

**COUNTRYWISE DIFFERENCES IN
CONTEMPORARY QUALITY MANAGEMENT
PERCEPTIONS: A CASE STUDY IN TURKEY**

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**ÇAĞDAŞ KALİTE YÖNETİMİ ANLAYIŞLARINA
ÜLKELERARASI FARKLI YAKLAŞIM:
TÜRKİYE GERÇEĞİ**

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PREFACE

After the big earthquake on August 17, 1999, it was very clear that quality must become everyone's concern regardless of nationality or social status. Up to date, people considered quality as a tool of improvement in business world. However, quality is not something that people are preoccupied with implementing or worried about putting in place. It is a search for a better way of life, and should become a natural part of daily life. As people go beyond the basics of quality, focus will be more on to improve the standards of living. Unless we want our children to grow up in a world with nothing to offer but poor quality of life.

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MNEMONICS

TQM	: Total Quality Management
BPR	: Business Process Reengineering
IT	: Information Technology
QWL	: Quality of Work-Life
KMO	: Kaiser-Meyer-Olkin
MBNQA	: Malcolm Baldrige National Quality Award
ASQC	: The American Society for Quality Control
EQA	: European Quality Award
EFQM	: European Foundation for Quality Management
KALDER	: Kalite Derneği/The Society of Quality, Turkey
TUSIAD	: Türk Sanayii ve İşadamları Derneği/The Association of Turkish Businessmen and Industrialists
TSE	: Türk Standartları Enstitüsü/The Turkish Standards Institute
MPM	: Milli Prodüktive Merkezi/The National Productivity Center



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SYMBOL LIST

F_{jk}	: Factor Score
W_{ji}	: Factor Score Coefficient
X_{ik}	: Standardized Value
KMO	: Kaiser-Meyer-Olkin Measure
r_{ij}	: Correlation Coefficient
a_{ij}	: Partial Correlation Coefficient
Z_{j+l}	: Fusion Coefficient
Z	: Average Fusion Coefficient
k	: Standard Error
S_z	: Standard Deviation of Fusion Coefficient



ÇAĞDAŞ KALİTE YÖNETİMİ ANLAYIŞLARINA ÜLKELERARASI FARKLI YAKLAŞIM: TÜRKİYE GERÇEĞİ

ÖZET

Gün be gün dünya daha küçülmekte ve daha fazla işletme kendini dünya pazarında bulmaktadır. Küresel ekonomide yeni teknolojiler ve rekabet baskıları artmakta, işletmeleri değişen çevre koşullarına uyum sağlamak için çeşitli yollar aramaya zorlamaktadır. Kalite, bugünün dünyasında hayatta kalabilmenin en önemli koşullarından birisi haline gelmiştir.

Bu çalışmanın amacı, bugüne kadarki Kalite Yönetimi yaklaşımlarını incelemek, dünyada ve Türkiye'deki Kalite Yönetimi çalışmalarını çözümlemek, bu çalışmaları tanımlanmış altı ölçüte göre kıyaslamak ve Türkiye'de Kalite Yönetimi çalışmalarının geleceği için bazı önerilerde bulunmaktır.

Yakın bir zamana kadar kalite, daha çok teknik araç ve yöntemler kümesi olarak algılanmaktaydı. Ancak, işletmeler Kalite Yönetiminin (KY) stratejik önemini farkettikçe, KY'nin yönetsel yanı daha fazla popülerlik kazanmaya başlamıştır.

Kurum kültürünün yeni yönetim felsefeleri ile uyumluluğu başarılı bir dönüşüm için ön koşuldur. Nitekim, daha fazla gelişmiş bir çalışma hayatı kültürüyle Kuzey Amerika ve Avrupa ülkeleri diğer ülkelere kıyasla daha rahat kültürel değişime sahiptirler.

1980'lerden sonra Türkiye küresel ekonomi normlarını benimsemiştir. Doğuyla batı kültürlerinin kesişim noktasındaki Türkiye, gelişmiş ve gelişmekte olan ülkelerin özelliklerini birlikte taşır. Analiz sonucunda ortaya çıkan önemli noktalar ise şunlardır:

- Genel olarak Türkiye, orta düzeyde otokratik bir yönetim tarzına sahiptir.
- Ülkedeki ekonomik ve politik sıkıntılar ve kısa dönem performans baskılarından dolayı Türkiye'de kısa dönemli stratejiler tercih edilmektedir.
- Organizasyon ve organizasyonel ilişkilerdeki değişim orta düzeydedir.
- Çalışanların yetkilendirilmesi ve katılımı programları ve performans değerlendirme/ödül sistemleri hala yetersizdir.
- Müşteri ve tedarikçilerle ilişkiler hala yeterli bir düzeyde değildir.
- Genel olarak Türk işletmeleri performans ölçütlerinde orta düzeyde başarılar sağlamıştır.

Türk işletmeleri için çıkarılan dersler ise şöyledir:

- Yöneticiler kalite yönetimi uygulamalarına değişim sürecini yönlendirerek yürekten katılmalıdır.
- İşletmeler ve süreçler yeniden yapılandırılmalı ve kurum kültürü geliştirilmelidir.
- İnsan kaynaklarından tümüyle yararlanılmalıdır.
- Uzun dönemli strateji ve politikalar geliştirilmelidir.
- Müşteri ve tedarikçilerin değişim yönetimine katılmaları sağlanmalıdır.
- Daha iyi sonuçlar için kaynaklar etkin biçimde kullanılmalıdır.

Kalite Yönetimi programlarına başlarken değişime karşı tepkiler çok hayal kırıcı olabilmektedir. Ancak, göreceli olarak daha destekleyici kültürü olan ve üst düzey yöneticileri programlara daha aktif olarak katılan işletmeler, kalite yönetimi çalışmalarında önemli başarılar elde etmektedir.

Yeni binyılda iş dünyasının kurallarının artık eskisi gibi olmayacağı görülmüştür. İşletmeler, tepeden yönetim yerine daha fazla müşteri odaklı olacak, daha fazla uzun dönemli stratejiler üzerine yoğunlaşacak ve yeni iş dinamiklerine vizyon, liderlik, teknoloji ve çalışanların yetkilendirilmesiyle meydan okuyacaktır. Dahası, işletmeler yeni fırsatlar ve büyük atılımlar için çaba gösterecektir.

Kalite yönetimi uygulamalarının başarı şansını artırmak için liderlik/yönetim, organizasyonlar ve süreçler, stratejiler ve politikalar, müşteri ve tedarikçilerle ilişkiler gibi çalışanlarla ilişkiler iyice araştırılmalı ve geliştirilmelidir.

Hangi yönetim yaklaşımı kullanılırsa kullanılsın, programın başarısı ve organizasyonel değişimin sorunsuz gerçekleştirilmesi mevcut organizasyonel kültürün yeni yönetim felsefeleri ile uyumluluğuna bağlıdır. Bu nedenle, yeni yaklaşımları başarıyla sürdürebilmek için kalite yönetimi kavram ve yöntemlerinin temelleri iyice anlaşılmış ve özümsemiş olmalıdır.

COUNTRYWISE DIFFERENCES IN CONTEMPORARY QUALITY MANAGEMENT PERCEPTIONS: A CASE STUDY IN TURKEY

SUMMARY

The world is getting smaller, and more and more companies find themselves in the global market day by day. New technologies and competitive pressures in the global economy increase, forcing companies to find ways to adapt to the changing environment. Quality has become one of the few keys to survival in today's world.

The purpose of this study is to examine quality management approaches to date, analyze quality management efforts around the world and in Turkey, benchmark these efforts according to six predefined criteria, and propose recommendations for the future of quality management efforts in Turkey.

Until recently, quality was perceived more as a set of technical means and methods. Yet, the managerial perspective of quality has become very popular as companies started to realize the strategic importance of quality management.

The compatibility of the organizational culture to the new management philosophies is a prerequisite for successful transformation. In fact, North American and European countries, with a more developed work-life culture, have easier cultural changes compared to the other countries.

