improved customer service, consistency across operations, improved efficiency or productivity, ability to tender for contracts, objective external appraisal and marketing advantage.

3.3.4. ISO 9000 Application and Implementation in Europe and the Rest of the World

In the previous section the situation in the United Kingdom is studied, but ISO 9000 is used by the European Economic Community (EEC) to provide a universal framework for quality assurance among member states. It is a tool to ensure quality across borders. The intention has never been to use the standards to keep companies from other countries of the world out of Europe, rather to facilitate the unification of economies within the EEC.

There is no legal requirement that companies wishing to trade in the EEC should have ISO 9000 registration but those who do so are likely to have the competitive edge. Certified companies from countries outside the EEC, such as the United States, Canada, Japan, Singapore, Hong Kong etc., will be able to continue to compete in this market. Companies

such as those emerging from the revitalized industries of Eastern Europe, together with those Far East, Pacific Rim and China, which achieve ISO 9000 certification would also have the opportunity to compete.

3.3.5. Implementation - ISO 9000 Certificates

Recent surveys (12) indicate that the principal arena for ISO 9000 implementation is in European countries. Over 75% of the total approvals worldwide have, in fact been, issued in Europe. There has been a marked growth in the number of countries where ISO 9000 standards have been adopted and the total is now 86. Over 95000 approvals have been issued worldwide, the United Kingdom being the largest single approvals holder with more than 46% of the total. The Far East Region and Australia together accounted for 13% (some 12500 companies) of world registrations. Over a two year period there has been a tenfold increase in the number of company certifications in the Far East. The continuous and sustained acceptance and growth of the number of ISO 9000 approvals worldwide is synonymous with the recognition, not only of the need for a common datum as the basis for comparison but, also, of the benefits which can accrue, not only by meeting the certification requirements but, also, the improvements in business performance, resulting from a critical and constructive examination of the activities of the enterprise and the remedial actions taken. Application of the standard is not only appropriate to established business enterprises but is equally opposite to young and developing companies and organizations. This should commend the pursuance of this approach to business development in the emerging countries of the world.

It would ensure that the potential of such countries is realized and the products and services made available to the markets of the world, with benefits being shared by suppliers and buyers.

3.3.5.1. Summary

The ISO 9000 standard generated by one of the Technical Committees of the International Standards Organization which has 90 member countries is becoming the keystone for the furtherance of the objective of achieving one standard for quality management systems for worldwide application.

To compete internationally, it is more and more likely that compliance with such standards as ISO 9000 will become a basic requirement. While there may be shortcomings with the series, it is already in place and providing a basis for comparison.

Ultimately, there could be one universally recognized and accepted standard for worldwide accreditation a common denominator for international trade and commerce. Establishing the standard is one thing, but the questions that must be asked are - would all nations comply and, in fact should all nations comply? For international purposes, the answer must be in the affirmative but it may not be necessary for the standard to be applied for all business activities within a country.

3.3.6. International Standards and Total Quality Management

The expression Total Quality Management (TQM) has been in vogue for some time. While generally accepted, some would prefer to speak of “ Total Quality” . Whatever, the ultimate objectives are the same, it has been said that ISO 9000 provides the route to Total Quality.

ISO 9000 is a means of achieving quality assurance and is defined in ISO 8402 (1986) as “all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality”.

Total Quality Management as defined in BS 7850 Part 1 (1992)- Total Quality management Guide to Management Principles “management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve its objectives”.

The basic principles of TQM can be classified under ten headings; leadership, commitment, total customer satisfaction, continuous improvement, total involvement, training and education, ownership, reward and recognition, error prevention, cooperation and teamwork.

It may be said that ISO 9000 relates to here and now, whereas TQM should provide the means to move forward. Companies which have already invested resource, effort and time

in Total Quality programs and have been successful have really little to learn from ISO 9000. In fact, they should be readily capable of achieving accreditation and certification.

Conversely, companies which have correctly prepared for ISO 9000 assessment can use this as the basis for future development. IT provides the means by which the current state of affairs in the organization can be determined. Without this information it is extremely difficult to plan for the future. If we want to compare a typical quality system and TQM results would be as shown in Table 1.

TABLE 1 :QUALITY SYSTEMS VS TQM (14)

<i>BS 5750/ISO 9000</i>	<i>TQM</i>
Standards to ensure that you do things right	Focus on doing things right and DOING THE RIGHT THINGS (strategic)
Primarily product/service focused	Company-wide covering ALL departments
System	Philosophy/management approach
No requirement for employee involvement in improvement	Emphasis on total employee involvement/commitment/attitude change
Responsibility tends to rest with QA	Emphasis on making EVERYONE responsible
Goal= meet the Standard/pass the audit	Goal= continuous improvement(self driven)
Low visibility	Company-wide visibility

3.3.7. The Problems Associated with Using ISO 9000

3.3.7.1. European Quality

The European Community (EC) and more recently the European Union (EU) have developed strategies for quality to be considered and adopted by member states. In doing so they have surveyed the worldwide trading situation and have drawn conclusions as to the awareness of quality in various trading blocs particularly Japan, the US and Europe (Figure 3) They conclude that whilst in Japan quality awareness is excellent and quality a key element of management, in Europe, the awareness is not sufficient and quality is still seen as a special professional subject.

<i>Country or Region</i>	<i>Role of Quality in Management</i>	<i>Level of Awareness of Quality</i>
Japan	Quality is the key element of management	Excellent
The United States	Quality is gaining importance	Good
Europe	Quality is seen as a special professional problem of management. In certain countries, authorities are taking measures to promote quality	Not sufficient
Central and Eastern European Countries and certain other third countries	Quality is seen as a specific problem generally linked to the workers	Limited
Other countries	Quality is seen as a secondary problem and not as an element involving management	Occasional

FIGURE 3: THE ROLE OF QUALITY AND THE VARIOUS COUNTRIES (4)

In figure 4 the EU countries compare themselves as to their emphasis on Inspection, QC, QA and TQM. Figure 4 suggests that the UK (and also France) have gone deeply into QA whilst Germany and Holland emphasize TQM.

<i>WHERE THE EMPHASIS LIES</i>				
<i>Country</i>	<i>Inspection</i>	<i>Quality Control</i>	<i>Quality Assurance</i>	<i>TQM</i>
Belgium	**	**	***	**
Denmark	*	**	***	***
France	***	****	****	**
Germany	*	*	**	****
Greece	*	*	*	*
Ireland	**	***	***	**
Italy	*	*	*	*
Luxembourg	*	*	*	*
Netherlands	*	*	***	****
Portugal	****	****	***	*
Spain	****	****	***	*
UK	**	**	****	*
TURKEY	**	***	***	*

FIGURE 4: THE ROLE OF QUALITY AND THE VARIOUS COUNTRIES (8)

These assessments may or may not be fair and accurate. One thing is sure however and that is that the UK has more experience than any other country (including the USA) in the

certification of the quality systems to ISO 9000 standards. At the end of 1995 some 50000 enterprises have received certificates of conformity to ISO 9001, 2 or 3. See figure 5a.

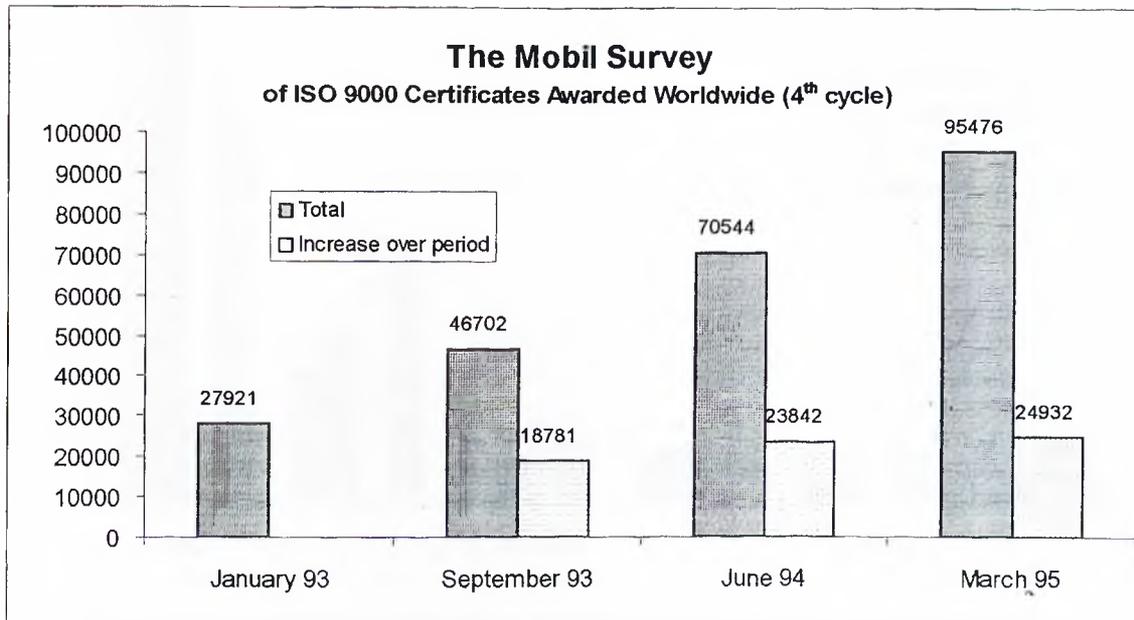


FIGURE 5a: NUMBER OF ISO 9000 CERTIFICATES AWARDED WORLDWIDE (11)

The Mobil Survey also shows that the growth in ISO 9000 certification has slowed down in the UK compared with most other areas. There are now several areas of concern affecting the credibility of ISO 9000 systems as a platform for national quality strategy. See figure 5b.