Turkey has adopted global economic norms since 1980s. At the crossroads of eastern and western cultures, Turkey has the mixed characteristics of both emerging countries and developed countries. The main points derived from this analysis are as follows:

- Turkey, in general, has a moderate-level autocratic management style.
- In Turkey, short-term strategies are favored because of the political and economic difficulties in the country and short-term performance pressures.
- Change in organizations and organizational relations are at a moderate level.
- In Turkey, employee empowerment and involvement programs and performance appraisal/reward systems are still inadequate.
- Customer and Supplier relations are still not at a sufficient level.
- In general, Turkish companies achieved a moderate level success in performance measures.

Lessons that might be applicable to Turkish companies are as follows:

- Management should strongly commit to quality management practices by leading the change management process.
- Organizations and processes should be restructured, and organizational culture should be fostered.
- People power should be used to the full extent.
- Long-term strategies and policies should be crafted.
- Customers and suppliers should be involved in the change management efforts.
- Resources should be used effectively for better business results.

At the beginning of quality management programs, reactions to change might be very discouraging. However, organizations whose culture is relatively more supportive and whose senior managers are more actively involved in programs have significantly higher success on quality management efforts.

It has been seen that, the rules of business in the new millennium will not be the same any more. Companies will be more customer-driven rather than top-driven, focus more on long term strategies, and challenge new business dynamics through vision, leadership, technology and employee empowerment. Furthermore, companies will strive for new opportunities and big breakthroughs.

In order to improve the prospect of successful quality management implementation, factors, such as leadership/management, organizations and processes, strategies and policies, employee relations as well as customer and supplier relations, should be thoroughly investigated, and should be developed.

No matter what management approach is implemented, the compatibility of the current organizational culture with the new management philosophies will determine the success of the program and the smoothness of the organizational transformation. Therefore, the fundamentals of quality management concepts and methods should be thoroughly understood and absorbed in order to implement new approaches successfully.

I. INTRODUCTION

As we enter the new millennium, the world is getting smaller, and more and more companies find themselves in the global market. New technologies and competitive pressures in the global economy increase, forcing companies to find ways to adapt to the changing environment. Quality has become one of the few keys to survival in today's business world.

During the 1980s and early 1990s, the key criteria for competitive success was quality as well as productivity. Increasing awareness of quality in people's minds caused consumer demand for better products at lower prices. The only means of offering them the best value for money was seen as quality. However, increase in global competition and changes in trends have changed this perception. Quality has become a prerequisite in the 1990s.

Until recently, quality was perceived more as a set of technical means and methods. Yet, the managerial perspective of quality has become very popular as companies started to realize the strategic importance of quality management. In recent years, companies started to focus more on the philosophical side of quality rather than just focusing on basic statistical tools and methods.

There is no universal prescription for successful quality management programs other than some theories and management practices. Since there is no model that fits every organization, the change management program should be tailor-made to the needs of organization. In fact, each country has its own way of implementing programs. Parameters that affect the quality management efforts vary in each country. Therefore, it would be helpful to benchmark quality management efforts in different countries. In so doing, change programs could be designed more consciously.

The purpose of this study is to examine quality management approaches to date, analyze quality management efforts around the world and in Turkey, benchmark these efforts according to six predefined criteria, and propose recommendations for the future of quality management efforts.

Turkey, an emerging market in the global economy, has opened its market to global competition since 1980s. Thus, competition has no longer been constrained by national boundaries. Companies seeking to survive in the global market and gain a competitive edge should accept quality as a basis in the industry. After that, quality management approaches should be implemented to institutionalize quality management as an organizational culture rather than a sideline activity.

In this study, a comprehensive survey was conducted to analyze quality management efforts in Turkey. Quantitative values were gathered and further statistical analysis and between-group comparisons were made. From this study, the factors listed below were analyzed:

1. Evaluation of Turkey's position in quality management in comparison to major countries of the world.
2. Understanding how deeply quality management efforts are accepted and adopted by Turkish companies.
3. Examination of how cultural parameters affect success and failure factors.

By so doing, models, constructed with universal theories and global parameters as well as local socio-cultural parameters, could be developed to fit the organizations they are in.

This study involves two steps. The first step is an exploratory study involving analysis of previous studies, and papers. Primarily, the definition of quality, the evolution of quality approaches, TQM, BPR, quality management efforts and the trends in the world are overviewed thorough a literature review.

The second step involved conducting a comprehensive survey and a thorough statistical analysis of the data in order to offer recommendations, which might be applicable to Turkish companies.

This dissertation includes eight Chapters; Introduction, Quality and the Evolution of Quality Approaches, Quality Management Approaches, Quality Management Approaches in the World, the Future of Quality Management, Quality Management Approaches in Turkey, Benchmarking Quality Management Efforts and Perceptions Around the World and in Turkey, and Conclusion.

Chapter one provides a general introduction to the nature and intent of this research. It describes the purpose of the study and a brief explanation of the research methodology.

Chapter two reviews quality and the evolution of quality approaches. The definition of quality, four eras of quality and the emergence of quality management are discussed.

Chapter three covers the quality management approaches of the 1990s, such as TQM and BPR. After definitions of TQM and BPR, the reasons for implementing them, the methodologies, differences and similarities between these two approaches are reviewed.

Chapter four includes quality management approaches around the world. A brief introduction of quality criteria, major quality awards in the world, and comparisons of countries in their quality management efforts are discussed.

Chapter five consists of the trends and key forces shaping the future of business including quality movements. Insights about change management and success and failure factors in change management are discussed.

Chapter six examines quality management efforts in Turkey. A brief history of quality management in Turkey, the objectives of the study, and the research methodology are employed. Results of the study are analyzed, and a general overview of quality management efforts in Turkey are presented.

Chapter seven covers benchmarking quality management efforts and perceptions around the world and in Turkey. In addition, recommendations which might be applicable to Turkish companies are listed.

Finally, Chapter eight presents conclusions with a final summary of the research. The contributions and limitations of this study, and recommendations for future studies are also discussed.

II. QUALITY AND THE EVOLUTION OF QUALITY APPROACHES

Before starting to explore how the quality management approaches evolved, it would be helpful to define the meaning of quality. The basic definition of quality in dictionaries is the standard of something, and how good or bad it is in relation to other things of the same kind. Another definition of quality is as a high standard, as in the way something has been made or done. Juran defines quality as the fitness for purpose, and for Crosby quality remains conformance to requirements.

Like many other concepts in the history of management, quality has taken different forms along the way. Early on, quality was perceived more as a set of technical means and methods of inspection that catch defects on products before they reach customers. Over the last few years, this perception has changed, and organizations started to seek proactive approaches to reduce variation around targets that match, and even exceed customer needs and expectations. That is, managerial approaches to quality have evolved from a narrow view, focused on inspection and conformance to specified standards, toward a broader view, focused on organizational strategy for providing superior customer value (Bounds et al., 1994).

2.1. The Evolution of Quality Approaches

The quality movement is typically separated into four eras (Garvin 1988, Hermel 1997, Boaden 1997). The first era is often called the Inspection Period, which lasted until the 1930s. From the 1930s to the 1950s, the Statistical Quality Control Period, statistical tools and techniques were used by different type of organizations. Beginning in the 1950s, the Quality Assurance Period, the focus shifted to programs and systems. The Strategic Quality Management or Total Quality Period, which started in the late 1970s, focused on quality from the managerial point of view.

As seen on Table 2.1, each of these eras are identified by specific characteristics, such as it's view of quality, emphasis, methods, orientation and approach.