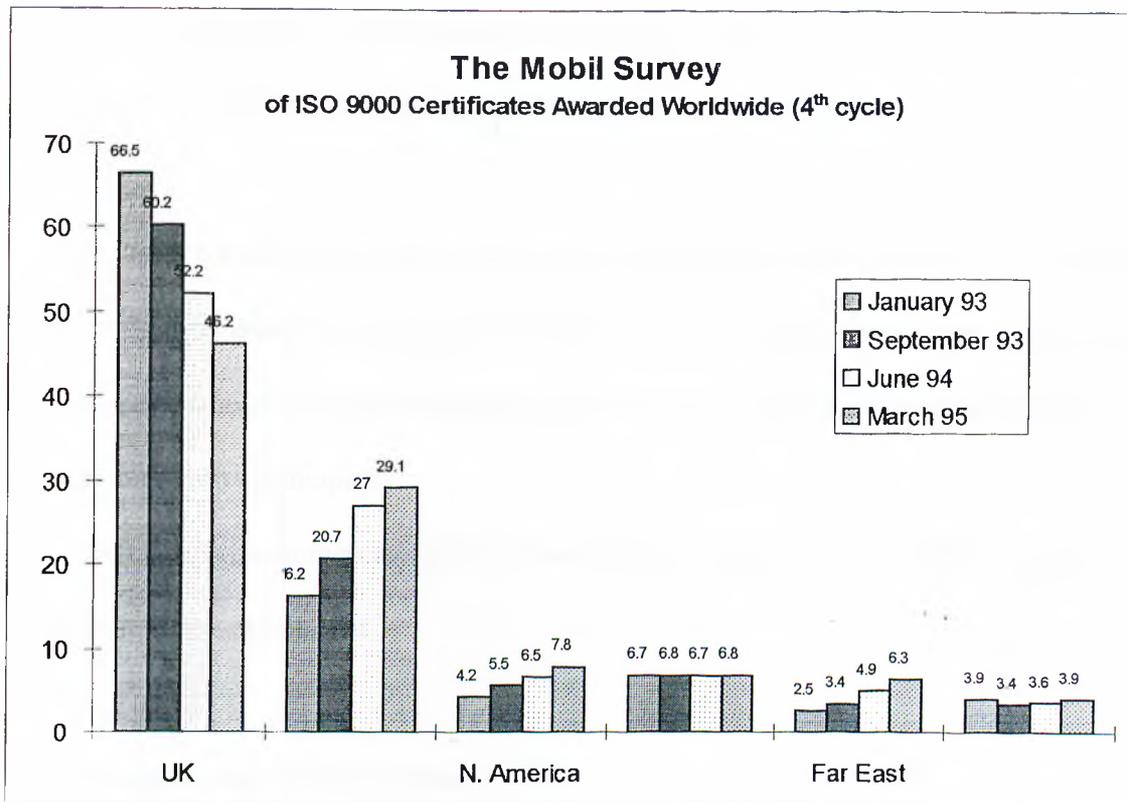


FIGURE 5b: NUMBER OF ISO 9000 CERTIFICATES AWARDED WORLDWIDE (11)

3.3.7.2. Problems Associated with the Use of ISO 9000

It must be remembered that ISO 9001, 9002 and 9003 were developed specifically for contractual use between purchaser and supplier. At that time major purchasers were assessing their suppliers against new management systems and the certification/registration industry hardly existed. ISO 9000 as a basis for quality systems, has now been “hijacked” by the certification movement, and marketing people, aided by the regulating bodies have encouraged the dramatic growth in the use of ISO 9000 standards. It is now realized that the use of ISO 9000 management criteria does not “assure” quality to the purchaser and that product quality will probably not be affected. Much more is required if a company is to survive and succeed in

the cold and cruel world of international competition. In 1994 the UK published 2 major reports (3) into “quality” and the results can be summarized as follows:

- too little use has been made of the quality management standard ISO 9004 in favor of the more straight forward QA standards (ISO 9001,2 and 3) which simplify the issue of quality

- there has been too much emphasis placed on the benefits of system certification and not enough on quality principles.

- there is over commercialization of certification, partly as a result of competing forces for a declining domestic market.

3.3.7.3. Quality in the Wider Context

There are two distinct approaches to quality activity, influenced by two factors:

1. Regulatory influences mostly expressed in EU via the directives and activities of the notified bodies, and internationally by organizations like the Food and Drug Administration,

2. Voluntary activity which has two streams:

- a) ISO 9000/EN 29000 associated with certification (market driven),

- b) continuous improvement,

The emergence of TQM and continuous improvement follows the recognition that much more than a systematic approach to business is required, at least in the western world. Procedures and systems will improve efficiently on a project but a cultural change is required to improve “customer focus”. This emphasis on customer’s needs is a recent factor brought about by the customer movement and the intense competition from the Far East.

It is recognized that the Japanese success is based on:

1. Attention to detail
2. An atmosphere of continuous improvement
3. A program determined by customers and competition

This is why “Benchmarking” and “Partnering” are just 2 practices that have become very popular in the UK, particularly among the larger, “high tech” international groups. A comparison between a typical QA approach and the TQM approach can be seen in table 2.

TABLE 2: COMPARISON BETWEEN QA AND TQM/QIP (13)

	<i>TYPICAL QA</i>	<i>TQM/QIP</i>
Driving Force	Client requirement	Own Top Management due to Client/Market pressure/Economic factors
Based on	National/International Standards e. g. ISO 9001	“Guru” Consultants and Established Management Principles
Objective	Meet Clients’ requirements Cost saving not a prime objective	Customer Satisfaction at lowest cost
Implementation by	QA Department	Management and ALL staff
Implementation period	1 to 2 years	Continuos (probably 5 years)
Training in	Procedures	Attitudes/Techniques
Techniques	Procedures, e. g. Audit	Tools, e. g. Analysis, Motivation, SPC
Attitude to benefits	Defensive	Pro-active
Role of ISO 9000 series etc.	Key, ISO 9001/2/3	ISO 9004 partly relevant
Need for documented system	Yes	Yes
Measurement of Progress	Simple, e. g. Audits	Many, probably commercial

Of the options available to management, consideration of human factors is probably the most important and in the UK, this movement has grown strongly alongside the others. It is, however, the most difficult to address in measurement terms, and therefore action usually takes the form of team work, training and better communications.

It is in the context of human factors that quality awards provide a motivating force. The US Malcolm Baldrige Award, the European Quality Award and in the UK, the UK Quality Award, have generated much enthusiasm for continuous improvement. The business excellence model used by the British Quality Foundation will identify the criteria needed by class companies. Unlike ISO certification, it carries measurable levels of achievement for each of the nine success factors in the model. Furthermore, unlike ISO certification, self assessment is encouraged, on the basis that there can only be one or two winners of an award each year. There should be hundreds of “triers” and, ideally thousands of companies, assessing their own status against the “best”. Unfortunately, ISO 9000 systems do not emphasize “leadership”, one of the most important elements, nor do they encourage “business excellence”.

Finally, the improvements in reliability and performance that have been achieved as a result of quality endeavor worldwide and the differences between QC of the 60’s and TQM of the 90’s is reflected in figure 6.

<i>QC</i>	<i>QA</i>	<i>TQM</i>
Product control	Organization for quality	Leadership Style
Process control	Responsibilities	Quality Awareness
Inspection	Planning	Employee Involvement
Testing	Activity control	Quality Cost Analysis
Sampling	Established Procedures	SPC Tools
Measurement	Supplier Selection	Supplier Collaboration
Calibration	Corrective Action	Quality Improvement Projects
	Document control	Extended Quality System
	Training	Comprehensive
	Management review	
	Audit	

FIGURE 6: QUALITY IMPROVEMENT (12)

3.4. Total Quality Management (TQM)

3.4.1. Introduction to the Concept

It can be observed that there are huge developments in two concepts in this century where information society is reached in both economical and social life. Firstly, the automation that emerges with high technology and secondly, the rising importance of quality and price.

Today, competition is done over price and time that are the new elements of quality. It is possible to satisfy a customer only if you supply the product or service at the right amount, time and price at the date that the customer is ready to pay. The firms had to apply modern management systems instead of traditional ones especially after world war II where

competition has increased with the decreased protection, liberalization of economies and the development in international trade.

One of these modern management systems and the most important, is Total Quality Management (TQM). Total Quality Management, differing from the old understanding, is a modern management system that aims to obtain right product and service at the first time in which quality is taken from the sole responsibility of quality control specialists, but involving everyone in every level of management in every stage of production. (6)

Total quality management which provides competitive advantage when compared to traditional management systems can be successful only if it is understood and applied with all of its elements. These elements include management understanding and philosophy, organization, method and systems. Human factor comes first in TQM. In fact, TQM is a process of “system development”. During this process even the simplest problem is solved for only once and precautions are taken in order not to repeat the same problem. One of the quality gurus Dr. Deming has said that the source of a failure comes %98 from the system and %2 from human factor. Therefore the main goal of management should be to improve system.

TQM is not a narrow quality control concept rather it is a management philosophy and even a lifestyle. Implementing TQM requires knowledge and time. In order to understand TQM better, it is necessary to summarize the key TQM philosophy, definition, principles, problems, advantages, ISO 9004-4 and implementation of TQM. (21)

3.4.2. TQM Philosophy

The philosophy provides the overall concept that fosters continuous improvement in an organization. The philosophy stresses a systematic, integrated, consistent, organization-wide, perspective involving everyone and everything. It focuses primarily on total satisfaction for both internal and external customers, within a management environment that seeks continuous improvement of all systems and processes. The TQM philosophy emphasizes use of all people, usually in multifunctional teams, to bring about improvement from within the organization. It stresses optimal life-cycle cost and uses measurement within a disciplined methodology to target improvements. The key elements of the philosophy are the prevention of defects and emphasis on quality in design.

Important aims include the elimination of losses and reduction of variability. Further, it advocates the development of relationships- employee, supplier and customer. Finally, the philosophy is based on an intense desire to achieve victory.

3.4.2.1. The Definitions of TQM

There are many definitions for TQM. Tobin (1990) defines TQM as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture. Wilkinson and Witcher (1990) define TQM as :

Total- Every person in the firm is involved (and where possible its customers and suppliers);

Quality- Customer requirements are met exactly;

Management- Senior executives are fully committed.