Table 2.1. The Four Eras of Quality Approaches

	Inspection	Statistical Quality Control	Quality Assurance	Strategic Quality Management
Identifying Characteristics	(1800s)	(1930s)	(1950s)	(1980s)
Primary Concern	Detection	Control	Coordination	Strategic Impact
View of Quality	A problem to be solved	A problem to be solved	A problem to be solved but one that's attacked proactively	A competitive opportunity
Emphasis	Product uniformity	Product uniformity with reduced inspection	The entire production chain, from design to market, and the contribution of all functional groups, especially designers, to preventing quality failures	The market and consumer needs
Methods	Gauging and measurement	Statistical tools and techniques	Programs and systems	Strategic planning goal-setting, and mobilizing the organization
Role of Quality Professionals	Inspection sorting, counting grading	Troubleshooting and the application of statistical methods	Quality measurement quality planning, and program design	Goal-setting, education& training consultative work with other departments, and program design
Who has Responsibility For quality	Inspection department	Manufacturing & engineering departments	All departments, although top management is only peripherally involved in designing, planning, and executing quality policies	Everyone in the organization, with top management exercising strong leadership
Orientation & approach	"Inspects in" quality	"Controls in" quality	"Builds in" quality	"Manages in" quality

Adapted from Garvin, (1988), p. 37.

Hermel (1997) observed that the evolution of quality movement is marked by the progressive appearance of four principal trends. These are:

- The increasing importance of qualitative factors among the performance criteria of organizations, with the first approaches to quality being much more quantitative.
- The leap from a reactive vision of quality to a proactive one; thus, the original function of inspection with curative vocation becomes a dynamic and preventive function.
- The spread of the quality notion into different new fields other than the final product: the new approach has concentrated mainly on the quality of daily tasks, and on the quality processes.
- The increasingly important integration of different functional aspects of quality: to the commercial dimensions we now have to add other economic, social and organizational aspects, thus contributing to a more global perspective of the company.

Though many experts and academicians separated quality management efforts into four eras, it would be more meaningful to divide into two. Until World War II, quality approaches have evolved more on technical side in terms of methods and means. However, after the 1950s, experts and academicians as well as corporate managers started to focus more on the managerial side of quality, and adopted quality as one of the major corporate strategies in the 1990s.

2.2. The Quality Management Approaches Before the 1950s

Since Adam Smith's introduction of mass production theory, specialization increased, and mass production required more formal inspection. This way, companies could optimize total output at the lowest possible cost by implying standardized techniques.

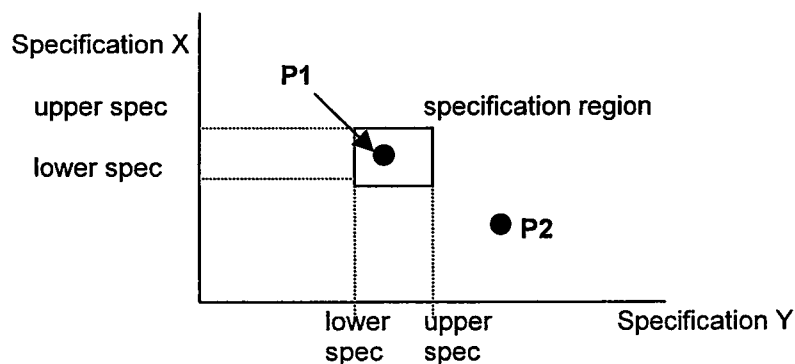
By the early 1900s, inspection has become even more important, and Radford formally linked inspection to quality control. For the first time, quality was regarded as an independent function and a distinct management responsibility. According to Bounds et al., (1994), quality control through the 1920s was often

limited to inspection and focused on activities such as counting, grading, and rework through the 1920s. Inspection departments and quality professionals were not required to trouble shoot, understand and address the causes of poor quality, until the 1930s, with the creation of statistical quality control.

In statistical quality control, numbers derived from measures of processes or products should be analyzed according to a theory of variation that links outcomes to uses. The statistical quality control approach that Shewhart advocated, is based on his views of quality (Garvin, 1988). These are:

1. The product-based view of quality is a precise and measurable variable: differences in quality reflect differences in the quantity of an attribute the product possesses.
2. The manufacturing-based view of quality focuses on manufacturing and engineering practices, emphasizes conformance to specified requirements, and relies on statistical analysis to measure quality.
3. The user-based view of quality, popular with people in marketing, presumes that quality rests in the eye of the beholder, the user of the product, rather than an engineer's specified standards.

According to Shewhart as seen in Figure 2.1, the quality or degree of excellence of a product (represented by point P1) falling within the rectangular region would be characterized as good or satisfactory. A product (point P2) with quality outside the region, not conforming to specifications, would be characterized as bad or unsatisfactory.



Adapted from Bounds et al., (1994), p. 50.

Figure 2.1 Measurements of Quality

From the point of user-based view, quality is described as the match or the discrepancy between the product (point P1) and the customer's needs (point P2). The closer the match, the smaller the discrepancy between the product and the customer's need, and therefore the higher the quality.

Plotting data graphically with statistical limits enabled managers to assess whether the numbers fell within the acceptable range. Shewhart was the first person to successfully integrate the disciplines of statistics, engineering, and economics, giving helpful insights and graphics to managers (Swift, 1995). Assignable causes, which are controlled by some outside influence or special cause, could be now identified or controlled.

In 1940s, the Bell Lab statisticians, H. Dodge and H. Romig, developed a new set of sampling tables to apply the concept of Acceptable Quality Levels (AQL), the maximum percent defects allowable for a supplier to still be considered satisfactory. However, the AQL approach, which tolerates a certain level of defects, does not encourage continuous improvement of systems.

By the late 1940s, quality control was an established discipline in the United States. However, most of the methods developed in this era remained largely inspection-based applications on the factory floor. More importantly, quality and quality management were still not well known around the world.

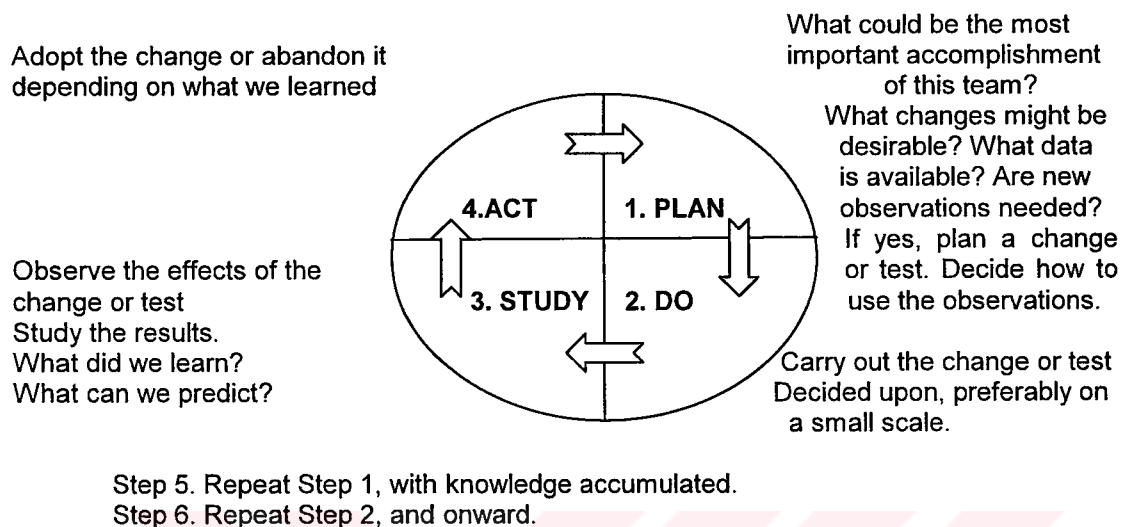
2.3. The Quality Management Approaches After the 1950s

Since the 1950s, the concept of quality has evolved from a narrow, manufacturing-based discipline to one with implications for management throughout a firm. Statistics and manufacturing control remained important, but coordination with other areas, such as design, engineering, planning, and service activities, also became important to quality (Bounds et.al, 1994; Swift, 1995).

Many of the recognized quality gurus, like Deming, Juran, and other Americans, came out in this era, and published several articles regarding the new fundamentals of quality management.