Feigenbaum (1991) defines TQM as the total QC's organization-wide impact. Another definition from the Department of Defense of America (Saylor,1992) is that TQM is both a philosophy and a set of guiding principles that are the foundation of a continuously improving organization. TQM is the application of quantitative methods and human resources to improve the material services supplied to an organization, all the processes within the organization, and the degree to which the needs of the customers are met, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach focused on continuous improvement.

3.4.2.3. The TQM Basic Principles

TQM principles are the main factors to guarantee the implementation of TQM a success. Broadly speaking they can be classified into ten major headings:

1. Leadership
2. Commitment
3. Total customer satisfaction
4. Continuous improvement
5. Total involvement
6. Training and education
7. Ownership
8. Reward and recognition
9. Error prevention
10. Co-operation and teamwork

CHAPTER 4

QUALITY IN TURKEY

4.1. Quality Related Organizations

4.1.1. Turkish Standards Institution (TSE)

Before starting to talk about the quality movement in Turkey it is better to introduce Turkish Standards Institution (TSE) by short facts:

- TSE was set up on 7 October 1954 as an autonomous Institute affiliated to the Union, while on 22 November 1960 by organization Law No 132, TSE acquired the status of legal entity administered under the provisions of Civil Law.

- Mr. Faruk Sünter, who at that time was the President of TSE, acted also as the President of ISO from 1968 to 1970.

<u>Name of the international organization</u>	<u>The year of TSE's admission</u>
ISO	1955
IEC	1956
CEN	1991
CENELEC	1991

- TSE was the member of ISO/Council during the periods 1963-1965, 1969-1971, 1974-1976 and 1986 to 1991.

- TSE is the participating member of all "ISO-Policy Development" and "ISO-Standardization Principles" committees.

- TSE is the member of ISO/TMB (Technical Management Board) for the period 1994-1996 and represented by Mr.Mehmet Yılmaz Arıyörük in this committee.

- TSE is the P-member of 124 ISO Technical and Sub-Committees as an observer.
- TSE carries out the works of 1 Technical and + Sub-Committees in ISO.
- TSE has hosted totally 16 ISO/ Technical , Sub-committee and WG meetings in different cities of Turkey since 1991.
- TSE is one of the distinguished standardization organization that have issued 12000 national standards.

4.1.2. National Council for Quality and Accreditation (KAMK)

In Turkey, besides TSE a council was established in order to follow up the ongoing concepts about quality and accreditation.

National Council for Quality and Accreditation (KAMK) has been established in 1987 with the purpose of drawing up general policies for creating, developing and spreading quality notion; acknowledgment, adoption and implementation of Quality Management at each phase of industrial, commercial and public service activities and in this context , evaluate, realize, accreditation and coordination of the certification activities including test and calibration laboratories in this area.

In Turkey, a big problem is faced in the formation of KAMK. The reason behind is that while KALDER and TSE was working cooperatively especially in the first years of KALDER now they see themselves like competitors and both try to be the only accredited body which can give certificates. So, both organizations now are trying to put their power on the management of KAMK so that they can both earn from this certification.

4.1.3. Kalite Derneği (KALDER)

Kalder (12) has been founded as a national association in 1990 by the leader firms in Turkey; Altinyıldız, Arçelik, Elginkan, Enka, Türk Demirdöküm, Şişe Cam, Simko and TSE. Kalder is an association which serves the same purpose as the other associations which is to communicate the problems of people to public and to managers, to defend their rights and to help society as an organized manner. Besides this general purpose, Kalder aims to:

- Make modern quality philosophy effective and spread it all around the country
- Settle the quality conscious in Turkey
- Encourage quality of work life
- Increase the international competitiveness
- Provide the coordination for technical support in production and service sector

At this information era it is normal that Turkey has been affected from the quality movement all around the world. This time fortunately, contrary to other trends, Turkey has caught this trend at the same time with the world. However, as it is the same in all over Turkey (like the gap in income distribution or difference in the development of East and West of Turkey) there has been huge gaps between the big holdings and the medium and small sized companies. Where big holdings (with the pushing of their foreign partners) started to implement quality concepts very early, there are several of companies in Turkey which do not care about quality. Fortunately, the number is small. Furthermore, Turkey has a big chance in

front of her, which is the aim of joining to European Union (EU). The first step of this aim has been established by getting into Customs Union in the beginning of 1996. All these are forcing Turkish firms which makes trade with Europe to obey the rules and standards of Europe. One of these forces is the ISO 9000 standards. The number of Turkish firms having a ISO 9000 certificate has reached to 400. Furthermore, the representatives of TSE states that the application to the standards have increased tremendously after the Customs Union. However, at this point the big problem starts.

4.2. Problems associated with ISO 9000 in Turkey

The problem is that Turkish firms are still carrying the mentality that the quality investments are costly. Therefore, they see this ISO 9000 certification as marketing tool or just for advertising. As this becomes the case when they are certified, they celebrate this like a big event and they do not think of carrying this to Total Quality Management. Unfortunately this is the majority's behavior.

Another problem in Turkey is that most of the companies do not see TSE as an accredited body to give a certificate and prefer to get their certificates from other well known international certifying bodies. This causes Turkey to lose money to foreign certification bodies.

Furthermore, there is a quality award "Turkish National Quality Award" that KALDER gives ever year and KALDER has its own criteria for this award. TÜSİAD which has become a strong political power in Turkey supporting KALDER puts TSE in difficult situations both

nationally and internationally. In other words, in Turkey while there are some firms and organizations that know and support TSE, there are some powerful organizations whose benefits do not coincide with TSE. The reason behind this is that there is a huge amount of potential market for both certification and awarding and everybody tries gets the largest slice from this cake. So, this sometimes carries ISO 9000 standards from their real aim, which is to increase quality, to an economic tool which parties can earn money from it.

Putting all the discussions behind us we can say that Turkish firms are very well aware of quality concepts, ISO 9000 certificates and TQM however the largest problem is with the small and medium sized companies which sees investment to quality very costly. It is true that getting an ISO 9000 certificate is costly and time consuming but the only solution seems to well communicate the benefits of certification and the governments support.

Besides ISO 9000 certification, as mentioned throughout the thesis there is TQM application in Turkey. However, since now, no study has been done about the relationship between the implementation of ISO 9000 and TQM. Therefore, the thesis of Tüfekçi (32) which investigates the TQM implementation by making a survey to 100 firms is referred.

Some of the results of her study are as follows:

- 30 % of the firms have TQM applications
- among these firms 9% says that they have reached their aims, while 54% says they are improving day by day
- Most of the firms are implementing TQM consistent with the aim and philosophy of TQM and make studies on this concept

Some of these studies are:

- Strategic planning (77%)

- Putting quality and productivity at the top priority among the quality-productivity-cost triangle

- Increased job satisfaction and consequently increased commitment (64%)

- Increased involvement of employees in management and decision making processes.

- Increased suggestion systems in order for the employees to express their ideas in order to improve their jobs

- Increased number of quality circles

Tüfekçi, concludes in her study that in the coming years this concept will be spread in all industries and throughout Turkey by gaining significant importance and Turkish firms are making highly conscious studies in order to achieve best results at the moment.

CHAPTER 5
QUALITY AND KORDSA

5.1. KORDSA Company Profile

5.1.1. History and General Information

KORDSA Tire Cord Fabric and Trading Inc. is a corporation of which %30.4 of its shares is open to public and a part of Hacı Ömer Sabancı Holding. Kordsa, which was established in 1973 and started production in 1975 in order to supply the cord need of tire sector of Turkey, had a starting capacity of 14000 tons/year. In 1978, the first capacity expansion studies had been started and reaching 29000 tons/year capacity in 1982, today has become the world's largest chord producer in one plant.

In 1984, for the purpose of product diversification, industrial fabrics (conveyor, chafer, liner etc.) investment with 1800 tons/year has been realized. With the investments for the aim of capacity expansion, in 1989, a capacity of 5000 tons/year has been reached in industrial fabrics. Besides, in 1988, single cord production has been started with 600 tons/year which is used for the reinforcement of v-belts.

Kordsa, contrary to the most Turkish firms that import technology has been an exporter of technology and know-how and has formed a partnership of Nile-Kordsa with Mısır Packaging Ltd. in 1993 in Egypt. It has been the first time in Turkey in this scale of

technology and know-how export. A similar investment has been aimed in India and today studies have reached project stage.

Kordsa carrying the honor of being the most advanced firm of its sector in the world from the point of capacity, technology and quality has started the modernization of its technology in 1991 observing the changing conditions of local and global markets.

The firm has reached in the last 5 years a point of selling capacity to 5 continents of the world. It has customers in 47 countries among which USA, China, Ecuador, Venezuela, South Africa, New Zealand and Australia exists. By the end of 1995, 66.5% of its total sales had been exports.

Kordsa makes its production on an order base and produces industrial raw material. For this reason, since establishment it has been customer focused and has tried to produce products that complies customer expectations and meets definitions that are reached by working with the customer. For every product style, customers has certified the products as a result of a performance evaluation which lasts 8 months and put Kordsa into certified supplier status. Today, Kordsa is a certified supplier of world's top 10 tire producers such as Bridgestone, Goodyear, Pirelli, Dunlop-Sumitomo and Continental etc.

Kordsa's customers can be divided into two groups. First is the automobile tire producers and the second group is the textile reinforced rubber producers (conveyor band, transmission belt, hose etc.).

Kordsa supplies %47 of its raw material and supporting material needs globally and %53 locally. Raw materials that are supplied mostly globally are synthetic fiber and latex and they are supplied from world leaders of the sector such as Du Pont, Akzo Nobel, Allied Signal, Hoechst, Bayer, Basf etc.

Kordsa's head office is located in İstanbul Sabancı Center. In the head office import, marketing, finance and accounting operations exists. The plant is located in İzmit Alikahya region in Kentsa on an area of 821000 m². In Kordsa, there are 689 employees (February 1996) of 66 working in the head office in İstanbul and 623 in the plant in İzmit. %16.9 of employees are university, %42.2 are high school or equivalent, %14.2 are secondary school and %26.7 are primary school graduates. The average age of the employees is 34.5. %69 of the employees work in the production departments which are tire cord, industrial fabric, maintenance and utilities departments.

5.1.2 Investments and Participations

Kordsa is the oldest among the Sabancı group of companies located at Kentsa industrial complex. It has been founded in 1973 and yet it is the most modern establishment in industrial textiles sector. Kordsa's principle is to be ahead of our time therefore they renew their technology, production and quality control systems continuously over time.

In 1992, Kordsa committed itself to a sizable investment for the modernization of its machinery and equipment. Subsequently in 1993, exported its machinery and own technology

to Egypt establishing the Nile-Kordsa partnership. In 1995, a new line of investment was undertaken and a partial renovation has been applied. 5 million US dollars had been spent in 1995 for this investment. The aim of Kordsa behind all these efforts is to improve the speed and quality production while conserving energy.

At Kentsa industrial complex Kordsa's participations; Brisa, Dusa and Beksa pursue their activities. The scope of Kordsa's vertical integration is shown in figure 7.

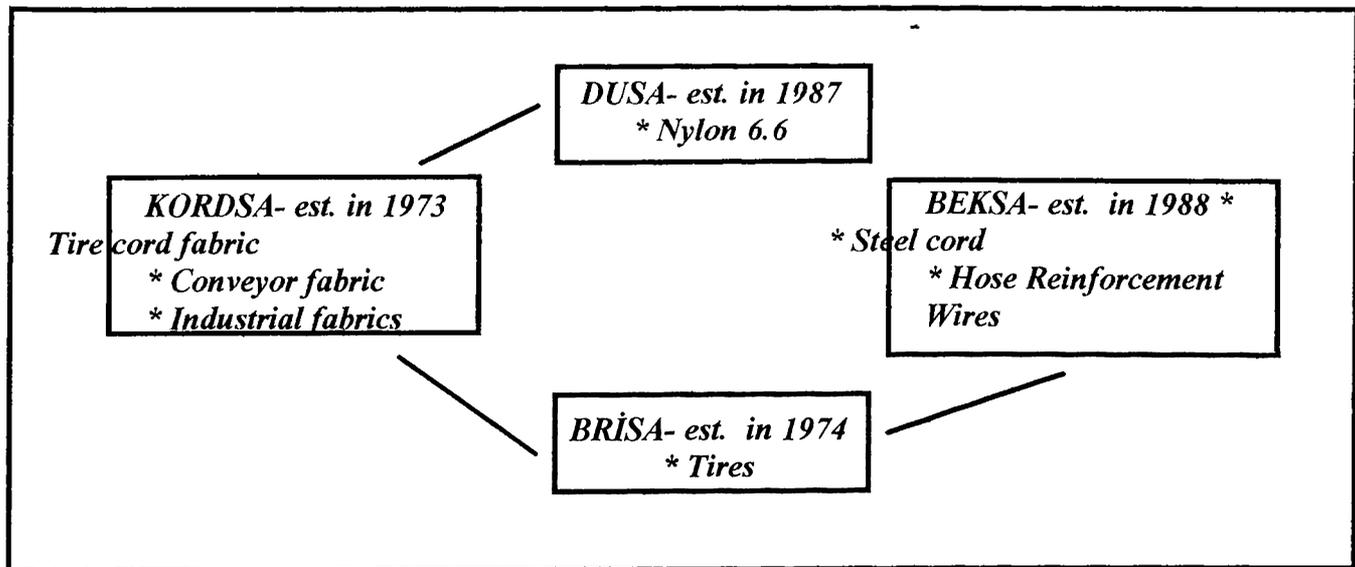


FIGURE 7: VERTICAL INTEGRATION of KORDSA(1)

5.1.3. Production

Kordsa -established on an area of 406838 square meters- realizes the selection of its raw materials and dynamically interconnected production processes with extreme diligence from the view point of production and quality assurance.

Kordsa plant is established by three separate production units. Kordsa-1 and Kordsa-3 is used for tire cord fabric production and Kordsa-2 is used for industrial fabrics and single cord production. Besides, treatment-2 unit is placed in Kordsa-2 which is used for tire cord fabric production.

Tire cord fabric production process starts with the ply/cable twisting of the synthetic fibers (Nylon 6.6, nylon 6, polyester, rayon) “which are called yarn” in cord shape to give the required mechanical properties. Weaving process comes after twisting by which raw fabrics are produced. Then, these fabrics are applied hot stretching and chemical treatment in treatment units to acquire the physicommechanic properties that the customer wanted and finally tire cord fabric is obtained. Industrial fabrics are produced with a similar process.

Kordsa is now able to produce compatible products for every technology used around the world. This was made possible through the continuous modernization and improvement efforts which eventually brought Kordsa’s machinery and equipment to the most advanced level.

In 1995, 26511 tons greige fabric, 27302 tons dipped fabric, were produced with an above %80 capacity utilization. The production mix consisted of %89.72 tire cord fabric, %9.14 industrial fabrics and %1.14 single cord. Last five years production figures can be seen in figure 8.

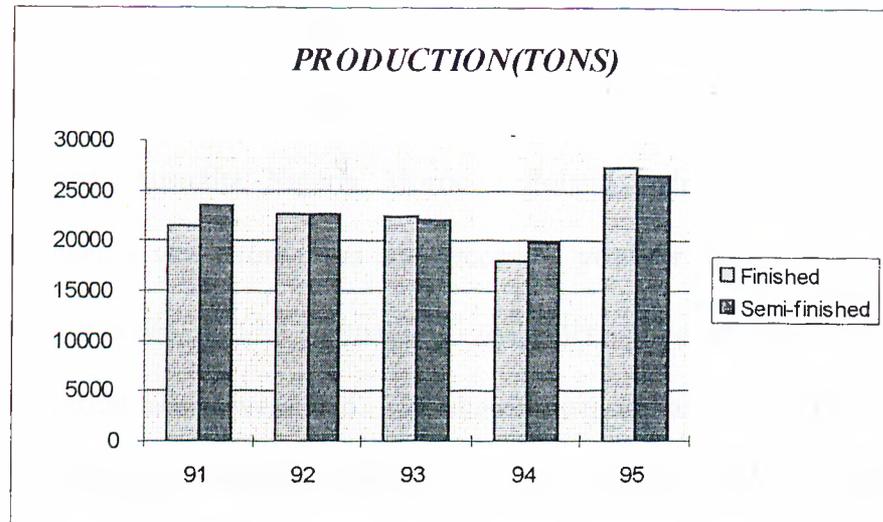


FIGURE 8: KORDSA'S LAST 5 YEAR PRODUCTION OF FINISHED AND SEMI-FINISHED GOODS(I)

5.1.4. Sales

Kordsa supplies tire cord fabric, conveyor belting fabrics, chafer fabrics, coating fabrics, polypropylene liner and single cord to the world markets with its 28000 tons tire cord and 5000 tons industrial fabric capacity. Nylon 6, nylon 6.6, rayon, polyester, polypropylene, PVA and aramide are used as raw material. As a member of the industrial textiles sector, Kordsa provides intermediary material mainly for tire and conveyor belting industries. Kordsa's products are used as carcass material and bead wrap for tires, conveyor belt and v-belt reinforcement fabric, membrane fabric for auto breaks, truck tents and regular tents, adhesion avoiding liner in tire production, etc.

Kordsa, who supplies almost all the tire cord fabric requirement of Turkey since 1976, started with the production and marketing of other industrial fabrics in 1984. Kordsa being the first company to receive the ISO 9001 Quality Management Systems certificate has spread its

exports to the whole world. In 1995, sales have been realized mainly to Germany, Venezuela, Iran, France, Kenya, South Africa, Austria, Israel, Italy, Malaysia, Denmark, Libya, CIS, Tunisia, Syria, Taiwan, Australia, Nigeria, Morocco, Poland, India, England and numerous others. 1995 has been a very prosperous and successful year for Kordsa, who easily made through the economic crises of 1994 compared to the other market players. 27603 tons tire cord fabric and industrial fabrics were sold. The share of exports have reached to 102 million dollars out of total sales of 159 million. Some of the sales figures are shown in tables 3 and 4 and graphical presentations are shown in figures 9, 10 and 11.

TABLE 3: SALES FIGURES for the LAST FIVE YEARS(1)

<i>Sales Figures for the Last Five Years (Tons)</i>					
	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
<i>Domestic</i>	<i>12049</i>	<i>11788</i>	<i>12087</i>	<i>6064</i>	<i>9376</i>
<i>Foreign</i>	<i>10091</i>	<i>11445</i>	<i>12284</i>	<i>13121</i>	<i>18227</i>
<i>Total</i>	<i>22160</i>	<i>23233</i>	<i>24371</i>	<i>19185</i>	<i>27603</i>

TABLE 4: SALES FIGURES for the LAST FIVE YEARS(1)

<i>Sales Figures for the Last Five Years (Thousand \$)</i>					
	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
<i>Domestic</i>	<i>90729</i>	<i>83810</i>	<i>85125</i>	<i>39182</i>	<i>57135</i>
<i>Foreign</i>	<i>61343</i>	<i>65857</i>	<i>65423</i>	<i>68824</i>	<i>101979</i>
<i>Total</i>	<i>152072</i>	<i>149667</i>	<i>150548</i>	<i>108006</i>	<i>159114</i>