Deming is credited with much of the development of quality control in Japan after World War II, along with Juran. His contribution to the field of quality management goes beyond the development of the system of statistical quality

control for which he is most well known. Shewhart's principles of scientific thinking embodied in the Plan, Do, Study, Act (PDSA) cycle, were soon referred to as the Deming Cycle, providing managers with a scientific method for learning how to make improvements. (Figure 2.2)



Adapted from Deming, (1986), p. 88.

Figure 2.2. The Shewhart or Deming Cycle (PDSA)

Deming introduced the Japanese to modern approaches to consumer research and suggested methods for relating the research to continuous improvement. The Japanese continued to refine the Shewhart/Deming approach to continuous improvement, introducing other techniques to support an approach to continuous improvement, which focused on the means (the causes) and not just the ends (the results). For example, Ishikawa developed the cause & effect (fishbone) diagram as a format for documenting ideas about cause & effect relationships (Deming, 1986; Boaden, 1997; Hermel, 1997; Bounds, Yorks, and Ranney, 1994; Swift, 1995).

As Ishikawa (1986) noted, quality control remained a movement among engineers and workers in the factories, top and middle-level managers did not show much interest till the arrival of two Americans, Joseph M. Juran and Armand Feigenbaum. The Japanese were soon encouraged to make quality control a management tool.

Juran was invited to Japan in 1954, and gave a series of lectures on quality. His subsequent work is highly regarded, and considered by many to be more influential than that of Deming, particularly because of his emphasis on the role of senior management in quality improvement. He included the managerial dimensions of planning, organizing and controlling, and focused on the responsibility of management to achieve quality, as well as the need for setting goals (Boaden, 1997; Swift, 1995).

Juran (1988) divided the costs of achieving a given level of quality into avoidable costs and unavoidable costs. Unavoidable ones are those related to preventing defects including inspection, sampling sorting, and other quality control initiatives. Avoidable costs are related to defects and product failures, including scrapped materials, labor hours required for rework and repair, complaint processing, and financial losses resulting from unhappy customers. With Juran's cost of quality concept, managers could calculate when additional expenditures on prevention were justified, and also the importance of early decisions, as in engineering design, which might affect the quality costs incurred later on.

Juran's cost-focused approach to balance cost of quality and value of quality appears to contradict the philosophies of zero defects and continuous improvement by giving an excuse for less than excellent performance and for not implementing continuous improvement. According to Bounds et al. (1994), some experts argue:

- It defines quality only in terms of conformance to specifications and suggests that money is lost only when defects occur.
- It allows managers to assume that there is always a trade-off between quality and cost based on predictable cost curves.
- It assumes that managers can accurately and completely measure the cost of quality.
- It assumes that to minimize costs, managers should be content to determine a maximum amount of necessary quality rather than the amount of quality that will meet customers' needs.

In 1956, Feigenbaum suggested that high-quality products are more likely to be produced through total quality control than when manufacturing works in isolation. To provide genuine effectiveness, control must start with the design of the

product and end only when the product has been placed in the hands of a customer who remains satisfied. He emphasized that the first principle is to recognize that quality is everybody's job.

Both Juran and Feigenbaum acknowledged that statistical methods and manufacturing control were still important. However, they felt total quality control would require new managerial skills to deal with areas such as new product development and vendor selection. Managers need to understand quality improvement and incorporate it into management practice by planning and coordinating cross-functional teamwork (Bounds et al., 1994; Boaden 1997).

Feigenbaum is credited with the development of the term company-wide quality control (CWQC). His approach is summarized in three criteria to which managers must commit themselves: strengthening the quality improvement process itself, making sure that quality improvement becomes a habit, and managing quality and cost as complementary objectives (Boaden, 1997).

While total quality control was emerging, another branch of the quality discipline, reliability engineering, was developing with even more heavy reliance on probability theory and statistics. Failure Mode and Effect Analysis (FMEA), Individual component analysis, de-rating, redundancy and monitoring of field failures are some of the techniques used to reduce failure rates over time and improve reliability.

Both total quality control and reliability engineering aimed to prevent defects and emphasized engineering skills and attention to quality throughout the design process. By contrast, zero defects focused on management expectations and human relations.

The Zero Defects program was heavy on philosophy, motivation, and awareness, and lean on specific proposals and problem-solving techniques. The Zero Defects movement overemphasized the importance of enhancing employee attention to perfection. Crosby (1984) suggests that quality improvements aim to get everyone to do it right the first time. In fact, he has achieved significant commercial success through the notion of poor quality costs money.

During 1960s and 1970s, all functions within companies involved through total quality control. The driving force was mainly top management's active involvement. However, quality still meant focusing on defects. This view started to

change in the 1970s and 1980s, when managers started to recognize the strategic importance of quality.

After the 1980s, quality management approach has taken more a strategic direction, though the contributions of previous quality gurus like Shewhart, Deming, Juran, and Ishikawa are countless. The present quality approaches incorporate the previous theories and methods, and may at first appear to be just a repackaging of old ones. There are, however, dramatic differences from earlier ones. For the first time, top managers began to view quality positively as a competitive advantage, and to address it in their strategic planning processes, which are focused on customer value (Steingraber, 1990).

The 1990s marked the emergence of a new paradigm for management whereas a number of developments were brought together and reconfigured into a new approach in all departments and specialties. Dramatic changes in the global market brought quality management to the attention of corporate managers. They started to conceptualize it more from a philosophical way of management. Thus, in today's competitive environment, the focus of management is moving from technical aspects toward more managerial aspects.

Because of the competitive pressures created by Japanese companies, quality became a competitive weapon in the 1980s in most industries (Haksever, 1996). Its role in economic life seems to be attaining a new level in the 1990s. In some industries, such as the automotive industry, quality no longer seems to be a competitive weapon, but rather a prerequisite to survival.

As Bounds et al. (1994) summarized old and new paradigms in Table 2.2, managers should keep pace with changes in paradigms, and pursue continuous improvement efforts.

Table 2.2 Old and New Paradigms for Continuous Improvement

Topics	Old Paradigm	New (Emerging) Paradigm
Occasion	Focused new product development, episodic, reactive to problems, big breakthroughs only	Focused on broader systems, unending, proactive to opportunities, big breakthroughs and small steps
Approach	Trial and error	Scientific method
Response to error	Punish, fear, cover-up, seek people fix, employees are responsible	Learning, openness, seek process/system fix, management is responsible
Decision-making perspective	Individual political expediency, short term	Strategic, long-term, purposeful for organization
Managerial roles	Administer and maintain status quo, control others	Challenge status quo, prompt strategic improvement
Authority	Top-driven via rules and policies	Customer-driven through vision, enablement, and empowerment
Focus	Business results through quotes and targets	Business results through capable systems means tied to results
Control	Scoring, reporting, evaluating	Statistical study of variation to understand causes
Means	Delegated by managers to staff and subordinates	Owned by managers who lead staff and subordinates

Adapted from Bounds et al., (1994), p 33.

Fine (1985), Ross (1994), and Boaden (1997) highlighted some common themes for the 1990s as follows:

1. Inspection is never the answer to quality improvement, nor is policing.
2. Involvement of, and leadership by, top management are essential to the necessary culture of commitment to quality.
3. A program for quality requires organization-wide efforts and long term commitment, accompanied by the necessary investment in training.
4. Quality is first and schedules are secondary.
5. Quality improvement requires careful planning and a philosophy of company-wide quality improvement.
6. Quality improvement programs must represent permanent, on-going activities.

In this chapter, quality is defined, and the evolution of quality approaches is explored in details. It is obvious that companies are moving fast toward quality management approaches, since competition intensifies and companies face heavy global competitive pressures. To cope with the challenges, they started to implement new quality management programs reaching from SPC, and ISO 9000 to Total Quality Management (TQM) and Reengineering (BPR). To the extent that, current organizational culture is compatible with the new quality management philosophies, people are fully committed, and quality program is strictly implemented, the transformation process will be much easier and successful.

In the next chapter, two of the new quality management approaches of 1990s, TQM and BPR, will be examined in depth. After defining TQM and BPR, the reasons for implementing these two approaches will be reviewed, since each of them meet the need of companies to respond better to the challenges they face. For better understanding, the methods of TQM and BPR, and then the differences between TQM and BPR as well as other quality management tools will be examined.