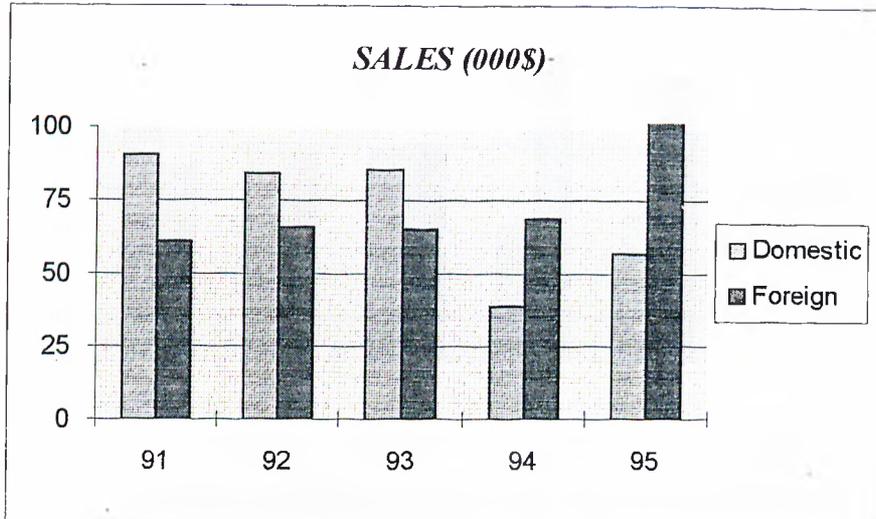


FIGURE 9: KORDSA'S LAST 5 YEAR SALES FIGURES(1)

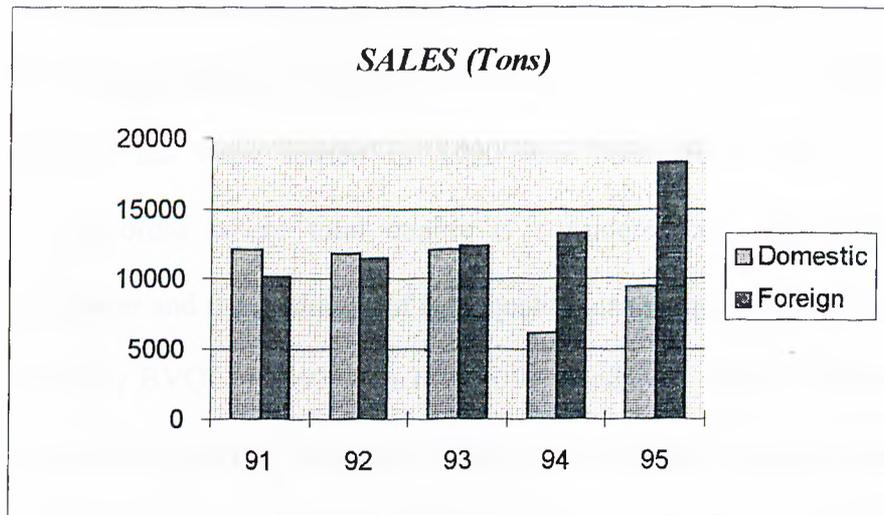


FIGURE 10: KORDSA'S LAST 5 YEAR SALES FIGURES(1)

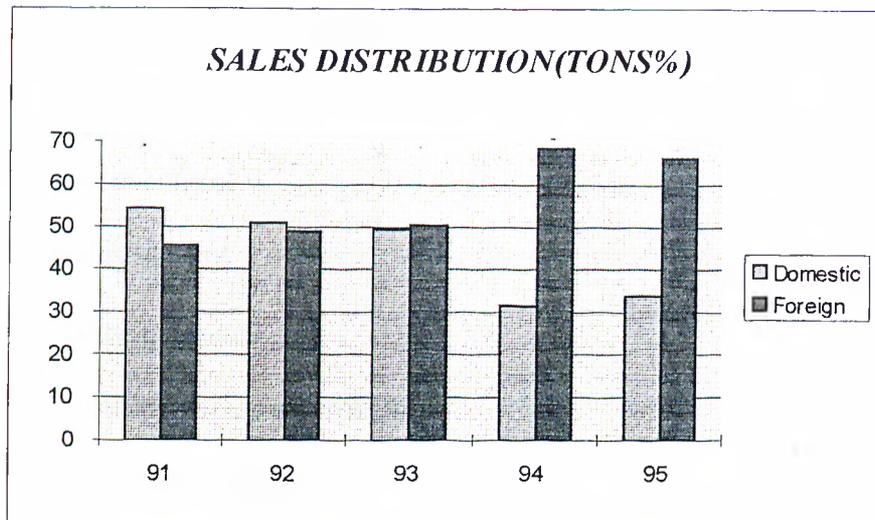


FIGURE 11: KORDSA'S LAST 5 YEAR SALES DISTRIBUTION(1)

5.2. Evolution of Quality Systems in Kordsa

Kordsa quality systems have been improved continuously since 1975, parallel to the positive results of the application of “Statistical Process Control” in 1989, studies of “creating the quality culture” has been started in 1990 and been transformed to total quality management. In Kordsa where total quality is considered as a lifestyle, Management Committee is the leader and the facilitator of total quality management. Kordsa quality systems have been certified by BVQI in 1993 with ISO 9001 standards. Besides the membership to KALDER, Kordsa is a member of European Foundation of Quality Management (EFQM).

The exact steps in the evolution of quality systems in Kordsa have been as the following:

1975	Process control
1978	Quality control
1986	Quality assurance
1989	Statistical process control (SPC)
1990	Improvement circles
1990	Quality culture
1993	ISO 9001
1995	Restructuring for total quality management (TQM)

Each step has its own advantages and disadvantages. Besides, Kordsa has lived different difficulties in transforming every step. It should be emphasized here that though every step is a separate action each have different contribution to the company and each became a basis for the existing situation. Now, each step will be elaborated more.

5.2.1. Process Control

The first step and perhaps the worst step (according to QA manager) was process control. It started as soon as Kordsa started production in 1975. The logic behind that was, everybody in the company must know that manufacture of tire cord is very important because of its concern ascribed to safety of life and possessions. It is used in tires and if it is not good quality it can cause damages in tires causing accidents. In other words, quality of product was very important and the aim was to achieve this quality. Therefore, the most effective way was

thought to be process control. This was achieved by process controllers who belong to a separate department named “quality control and development department”. They check the machines before starting the production either visually or by tests and they give an OK to the machines. This OK is either a stamp to a card or initials to a paper. Then the machine can be operated. In other words it was like control of the production by people other than real producers. Process controllers were like policeman who has the authority to stop the production or solve the problem and they were doing their job very tight. With this application production people has no right on product quality and they started seeing the controllers as the decision maker for the quality of product. They say “we load the machine and it is their job to check whether it is appropriate or not”. The worst part of process control was that the responsibility of quality was given to special group “process controllers” and they were taking precautions like policeman causing the environment to be tense. This caused “process controllers” to be seen like “bad men” rather than cooperators. As the QA manager says “it was like believing democracy in martial law”. On the other hand, this caused the quality concept to become very important for everybody though like a fear in Kordsa. Perhaps the only advantage of the process control was this.

5.2.2. Quality Control

Kordsa started quality control application in 1978. The management observing the undesired environment occurred because of process control, decided to spread quality through the firm by giving responsibilities with written documents. As a result Kordsa transformed from process control to quality control. For example, operators were both trained and given procedures in order to load the machines. They were trained which points, when and where to check after loading. However this control was again production oriented or in other words

inspection oriented. Procedures were prepared but they were only given to foremen or chiefs and they were limited. Besides these, checklists were prepared. These checklists were given to the foremen using the machines in order to check the mechanical parts or to the fixers who were responsible from the maintenance of the machines. Employees were trained and were shown the methods to control. By this way responsibility of quality control has been transferred slowly to the people who are using the machines instead of controllers. Furthermore, design studies started, specifications that can be used by everybody started to be determined and working parameters which did not exist before were determined. For example, the specifications “i speed: 7000 +/- 50” were determined and what to do when it is out of spec were written. These studies helped the quality concept to spread more, the employees to be well trained and the tense environment to disappear. Employees started to check their own jobs instead of waiting the controllers. On the other hand, this step was still product and inspection oriented.

5.2.3. Quality Assurance

Quality control step has lasted for 8 years and Kordsa passed to quality assurance in 1986. In this step Kordsa management separated the quality function and established a quality assurance department. The whole responsibility of quality was not given to this department rather it played a coordinator role. But it was not under the control of other departments. In this step process flow diagrams have been prepared, control points have been determined and who and how will this control be made were determined. What to do in out of spec conditions and who will do determined and were written. Almost everything were put into written documents and the related people were held responsible from these. Training were given to

groups, everybody about quality, quality assurance and production people started giving decisions about quality related problems where before controllers were giving these decisions. In other words the ownership conscious started. Employees started to think what they can do in order to prevent a problem occurring again. Therefore they revised the written documents they have in order to prevent mistakes. As a result, the job were spread, systems, control points, decision points, decision makers and job doers were all determined. Other departments, such as planning, purchasing, stock, marketing, maintenance and R&D were taken into the system. In quality assurance department everything was systematized by written documents. By this way Kordsa assured its system from the beginning to assure the minimum quality that the customer wanted. Quality assurance department behaved neutral in this step or in other words did not become side to any department. All this applications caused a prevention based quality concept to occur in Kordsa. Employees understood that it was not important to control the final product but take the precautions to prevent low quality.

5.2.4. Statistical Process Control(SPC)

In 1989, Kordsa started to apply statistical process control (SPC). For example when the operator was asked to describe a problem, he was saying that the problem occurs too often but he could not answer the questions: How often? How much? Which shift? Which material? The answers were not exact and not numerical. Then the management realized that they should improve the statistical knowledge of the employees. They did this by giving training, giving handbooks about SPC and lecturers came from Anatolia University. The application parameters of processes have been determined. A steering committee below the general manager and groups controlling the parameters and checking the improvements have been

formed. They started doing periodical meetings. Limits of process parameters have been determined. When the process is out of limits what kind of precautions could be taken were thought. Limits were narrowed and when the process were under control they left this point to be control point and consider an other control point. By this way Kordsa started improving its processes. While doing this everybody, the worker, the foreman, the chief and the engineer involved in SPC. People started talking and showing with statistics so a common language occurred. The SPC tools that Kordsa used were pareto charts, histograms, cause and effect diagrams, process control charts, capacity index, registration forms and scatter diagrams. But the most commonly used were process control charts, histograms and cause and effect diagrams. Besides these brainstorming sessions were done to determine and prevent problems. People knew that SPC was not a problem determining method but prevention method. Furthermore it helped to work with target quality standards; it became a habit to determine a target. Kordsa determined with which tolerance they want to work. Reporting increased and this time there was no place for stories. Everything was clear on the report, the target, the limits and the results. It brought a discipline to all departments and each department started working with targets.

5.2.4. Improvement Circles

The SPC was very good but it did not help how to solve the problems. People were determining the problems and showing them with SPC tools but not solving them. The reason behind that was managers carrying the idea “ I solve the problems; you do what is said to you”. Besides this, there was a suggestion system in Kordsa established in 1986. With this system people were putting suggestions to suggestion box and these suggestions were going to an

upper committee. But, both applications were individual applications. There was not a culture to listen others suggestions. Kordsa's management thought that employees, besides their physical involvement, they should involve mentally. They have experience, suggestions in their minds but there is not a platform to put this ideas in front. Therefore Kordsa started circle functions in 1990 with the name working circles and then improvement circles. At the moment this system is integrated with the suggestion system and the ideas of the personnel about improvement of the systems are evaluated under the application of Development Opportunities System.

The logic behind these circles was that we do not need to do the same thing with the other companies because our culture is different. At the beginning of these studies the most important problems were determined and put in an order of importance by the improvement circles coordination committee, people who wanted to involve were determined and the committee determined the groups to solve the problems. Therefore at the beginning this application was controlled not a voluntary one. The aim was to bring people or departments together who live the different stages of the problem and increase the communication. Training about human relations and communications were given. The circles ended with a presentation of the solved problem and as a result people were given presents which can be used in the family according to the improvement circle brought. After some time this presents were changed into dinners. The application is as follows; the circles formed with people either within the department or from other departments (8-12 people) including the leader, the quality representative and the members make a first presentation to the department related to the problem. Then after discussions another presentation is done to the coordination committee and the best two circle makes a presentation to the upper management at the end of

the year. Here, an important thing is that the presents given have never been money but things that can be used in the family. Besides using the employee thoughts efficiently improvement circles increased team work, team spirit, communication and brought people closer to the field.

5.2.5. Quality Culture

Kordsa transferred to quality culture at the same time the improvement circles were applied which was 1990. In this step Kordsa started applying total quality concept with the help of a consultant. Lots of groups were formed namely; the communication group, involvement group, cost group etc. , in which the general manager or assistant general managers existed. These groups formed their subgroups and all groups had their own targets. Kordsa started management by objectives and these objectives were spread all through the company. This step has been a basis for total quality management. Managers were either sent to Japan or to seminars all around the world or well-known people came to Kordsa to give seminars in order to settle the quality culture. At this step Kordsa decided to get ISO 9001 certificate in order to transfer to TQM.

The next steps in Kordsa's quality systems evolution is getting the ISO 9001 certificate in 1993 and restructuring for TQM in 1995. These two steps will be elaborated in the following sections more detailed.

Looking at the evolution one can observe that Kordsa lives the advantage of belonging to Sabancı group which has the vision of 2000's. Sabancı group management has seen the going trend in quality very early and has started to action with the same speed as the world. In

these movements Sabancı group has moved ahead of Turkey and has seen the award of it by one of its companies, Brisa, getting the first quality award of KALDER in 1993. Meanwhile Kordsa's managers has been sent to Japan or Europe for several times or quality experts from Japan has been brought to plant several times in order to create the quality culture in Kordsa. The importance of top management's commitment should be emphasized here. For this purpose, the managers have got the best training until they digest the importance of quality. By this way they could communicate their ideas to their subordinates easily and confidently.

5.3. ISO 9001 in KORDSA

The quality concept put into Kordsa's quality culture since 1993, passed through several stages and finally materialized itself as ISO 9001 Quality Certificate which Kordsa defines as "passport of our exports". Kordsa has been certified by the BVQI assessor with the ISO 9001 quality assurance system in January 1993. In 1996 they have been rechecked by the assessor company and as a result continue to have this standard. Looking back to the evolution of quality in Kordsa (*Appendix A*), we can see that the studies for quality systems had been started in 1975 (very early for Turkish industry) and helped Kordsa to form a quality-conscious culture. When the question "Was it painful for you to get the ISO 9001 standards?" asked to the quality assurance manager, his answer was "No, we just modified our systems, we already had the conditions that the standard were seeking". However, he admits that to get the standard was not very easy though they were very familiar with the topics. Especially, the documentation part has been very long and painful for Kordsa.

In order to get the ideas of Kordsa about ISO 9000 standards a questionnaire that has been prepared by Erel and Ghosh has been submitted to QA Manager and the results can be summarized as follows:

- Kordsa owns ISO 9001 standard, and has an interest to ISO 9000 and TQM
- Quality department has started the studies for certification
- The aim of Kordsa to get the certificate was: “To own a globally standard quality system and use it as a tool to transfer to TQM”
- This certificate is necessary in the framework of firm’s quality perspective
- Kordsa being an exporter firm has affected the decision to require the certificate.
- Top management has been involved in the certification process
- Kordsa see the certification process as the result of the quality understanding and efforts of all the employees
- Some of the problems that Kordsa faced during the studies of ISO 9000 were; the importance of the studies not being understood well by all the sections and resistance to make a change in the existing system
- Some positive effects of ISO 9000 were; increased sales and exports, increased quality understanding through the firm, quality management is standardized
- Some studies continuing after the certification are; continuous improvement, increased customer satisfaction, continuing the accreditation of the certificate, transfer to TQM.

It should be mentioned here that the answers to the questionnaire is limited to the choices. In other words, either the benefits or problems associated with ISO 9000 in Kordsa is as limited as mentioned above.

The following question should be raised here: Though, the QA Manager of Kordsa sees their firm already carrying most of the requirements of standard, why did they want to have the standard? The answer to this question may vary; for export, for marketing, for Customs Union, for suppliers, for fashion etc. The right answer might be all or none but the truth is that the firms are getting this certificate, it is gaining importance day by day, country by country and if you do not have it you are a step back from the competitors.

Thinking the inadequacy of the above questionnaire for understanding the whole perspective of Kordsa, some points will be highlighted that is obtained from the interviews done with some managers of Kordsa. In these interviews managers were asked to express their ideas about each article of ISO 9001 standards (ISO 9001 has 20 articles). However, to mention all the views for each article would be too wide for the scope of this thesis. Instead, some points will be mentioned that is seen important for the purpose of this thesis. These points will either be the exact sentences of the managers or some facts they mentioned;

The first article in ISO 9001 standard is management responsibility and it consists of quality policy, organization and management representative and in Kordsa;

- A quality policy is defined and documented and it is communicated all through the company. An interesting point here is that at the beginning of certification studies all employees were forced to memorize the “quality policy” of Kordsa. This policy is put

everywhere on the walls of the firm and everybody knows the aims of the firm. The quality policy of Kordsa in January 1996 can be seen in *Appendix B*. It should be mentioned here that a quality policy is not like a bible. The firm can change it according to the changing conditions of environment, competition etc. Quality policy has helped Kordsa to put its objectives for quality, organizational goals and the expectations and needs of its customers clearly and everybody inside and outside the firm learn it. It forces the firm to apply the policy as it is documented by the firm. The first sentence of Kordsa's quality policy is "We accept total quality management as our life style"

- There is not one department directly responsible from quality instead everybody is responsible from quality. However, there is a quality systems department whose responsibility is to coordinate quality studies and this department is directly responsible to top management. Below this department there is quality assurance department. Quality systems department being directly responsible to general manager shows top management commitment in quality which is important for TQM. In Kordsa, the responsibility, authority and the interrelation of personnel who manage, perform and verify work affecting quality (i. e. quality systems manager, quality assurance manager, specialists) are all defined and documented.

The second article of ISO 9001 is quality system which includes the sections; general, quality system procedures and quality planning.

- An important value of ISO 9000 standards is " Write what you do and do what you write". In other words, ISO 9000 standards requires from firm to document every process, job etc. This helps to systematize everything. A quality manual consisting of

procedures, instructions, contracts, definitions etc. , helps everybody to have a handbook that they can use when they are in trouble. Reviewing a written process is always easier than reviewing with naked eye. Having a quality manual brings discipline and easiness improvement. In Kordsa they have quality manual which includes 52 procedures and 348 instructions.

The third article in ISO 9001 is contract review which consists general, review, amendment to a contract and records sections.

- Putting the contracts in a written form shows customer what the supplier or Kordsa wants. By this way Kordsa determines what to expect from a supplier or a customer at the minimum.

- Kordsa started requiring ISO 9000 standards from its suppliers. This forces suppliers and they start requiring the same thing from their suppliers and by this way the chain gets longer.

The fourth article in ISO 9001 is design control which includes the sections, general, design and development planning, organizational and technical interfaces, design input, design output, design review, design verification, design validation and design changes.

- This helps Kordsa to establish and maintain documented procedures to control and verify the design of the product in order to ensure that the specified requirements are met.

The fifth article in ISO 9001 is document and data control which consists general, document and data approval and issue and document and data changes sections.

- This helps Kordsa to establish and maintain documented procedures to control all documents and data.

The sixth article in ISO 9001 is purchasing which consists general, evaluation of subcontractors, purchasing data and verification of purchased product sections.

- Before this application Kordsa's suppliers were not standard, there was no continuity. Kordsa determined the necessary conditions to be acceptable to alternative suppliers list. Kordsa started training the suppliers and evaluated them in every 6 months. This increased the communication with the suppliers and they were seen as partners.

The seventh article in ISO 9001 is control of customer-supplied product.

The eighth article in ISO 9001 is product identification and traceability.

- With this Kordsa determined why a mistake occurred and trace it.

The ninth article in ISO 9001 is process control.

- With this Kordsa identified and planned the production, installation and servicing processes which directly affect quality and ensured that these processes were carried out under controlled conditions. Kordsa eliminated time loss with great extent.

The tenth article in ISO 9001 is inspection and testing which consists general, receiving inspection and testing, in-process inspection and testing, final inspection and testing, and inspection and test records sections.