III. QUALITY MANAGEMENT APPROACHES

Dramatic changes in the global market combined with increasing competitive pressure have brought quality management to the attention of people. Rather than just focusing on basic statistical and quality management tools, corporations started to implement new quality management programs, and philosophies reaching from Statistical Process Control (SPC), and ISO 9000 to Total Quality Management (TQM) and Reengineering (BPR) in order to challenge the new paradigms.

In this chapter, two of the new quality management approaches of 1990s, TQM and BPR, will be examined in depth. After defining TQM and BPR, the reasons for implementing these two approaches, the methods of TQM and BPR, and then the differences between TQM and BPR as well as other quality management tools will be examined.

These two approaches depend on the previous theories and management practices, but they also bring new ways of thinking. Sometimes they reconfigure the previous ones into an integrated approach to management. However, sometimes they question or even deny the fundamentals to offer new ways of thinking in management issues.

No matter what management approach is implemented, the compatibility of the current organizational culture with the new management philosophies will determine the success of the program and the smoothness of the organizational transformation. Therefore, it would be very helpful to understand what these management philosophies are, how to implement them, and what are their strengths and weaknesses in order to make comparisons and to decide what to use and why.

3.1. Total Quality Management (TQM)

Total Quality Management (TQM) is one of the most popular management approaches since late 1980s. It is often known as the incremental improvement

approach at every level of the organization, over a long period of time by using all available human and capital resources. Therefore, the main focus is on changes in the long run.

While Total Quality Management (TQM) is widely practiced, there is little agreement on what it actually means. One problem in reaching consensus on TQM definition, is the broad range of focus from the technical part of TQM to the philosophical side. Although most elements of TQM are not new, the way they are woven together and practiced today are considered by many as revolutionary because of the fundamental changes required in management practices and philosophy.

3.1.1. Definition and Elements of Total Quality Management

Boaden (1997) stated that many academic texts detail the history of TQM, from the post-war quality gurus, such as Deming and Juran, to the Japanese adoption and extension of quality control (QC) principles, to current models such as the Malcolm Baldrige National Quality Award (MBNQA), and the European Quality Award (EQA), without ever addressing the issue of what TQM is. Yet, he noted that the development of TQM can be seen as a parallel to the development of Quality Control (QC) to Total Quality Control (TQC) and then to Company-Wide Quality Control (CWQC).

Historically, TQM has evolved from the ideas of many quality experts and practices of very successful companies in the United States and Japan (Haksever, 1996). However, many of the recognized quality gurus did not actually use the term TQM, although their work has subsequently been recognized as being relevant and sometimes quoted as referring to TQM.

Total Quality Management is a management philosophy, something more than just a program. The word "total" conveys the idea that all employees, throughout every function and level of an organization, pursue quality. The word "quality" suggests excellence in every aspect of the organization. The word "management" refers to the pursuit of quality results through a quality management process (Bounds et.al., 1994). A broader definition is that TQM is a way to continuously improve performance at every level of operation, in every functional area of an organization, using all available human and capital resources (Brocka & Brocka, 1992).

TQM attempts to reconfigure the preceding theories and practices into an integrated approach to management. As Dervitsiotis (1998a) stated TQM has drawn ideas, principles and tools from many disciplines to form an integrated framework for developing organizations, which create value through greater satisfaction for all stakeholders

The first and most important element of TQM is customer focus, which implies meeting and exceeding customer requirements and expectations the first time and every time. For this principle to play any meaningful role in the success of a firm, it must be embraced by all employees and become part of an organization's culture (Haksever, 1996).

Some of the major elements of TQM, other than customer focus, are continuous improvement, total involvement and systematic support from employees and management (Berger et.al, 1994; Dean & Bowen, 1994; Zeitz et.al, 1997; Boaden, 1997; Hermel, 1997).

By putting customer satisfaction first, all the staff, not only those in the production department, become involved in a process of continuous improvement, beginning with strategic management processes and extending through product design, manufacturing, marketing, finance (Frehr, 1997).

In short, TQM that is as much about the quality process as it is about quality results or quality products, is grounded in the broad concept of quality. It begins with people, particularly managers.

3.1.2. Why Total Quality Management?

The needs and expectations of customers are constantly changing, and competition is pushing standards to higher levels. Paradigm shifts in customer satisfaction, as well as the accelerated technological advances brought up new challenges in quality for companies. Historical quality management approaches are now obsolete and inadequate in today's competitive environment. Today, companies must move fast to pursue new management approaches, or they won't be moving at all. Thus, as Haksever (1996) stated continuous improvement became a natural requirement for sustained customer satisfaction.

With the change in the managers' view of quality as a means of achieving competitive advantage by providing value to customers, managers started to focus

on modern quality management approaches and philosophies, which is TQM in the 1980s. Indeed, managers started to regard quality as an important element to strategy formulation and planning in order to provide value to customers (Bounds et. al, 1994).

Studies done all around the world confirm that there are links between quality and performance measures in a positive way. Easton & Jarrel (1995) observed that performance, measured by profit margin, return on assets, assets use efficiency, and excess stock returns is improved for firms that adopted TQM. Many studies also reveal that quality might not have a direct effect on some performance measures, but an indirect effect. In fact, firms with more advanced TQM systems demonstrated stronger and more consistent improvements over years.

Almost all managers have now heard of TQM and many organizations have attempted to implement it. When fully implemented, TQM brings good benefits to organizations in terms of quality, productivity, and employee development (Lawler et al., 1995). However, results are not always impressive. A majority of the firms, which attempt to implement TQM, drop their initiatives within a short period of time. Several reasons contribute to this drop outs, reaching from lack of management commitment to short-term performance pressures.

One of the reasons of failure is the confusion between the tools of TQM and other quality management tools. Some quality tools, such as Statistical Process Control (SPC), data analysis, or even ISO 9000+ standards, are used by companies in their TQM programs and considered as the sum of what they needed to practice TQM. However, these are merely the tools of TQM, not the core of TQM. As Frehr (1997) mentioned in implementing TQM in a company, achieving ISO 9000 is merely the first step, which must be followed by overall management commitment, involving all parts of the company, implementing the TQM philosophy and realising the different TQM elements

3.1.3. Total Quality Management Methodologies

As in the case of defining TQM, there is no widely accepted method of TQM other than the teachings of quality gurus and some guidelines for national quality awards. The difficulties start with the shift from a narrow focus toward a broader focus of quality management, which also brings cultural change in the organization.

The boundary between TQM as a management program and TQM as an organizational culture is not well defined. Indeed, one might argue that the essence of TQM is culture, and that TQM practices are merely tools for cultural transformation. This is, in fact, true that most failures come with the unmatched organizations and change programs, and by ignoring human factors and organizational culture.

Many of the recognized quality gurus did not actually use the term TQM, although their work has subsequently been recognized as being relevant and sometimes quoted as referring to TQM (Boaden, 1997). Deming, Juran, Crosby and Ishikawa are a few who influenced the development of TQM philosophy the most with their teachings.

3.1.3.1. Deming's Teachings

Deming's contribution to quality management goes beyond statistical studies. He has formulated a management theory centered on system improvement, the reduction of variation to meet customer needs, and the humane and intelligent management of people. Deming's Fourteen Points are elements of his theory for management, which calls for management to assume leadership and personal responsibility to put it in place, and which he believes should be incorporated into every level of the company's operations.

Deming (1986) suggests that a chain reaction would result from quality improvement through reduced variation. By improving quality, costs decrease because of less rework, fewer delays, snags, better use of machine-time and materials. After all, productivity improves, which also helps to capture the market with better quality and lower price. As a result, the company stays in business, and provides jobs and more jobs to people.

One of Deming's most prominent contributions to quality management is his belief in respect for people. He believed in obtaining the willing contribution of workers to do things right, and that management has to provide workers with the proper tools and training needed to do the job right (Swift, 1995; Stratton, 1994).