The eleventh article in ISO 9001 is control of inspection, measuring and test equipment which consists general and control procedure sections.

The twelfth article in ISO 9001 is inspection and test status.

- The above three articles helped Kordsa to become computerized, purchase without controlling and speed up the decision stage. Besides, all calibrations were done and this eliminated the nonconformity because of measurement.

The thirteenth article in ISO 9001 is control of nonconforming product which consists general and review and disposition of nonconforming product sections.

The fourteenth article in ISO 9001 is corrective and preventive action which consists general, corrective action and preventive action sections.

- This helped Kordsa employees to think what can I do in order to prevent it happening again. Suggestion systems, team works, brain storming and improvement circles were some of the tools used.

The fifteenth article in ISO 9001 is handling, storage, packaging, preservation and delivery.

The sixteenth article in ISO 9001 is control of quality records.

The seventeenth article in ISO 9001 is internal quality audits.

- There are both internal audits and external audits for the certificate. Internal audits help the quality understanding to scatter all through the firm. Because everybody in the firm has to be involved in these audits. Besides, the external audit(every three year) forces Kordsa to comply with the requirements of ISO 9001 standard always.

The eighteenth article in ISO 9001 is training.

The nineteenth article in ISO 9001 is servicing.

The twentieth article in ISO 9001 is statistical techniques which included identification of need and procedures sections.

As Kordsa received the ISO 9001 certificate it had to apply all the articles of the certificate.

5.4. Total Quality Management and KORDSA

5.4.1. The Existing Quality System

The existing quality system of Kordsa can be divided into two; mission and the structure. The mission is to become a profitable and competitive company by reaching excellence in quality, costs and service with the participation of all employees.

The structure is as follows; there is a quality management council which is formed by the general manager, assistant general managers and the quality systems manager. This council stays at the top and below this there are three quality operation teams which are formed by engineers and specialists of which two of them are in İzmit and one in İstanbul headoffice. In these teams there are people from different departments and these teams change minimum at every 6 months. It depends on the wish of the individual or the department. Suggestions come to these teams from the Development Opportunities System which is the combination of suggestion system and improvement circles. These suggestions are applied directly or improvement circles or critical process teams are formed to apply the suggestions. Critical processes are determined by the quality management council according to the target of the

firm. These targets are determined according to the firm's vision, mission and policy and can be 1 year or 5 year targets. Every year 5 year targets are revised. There is also management by objectives. First the assistant managers (functions) then the managers(units) and then the related personnel determine their objectives accordingly. Then these objectives go to the top and approved. Yearly and 5-year objectives are spread suitable to strategic management.

Some basic principles that Kordsa uses to apply the above mentioned structure of total quality management are teamwork, total involvement, customer satisfaction in the scope of Kordsa's strategic plans, targets and policy.

5.4.2. Quality Policy and ISO 9000 Standards

As it can be seen from the evolution of quality systems in Kordsa (*Appendix A*) the last part is named "restructuring for TQM". The importance they are giving to TQM can easily be understood from the quality policy where in the beginning they state: "We are accepting Total Quality Management as our life-style". Hence not a mathematical model is formed to find the relationship between ISO 9000 and TQM, the relationship between the quality policy of Kordsa and the ISO 9001 standards will be expressed depending on some observations. Before beginning it should be emphasized that though the QA manager sees the ISO 9001 as a tool to transfer to TQM, in Kordsa there are lots of other tools they use which has helped Kordsa to reach this point and starting these studies very early (1975) is another aspect of success. Going back to the quality policy of Kordsa (*Appendix B*), there are five points to be investigated;

- The first point is: “We are focusing all of our operations to supply total customer satisfaction. We believe that quality of our products and services will determine the satisfaction of our customers.” This point is also one of the important points of ISO 9000 standards. However, while importance of customer satisfaction is directly expressed in TQM, in ISO 9000 it is indirectly included such as; design and after sale service is done according to the customer requirements. And also the firm requiring quality systems from its suppliers results customer satisfaction finally. However, the difference lies in the wording; TQM mentions it directly as; maximum customer satisfaction at the lowest cost where as customer satisfaction is hidden in ISO 9000. Therefore, we can not miss the help of ISO 9001 to TQM applications in Kordsa.

- The second point in the quality policy is: “Our personnel is are our most important asset. We believe involvement, training and satisfaction of all personnel are essential for continuous improvement of quality.” About the employee involvement ISO 9000 and TQM slightly differ from each other. In TQM, there is emphasis on total employee involvement where as in ISO 9000 there is no requirement for employee involvement in improvement. However, ISO 9000 provides this by internal audits, quality circles, management responsibility etc. But do not emphasize the word *all* (i.e. all employees). Both gives importance to training, but in case of employee satisfaction TQM is far in front of ISO 9001. Again, we can say that a basis for TQM is formed in Kordsa by ISO 9001 with the requirements of top management responsibility, internal audits etc.

- The third point in quality policy is: “We are aiming to continuously meet our stakeholders expectations by developing our competitive advantage and increasing our

profitability”. ISO 9000 and TQM differ in the range of stakeholders. TQM; as can be understood from the word total covers customers, suppliers, employees, partners, shareholders, government and society. However, ISO 9000 do not cover society or in other words do not aim to be good citizen. In other words, the stakeholder range of ISO 9000 is narrower than TQM. As in this point the definition of the expectations is not clearly expressed finding a conjunction between ISO 9001 in Kordsa and TQM becomes difficult.

- The fourth point is: “High quality supply is a must for a high quality product. Therefore, we see our suppliers as a part of our system and as a business partner” Perhaps this point is the point which has benefited from ISO 9001 in Kordsa. Because, ISO 9001 caused Kordsa to request ISO 9000 standard from its suppliers. Besides, Kordsa has done contract reviews so that both the supplier and Kordsa can know what to expect from each other. So, especially in this point the ISO 9001 standard helped a lot.

- The fifth and the final point is: “Our firm complies its legal obligations in the consciousness of its responsibility towards the environment and society. It contributes to society’s development”. Perhaps this point is the point which differs most from ISO 9001. Because, ISO 9001 never mentions either the environment or the society. However, having a good quality system may mean to be responsible to environment and society but it is not enough. So, we can conclude that ISO 9001 has not a big contribution in this point.

In summary, ISO 9001 has been a good basis for the existing TQM oriented quality policy. However, it should be emphasized once more that, not only did ISO 9001 caused the

existing success but other tools such as; SPC, quality circles and quality culture had helped a lot.

5.5. Future in Kordsa

At the moment Kordsa sees itself at a very good point in quality applications. However, really digesting the principle of “Continuous improvement” of TQM they never finish their studies. They want apply management by objectives better and besides start benchmarking. As can be seen in the evolution of quality they are in the stage of restructuring for TQM and they have applied for the quality award which is given by KALDER. In future they may think of getting the quality award of EFQM. As can be understood from these studies, Kordsa continuously improves itself.

CHAPTER 6

CONCLUSION

In the last decades quality concepts has gained significant importance all through the world. ISO 9000 standards, as quality assurance system standards and TQM, as a management philosophy have been the concepts which were much popular among other quality concepts. But, as time passed and theories started to be implemented some problems and questions arose. Some of these questions asked were; “Is ISO 9000 a path to TQM?”, “Are they supplementary or alternatives?” and “Is ISO 9000 more than a certificate?” etc. Therefore, this thesis attempted to answer these questions by first making a literature survey and also by investigating the case study of Kordsa, a firm from production sector, which has applied both tools. By this way, the reader can have the chance to compare the theory and the practice. Furthermore, in this thesis the Turkish perspective in these concepts had been investigated as Turkey has an aim of joining European Union which the road passes from quality.

Results of this study are as follows:

First of all, literature survey indicates that, almost all the authors, articles and theses believe that ISO 9000 standards form a good basis for passing to TQM. However, as Dunn (17) mentions in his article “The unexpected benefits of ISO 9000”; getting the certificate is like getting a college degree; it helps you to get a good job or assures that you are an engineer, lawyer etc. But the real benefit is the self-discovery you got when you were at the college. It

is the same logic for the firm; you can get the certificate and it assures that you have a good system but the discipline it brings to the firm is much more important. To summarize, if we just look at the existing literature we can conclude that it is not a question to be discussed whether ISO 9000 supplements TQM or not. It is obvious that it does. However, in order to make this conclusion we had to investigate the implementation part. Implementation is the part where problems arise. Therefore, the differences of ISO 9001 and TQM in implementation will be emphasized.

The first and the biggest difference is that while TQM is a voluntary application, ISO 9000 certification results from a formal contract that is signed between the firm and the certification body. As long as the firm complies with the specifications of the standard the contract continues. In TQM, there is no contract and there is no outside pressure, it is applied voluntarily.

The second difference is that, in ISO 9000 there is too much documentation and bureaucracy which causes sometimes to work very slowly or it becomes very time consuming to make an amendment. However, in TQM there is no documentation which causes the system to be more dynamic and work faster.

The third difference arises in the reasons of implementing these tools. While there are concerns for export, requirements of public procurement, getting a certificate (for marketing tool) or to own a guarantee in ISO 9000 certification, in TQM there is concern for employees, society, environment and all the stakeholders.

The fourth is, ISO 9000 certification being very costly (consultant, certificate, training etc.) which scares especially Small and Medium Sized Organizations from certification. TQM is also costly but not as ISO 9000 certification is.

Absolutely, these differences do not avoid ISO 9000 standards to be a basis for TQM but sometimes delay the transfer or causes misunderstanding.

When we look at the Turkish case, there is a very high concern of certification. But, it should be mentioned here that we are living the advantage of good motivation tool which is joining to Customs Union and aiming to join EU. These factors are really forcing our firms to comply with the standards of Europe. From the information taken from TSE, applications for a certification has been growing very fast since the Customs Union. There is another reason for this increase which is the support of Turkish Government to Small and Medium Sized Organizations in order to get the certificate (sponsoring the %50 of the certification cost). Besides the good news about certification, the same thing cannot be said for TQM except the big holdings. Unfortunately, there are lots of Turkish firms who see the certificate as the last step and even celebrate their certification. Though KALDER tries to motivate firms by giving quality awards their effort is not enough to move firms towards TQM.

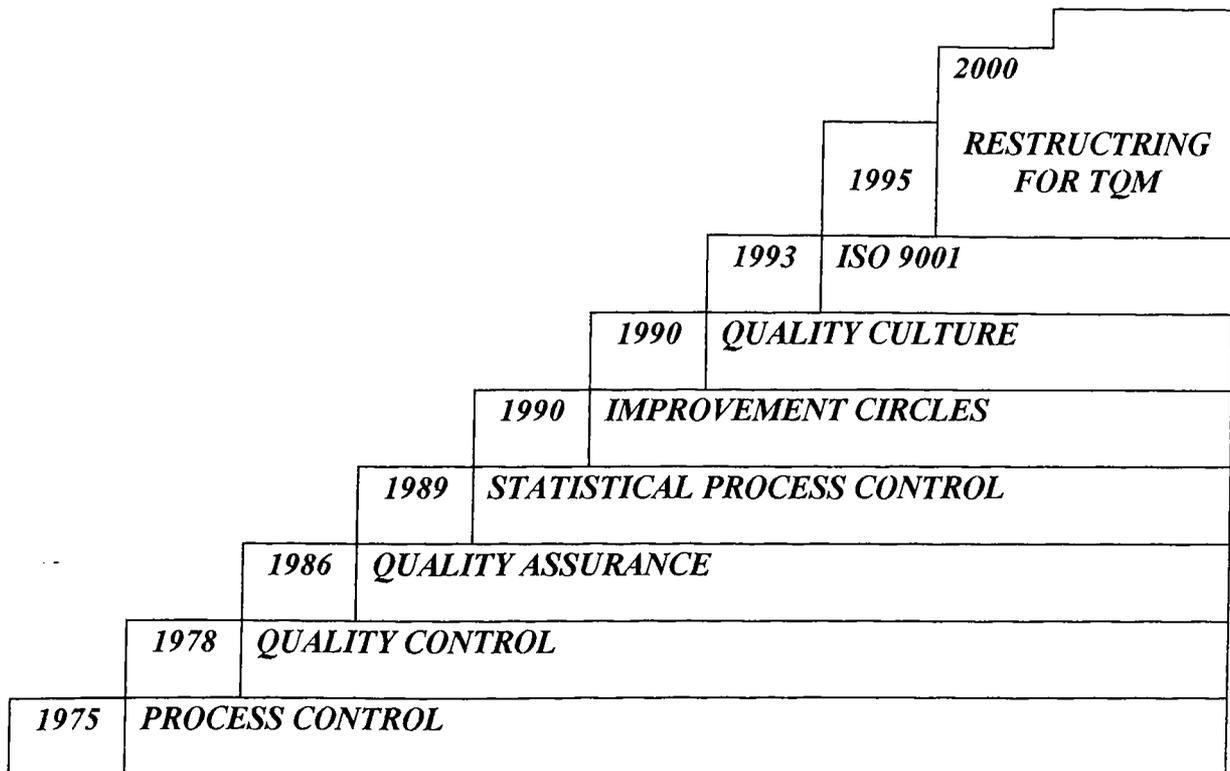
Coming to Kordsa's case, we can say that Kordsa is a successful firm which has passed lots of stages of quality systems. At the moment, they are successfully applying TQM and they have an ISO 9001 certificate. ISO 9001 certification has helped a lot Kordsa to pass to TQM however, here there are some points which should not be ignored; the first one is Kordsa starting to form the basis of quality culture in 1975 (21 years ago) caused Kordsa to digest

every stage of transformation till TQM; the second is ISO 9001 not being the only tool while going to TQM but SPC, quality circles, quality culture supporting each other helped a lot to reach this point; the third is top management commitment was very high; the fourth is being a very high competition tire industry forced Kordsa to have high quality standards and the fifth is Kordsa helping the suppliers of Kordsa to develop.

Finally, to conclude we can say that ISO 9000 is a path to TQM but not the only one. A firm can implement TQM without the ISO 9000 but it is obvious that it would be more difficult than implementing after having it. If the firm gets the discipline of ISO 9000 before, it would be to the benefit to the firm as the transformation will be less painful.

APPENDIX A

KORDSA QUALITY SYSTEMS EVOLUTION



APPENDIX B

KORDSA'S QUALITY POLICY (JANUARY 1996)

We accept total quality management as our life-style.

Therefore;

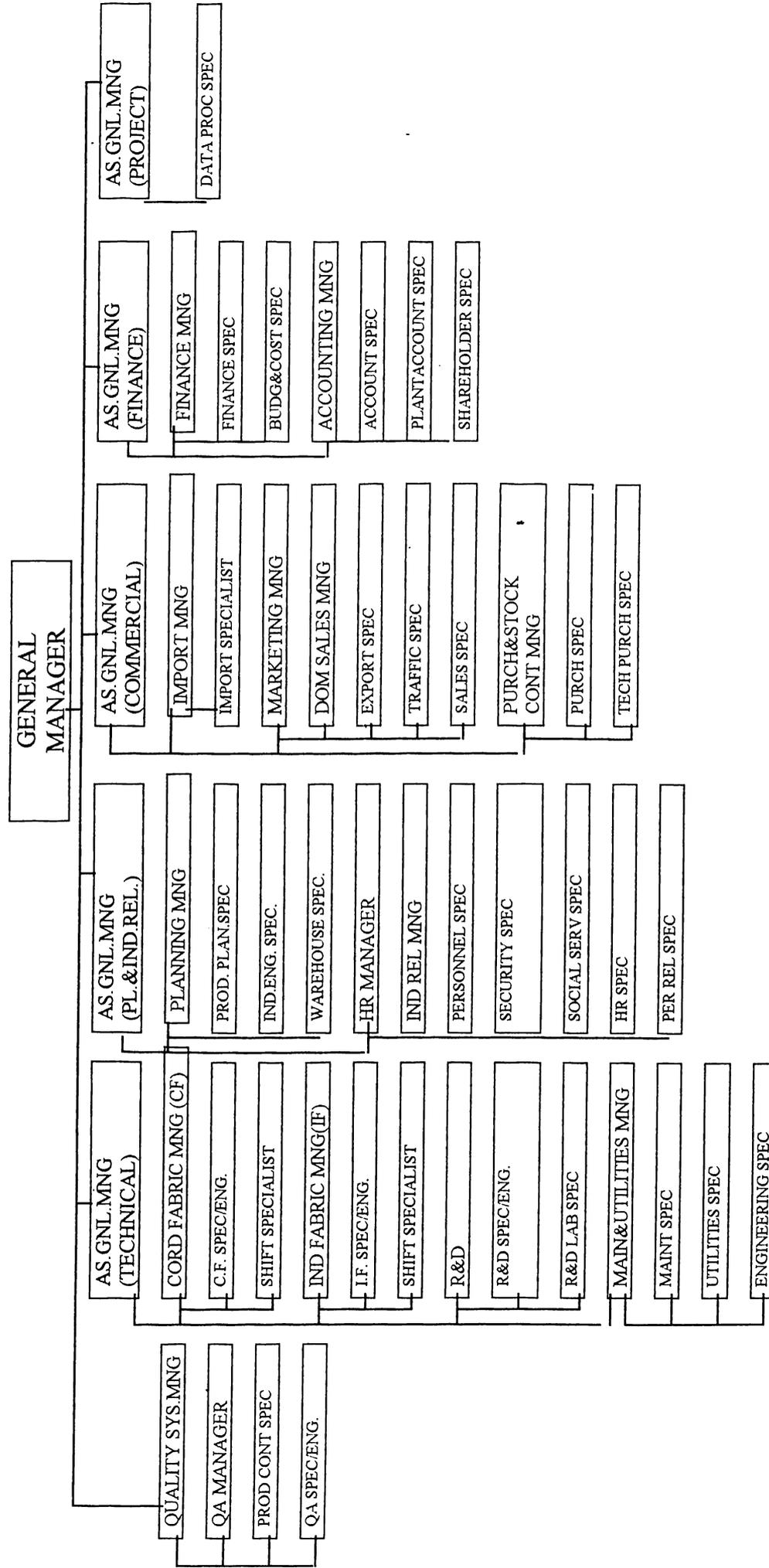
- “We are focusing all of our operations to supply total customer satisfaction. We believe that quality of our products and services will determine the satisfaction of our customers.”
- “Our personnel is our most important asset. We believe involvement training and satisfaction of all personnel are essential for continuous improvement of quality.”
- “We are aiming to continuously meet our stakeholders expectations by developing our competitive advantage and increasing our profitability”.
- “High quality supply is a must for a high quality product. Therefore, we see our suppliers as a part of our system and as a business partner”
- “Our firm complies its legal obligations in the consciousness of its responsibility towards the environment and society. It contributes to society’s development”.

GENERAL DIRECTOR

APPENDIX C

KORDSA ORGANIZATION CHART

**KORDSA
TIRE CORD MANUFACTURING AND TRADING INC.**



APPENDIX D

QUALITY VOCABULARY (ISO 8402)

Quality: The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

Grade: An indicator of category or rank related to features or characteristics that cover different sets of needs for products or services intended for the same functional use

Quality policy: The overall quality intentions and direction of an organization as regards quality, as formally expressed by top management

Quality assurance: All those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality

Quality control: The operational techniques and activities that are used to fulfill requirements for quality

Quality system: The organizational structure, responsibilities, procedures, processes and resources for implementing quality management

Quality plan: A document setting out the specific quality practices, resources and sequence of activities relevant to a particular product, service, contract or project

Quality audit: A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives

Inspection: Activities such as measuring, examining, testing, gauging one or more characteristics of a product or service and comparing these with specified requirements to determine conformity

Nonconformity: The nonfulfillment of specified requirements -

Defect: The nonfulfillment of intended usage requirements

Specification: The document that prescribes the requirements with which the product or service has to conform

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