3.1.3.2. Juran's Teachings

Juran has been influential particularly because of his emphasis on the role of senior management in quality improvement. Both Deming (1986) and Juran (1986) suggest that a manager's responsibility for improving systems and processes goes beyond the traditional responsibility for achieving results or "getting things done through others". Managers act as leaders, first by setting the vision for those who work within the system, then by providing and constantly improving the means by which they can achieve that vision.

In Juran's Trilogy (1986), cross-functional management is composed of three managerial processes: planning, control and improvement. To accomplish quality improvement in the Trilogy, Juran suggests the followings:

- Top managers are responsible for designing for quality by making quality planning (goal setting) a part of business planning.
- Quality goals or quality improvement projects should be deployed down through the hierarchy by breaking them into sub-goals (bite-size projects) at lower levels.
- In the case of macro-processes that have no ownership and cannot be broken into pieces and deployed, top managers should form quality councils that establish and oversee project teams to improve macro-processes.

Juran's major contribution to quality management efforts is his emphasis on the role of senior management in quality improvement. Top managers started to involve in quality management efforts actively.

3.1.3.3. Crosby's Teachings

Crosby (1979) has achieved success through the notion that poor quality costs money. In his Zero defects movement, Crosby over-emphasized the importance of enhancing employee attention to perfection through company-wide motivation. According to him, four absolutes of quality are as follows:

- Quality is defined as conformance to requirements, not 'goodness'.
- The system for achieving quality is prevention, not appraisal.
- The performance standard is zero defects.

- The measurement of quality is the price of non-conformance.

3.1.3.4. Ishikawa's Teachings

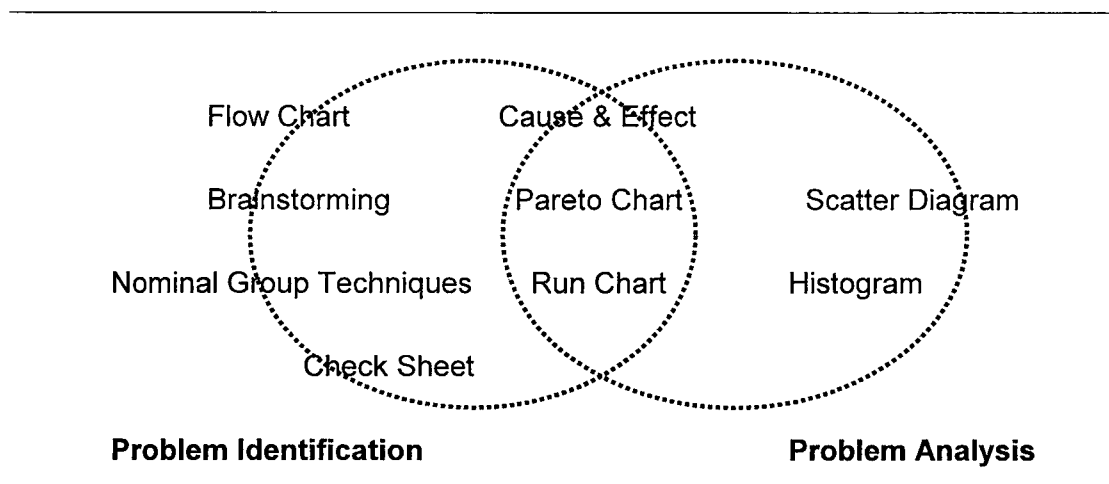
Ishikawa was one of the most influential management gurus in TQM, and had many contributions to the modern quality management efforts. According to Ishikawa (1985), the concept of quality control was a thought revolution in management philosophy and many companies had transformed themselves after applying quality control. He classified this transformation into the following six categories:

- Quality first, not short-term profit first.
- Consumer orientations- not producer orientation.
- The next process is your customer - breaking down the barrier of sectionalism.
- Using facts and data to make presentations-utilization of statistical methods.
- Respect for humanity as a management philosophy - full participatory management.
- Cross-function management.

Ishikawa (1985) believed that quality control starts and ends with education, and that educating all employees in the methods of quality control enables all employees to participate in company improvement. The fundamental precept of his Company-Wide Quality Control (CWQC) is that quality control must be implemented through the participation of all workers with confidence.

From all of these teachings and many other disciplines, TQM has drawn ideas, practices and tools to form an integrated framework. The tools TQM uses include techniques for problem formulation and analysis, for data collection and analysis, and for developing and testing new solutions (Bergman & Kleflo, 1994).

As seen in Figure 3.1, Thomas and Baron (1994) listed several tools described in Quality Management literature. These tools are grouped into problem identification or Problem Analysis categories. Several tools are useful for both types of problem solving.



Adapted from Thomas et al., (1994), p 64.

Figure 3.1 Tools for Problem Solving

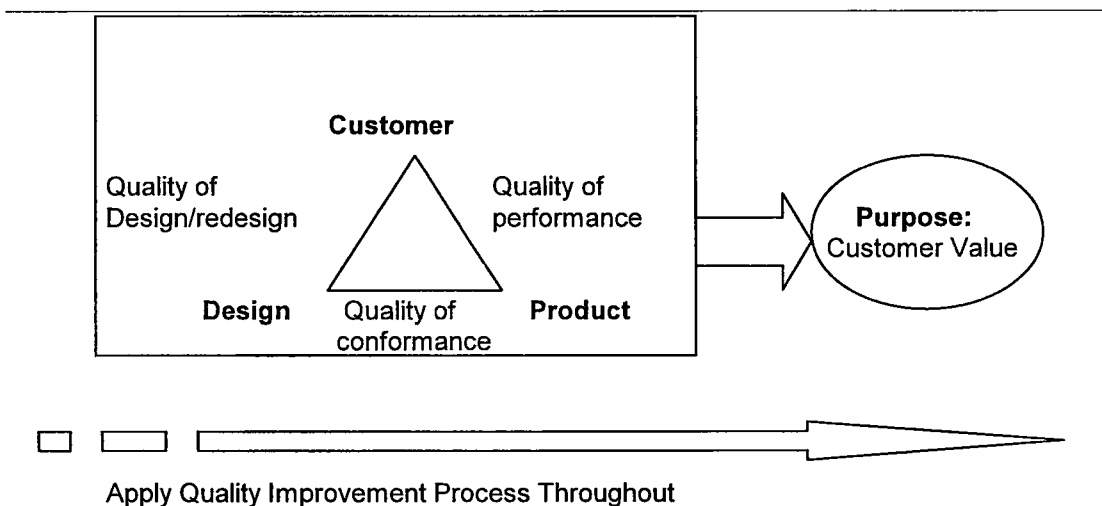
The three sets of TQM tools are:

1. The seven tools of quality (Ishikawa diagram, control charts, Pareto diagram, scatter plots, etc.).
2. The seven new management tools of quality (affinity diagram, matrix diagram, tree diagram, arrow diagram, process decision diagram, etc.)
3. The seven product planning tools (group interview, questionnaire surveys, positioning analysis, concept checklist, table-type conceptualizing, conjoint analysis and quality table).

Though TQM approaches are facilitated by a number of tools developed to enable management and employees to carry out the outlined functions more effectively, TQM is a management philosophy, something more than just a program, which focus on continuously improving performance at every level of operation for customer satisfaction. Understanding customer needs, formulating strategies to provide value to customers and continuously improving organizational systems to provide that value are significant in TQM. Therefore, all the activities and strategies should be designed in accordance with the customer focus.

The customer value concept encompasses the user-based view of quality by incorporating the notion of price or costs, and the benefits and sacrifices associated with the customer's use process throughout the life cycle of product ownership (Bounds et. al, 1994). As seen in Figure 3.2, all of these dimensions of quality

should be managed through a quality improvement process that enhances customer value. Achieving strategic objectives for customer value requires that organization's activities be integrated at every level and across every function.



1. Quality of Design/Redesign: Product designs conform to customer needs (product-based and user-based quality).
2. Quality of Conformance: Products manufactured conform to product designs (manufacturing-based quality).
3. Quality of Performance: Products manufactured conform to customer needs by performing in the field (user-based quality).

Adapted from Bounds et al., (1994), p 64.

Figure 3.2 Quality Improvement for Customer Value

Other than customer first orientation, that puts emphasis on the customer-supplier relationship, internally and externally, TQM focuses on processes and continuous improvements. Top management leadership and commitment as well as cooperation and involvement of all functions are essential in TQM.

In short, TQM involves incremental improvements over a long period of time by creating a new organizational culture in order to satisfy genuine needs and expectations of all stakeholders. Furthermore, TQM insist on formulating and solving problems with information based on facts by using vast resources of knowledge from different scientific fields.

Although TQM uses tools including the basic elements of Statistical Process Control (SPC), assorted data analyses like flow charts, and some idea-generation tools like brainstorming, TQM is far more than these tools such as ISO 9000, and SPC. SPC enables manufacturing processes to be improved by controlling variation

and improving efficiency. ISO 9000 also focuses on the production process, and involves those parts of the company.

There is no universally accepted framework for TQM, other than some guidelines and teachings of quality gurus. However, the national quality awards such as the Malcolm Baldrige National Quality Award (MBNQA), and the European Quality Award (EQA), without ever using the term TQM, set the most widely used criteria for TQM.

Just as there are no universally accepted TQM frameworks, there are no widely recognized performance measures to evaluate companies in several areas. However, it is important to measure the progress companies achieved during their quality management journey. As seen on Table 3.1, Anderson et al. (1994) listed selected constructs and indicators of TQM to evaluate performance measures.

Table 3.1 Selected Constructs and Indicators of TQM

<u>Leadership</u> • Clarity of vision • Long-range orientation • Coaching management style • Participative change • Employee empowerment • Planning/implementing change <u>Customer Focus</u> • Customer-driven focus <u>Process Management</u> • Prevention orientation • Reduction of mass inspection • Design quality • Statistical process control • Understanding variation • Elimination of numerical quotas • Elimination of merit ratings • Understanding motivation • Total cost accounting • Stable employment <u>Employee fulfilment</u> • Job satisfaction • Job commitment • Pride of workmanship	<u>Continuous Improvement</u> * Refinement cycles * Improvements <u>Internal/External Cooperation</u> * Firm-supplier partnership * Single-supplier orientation * Collaborative organization * Teamwork * Organization-wide involvement * Systems view * Trust * Elimination of fear <u>Learning</u> * Managerial learning * Company-wide training * Foundational knowledge * Process knowledge * Educational development * Continuous self-improvement
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Adapted from Anderson et al., (1994), p. 478.

In the late 1980s, academicians and quality gurus started to discuss the fundamentals of TQM, since some companies, including award winners, were decreasing their interest in the quality movement, particularly TQM. Several experts started to criticize TQM and offer advice on TQM programs, some good and some

not so good. In order to understand what didn't work, the problems should be identified and analyzed.

Harari (1993) identified several reasons for TQM failures. Some of them are focusing on internal processes rather than on external results, focusing on minimum standards, developing its own cumbersome bureaucracy and delegating quality to quality czars and experts rather than to real people. Moreover, TQM does not demand radical organizational reform, and drains entrepreneurship and innovation from corporate culture.

TQM programs have taken different directions in countries like US, Japan and Europe. Although most of the TQM gurus are American, US culture is known to have difficulty in handling implicit and ambivalent situations, elements that seem to be essential for any TQM program (Hermel, 1997). However, Japanese companies have great successes at implementing TQM programs, like most of the European companies.

Grant, Shani & Krishnan (1994) also argue that the very nature of TQM, with its long-term focus and participative management emphasis (customers, employees, and suppliers) inevitably conflicts with Western management practices, but not necessarily Western management theory. Deming (1986) also observed the same problems in the West, particularly in post-war America. According to him, most companies in the Western world lack of constancy of purpose and emphasize short term performance measures.

Japanese experts also put differences between Japan and the West in approaching quality management efforts. Besides cultural differences, there is also a big difference in implementing quality management approaches as well as strategic planning and action. Ishikawa (1985), examined the differences between Japan and the West, from professionalism to the role of government that deeply affect the TQM efforts.

Many experts agree on that TQM needs to re-examine its fundamentals to raise the interest of companies to quality management, and ease up the difficulties of implementation. Indeed, Dervitsiotis (1998a) argue that the current mode of TQM implementation is focused on an existing value-chain, designed for a company's current products and customers, which determine its existing competitive space. To remain an effective management approach, TQM must focus not just on the

quality of products from today's value-chain, but also on the quality of strategic decisions relevant to innovations for future value-chains.

One suggestion comes from Imai (1986), who combines continuous improvement efforts with innovative (breakthrough) efforts. As seen on Table 3.2, continuous improvement (Kaizen), the Japanese way, relies on a number of undramatic and subtle improvements gradually and cumulatively raising the level of performance without interruption (continuous advancement).

Table 3.2 Features of Kaizen and Innovation

	Kaizen	Innovation
Effect	Long-term and long-lasting, but undramatic	Short-term, but dramatic
Pace	Small steps	Big steps
Time frame	Continuous and incremental	Intermittent and non-incremental
Change	Gradual and constant	Abrupt and volatile
Involvement	Everybody	Select few "champions"
Approach	Collectivism, group efforts, systems approach	Rugged individualism, individual ideas and efforts
Mode	Maintenance and improvement	Scrap and rebuild
Spark	Conventional know-how and state of the art.	Technological breakthroughs, New inventions, new theories
Practical Requirements	Requires little investment, but great effort to maintain it	Requires large investment, but little effort to maintain it
Effort Orientation	People	Technology
Evaluation Criteria	Process and efforts for better results	Results for profits
Advantage	Works well in slow-growth economy	Better suited to fast-growth economy

Adapted from Imai, (1986), p. 24.

The American way relies on breakthroughs, the innovative one-shot deals that achieve dramatically better levels of performance (discontinuous leaps). Innovation achieves dramatic or discontinuous jumps, primarily through technological advances and large sums of money spent on research and development. After reaching a new standard, however, performance decays while managers simply await the next innovation.

Kaizen, however, does not necessarily require sophisticated technologies, but relies on people to apply simple techniques and some common sense to continue to upgrade the standards of performance. Imai (1986) suggested that the most powerful approach would be to combine Kaizen and Innovation, that is, between the big jumps, repeated small steps would ensure perpetual progress with no backsliding.

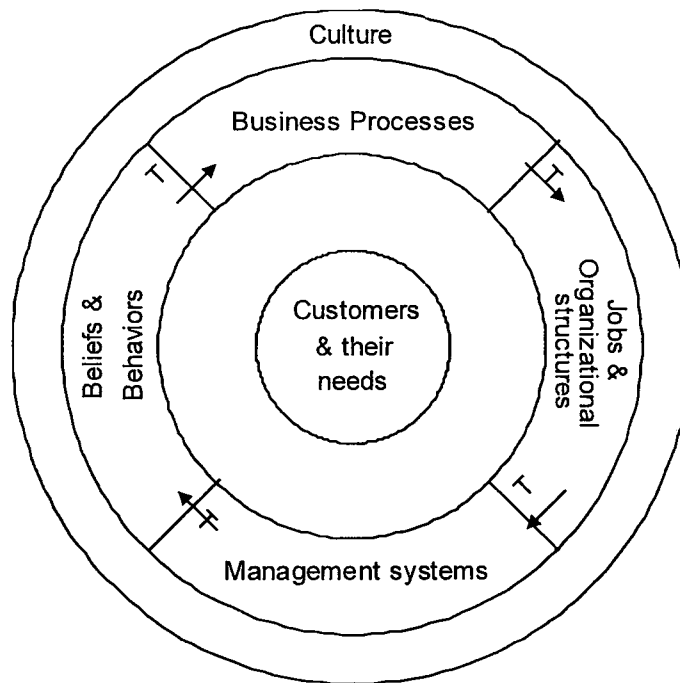
In the early 1990s, criticism of TQM increased because TQM had failed to deliver its potential. According to Gadd & Oakland (1996), the reason was that TQM did not produce large gains quickly enough. Yet, the cultural ideology of TQM in several organizations has provided the environment, necessary to sustain the new and radical process redesigns, while BPR has provided the broader process perspective described by many authors. This, in turn, has facilitated the realignment of business processes to achieve radical change in strategic direction of companies.

In the next section, Business Process Reengineering (BPR) is examined. After the 1990s, BPR has become one of the most important quality management approaches in the world, as disappointments in TQM forced companies to search for new quality management approaches and take more radical steps in implementation.

3.2. Business Process Reengineering (BPR)

The quality movement in the 1990s, has turned into more strategic way of doing business. In fact, companies start to use information technology more intensively for organizational transformation, and focus more on process management. Though the way of doing business changes, the focal point of business systems, the customer, does not change.

As seen in Figure 3.3, in the BPR holistic wheel, there are two important ideas with respect to the customer. One, the customer must become the center of everything the business does, and two, customers drive the entire business system. Business processes, organizational structure, jobs, management systems, beliefs and behaviors all must align to deliver on customer requirements. The more a BPR team keeps the customer at the center of team work the more successful it is likely to be (Quality Resources, 1994).



T : Technology

Adapted from The Kraus Organization-Quality Resources, (1994), p. 22.

Figure 3.3 Reengineering Diamond

In order to evaluate Business Process Reengineering, whether or not it is a quality management approach, the definition and elements of reengineering, and the differences between reengineering and other approaches as well as the methods must be studied.

3.2.1. Definition and Elements of Business Process Reengineering

Business Process Reengineering (BPR) is the fundamental rethinking and radical redesign of strategic, value-added business processes and systems to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed (Hammer and Champy, 1993; Petrozzo and Stepper, 1994; Lowenthal, 1994; Manganelli & Klein, 1994).

Davenport (1993) uses the term process innovation for reengineering, whereas process innovation is stepping back from a process to inquire as to its overall business objective, and then effecting creative and radical change to realize orders-of-magnitude improvements in the way that objective is accomplished.

BPR is a two-pronged effort: technical and behavioral. Technical efforts involve the identification of processes throughout the business, and tightening of connections with customers, streamlining operations and eliminating wasteful, non-value-added steps in the identified processes. Behavioral efforts are the ones that involve the identification of changes in the way people work throughout the organization that will have to take place in order for the technical aspects of BPR to be successful (Carr & Johansson, 1995).

Lowenthal (1994) categorizes reengineering efforts into four major components. These focus on the organization's customers (both internal and external), rethinking the processes in the reorganization (team building and organizational development activity), using the latest in technology to drive improve information, measurement, and decision making system.

Every researcher or practitioner provides a slightly different definition of BPR, but all of these definitions have one thing in common, that is radical or breakthrough change in a business process. As Peppard & Rowland (1995) noted, BPR aims to achieve step improvements in performance by redesigning the processes through which an organization operates, maximizing their value-added content and minimizing everything else. Yet, BPR is not simply a redesign of business processes to eliminate that which adds no value to the output of the process (Kevin, 1992). As Hammer (1990) rightly said reengineering triggers changes of many kinds, not just of the business process itself. Job designs, organizational structures, management systems - anything associated with the process must be refashioned in an integrated way. In other words, it is a total organizational transformation including organizational culture, structure, and management style (Goll, 1992).

Hammer (1990) argued that at the heart of BPR lies the notion of discontinuous thinking; identifying and abandoning the outdated rules and fundamental assumptions that underlie current business operations. In fact, organizations must challenge old assumptions and shed the old rules that made the business under-perform in the first place.

Reengineering has many key elements, including fundamental, radical, dramatic, process, and information technology. Yet, two concepts are stepping forward from these key elements: process and information technology. Raymond et al.(1998) wrote that reengineering consists of radically transforming organizational

processes through the optimal use of information technology to achieve major improvements in quality, performance, and productivity. It will be helpful to define process, process management and information technology in depth.

3.2.1.1. Information Technology (IT)

The power of modern Information Technology (IT) should be used to redesign the business processes in order to achieve dramatic improvements in terms of performance. In fact, IT is considered as the key enabler of BPR. However, there is always a misunderstanding in terms of the role of IT in BPR. Many experts strongly urge that IT is not a driver, rather an enabler, yet companies still jump on the bandwagon to invest heavily in information technology without changing the old way of doing business.

Davenport & Short (1990) argue that BPR requires taking a broader view of both IT and business activity, and of the relationships between them. IT should be viewed as more than an automating or mechanizing force, but rather fundamentally reshaping the way business is done. Also, Teng et al (1994) note that major changes in business processes have not occurred as a result of computerization, since business processes have existed and evolved long before the advent of modern computers.

The majority of computer systems in organizations, merely automate or support existing business procedures. However, Hammer (1990) prescribes the use of IT to challenge the assumptions inherent in the work processes that have existed since long before the advent of modern computer and communications technology.

Information Technology plays a key role in business reengineering, but technology planning must be preceded by process planning (Krass, 1992). For example, in one European application that Xerox redesigned, half the savings were won without changing a single line of software code. Real benefits to the business occur when IT becomes involved with more fundamental changes to the business processes themselves. IT can play not a leadership role, but a catalytic role. The technology must support fundamental changes to the underlying processes and not simply be applied to the old, inefficient processes (Hammer, 1990).

There is considerable anecdotal evidence that even small changes in the use of information technology in an organization may require major restructuring of

the organization to take full advantage of the efficiencies created by the technology. Conversely, there is also considerable evidence that, without major restructuring, the introduction of IT may not produce the savings needed even to justify the investment (Orman, 1998).

According to Venkatraman (1994), the role of IT in shaping tomorrow's business operations is a distinctive one. IT has become a fundamental enabler in creating and maintaining a flexible business network by reducing the degree of mediation and enhancing the degree of collaboration. As Teng et al. (1994) observed, innovative uses of IT would inevitably lead many firms to develop new, coordination-intensive structures, enabling them to coordinate their activities in ways that were not possible before.

Just as information technology is a powerful force in redesigning business processes, process thinking has important implications for the IT organization and for the technology infrastructure it builds.

3.2.1.2. Process and Process Management

Business process, the core element of BPR, is defined as a set of linked activities that convert business inputs into business outputs for the customer or market. In other words, it is a set of logically related tasks performed to achieve a defined business outcome (Hammer & Champy, 1993; Davenport, 1993; Teng et al, 1994; Scherr, 1993; Davenport & Short, 1990).

Identifying business processes in an organization is not as simple as it might seem at first, since researchers and practitioners have many different approaches and techniques.

Porter (1985) referred to processes as chains and defined two types of activities in his Value Chain framework: primary activities and support activities. Primary activities are the ones through which a company adds value to its inputs for its customers who are prepared to pay for its output. Supporting activities are those required to support the primary value-adding activities both now and in the future. In delivering product to the customer it is vital that the chain of primary activities have strong linkages facilitating the smooth flow of material and information between each.

According to Manganello & Klein (1994), processes are composed of three primary types of activities: value-adding activities that are important to the customer, hand-off activities that move work-flow across boundaries that are primarily functional, departmental or organizational, and control activities that are created to control the hand-offs across the boundaries.

Peppard & Rowland, (1995) state that processes can be considered along the dimensions of scale and scope. The scope of a process is concerned with the extent to which it crosses organizational units, i.e., departments or functions. The scale of the process depends on what it is performing; a very simple set of tasks or a highly complex set of interrelated ones.

Davenport & Short (1990) summarized the most significant two elements of business processes as: (i) customers; that is, processes have defined business outcomes, and there are recipients of the outcomes (internal or external), (ii) cross-organizational boundaries; that is, processes normally occur across or between organizational sub-units.

From all of the above, it is clear that business process should add value to customers and the companies' business objectives. The smoother and faster the flow of material and information in and between each activity or process, the better process management approach is applied.

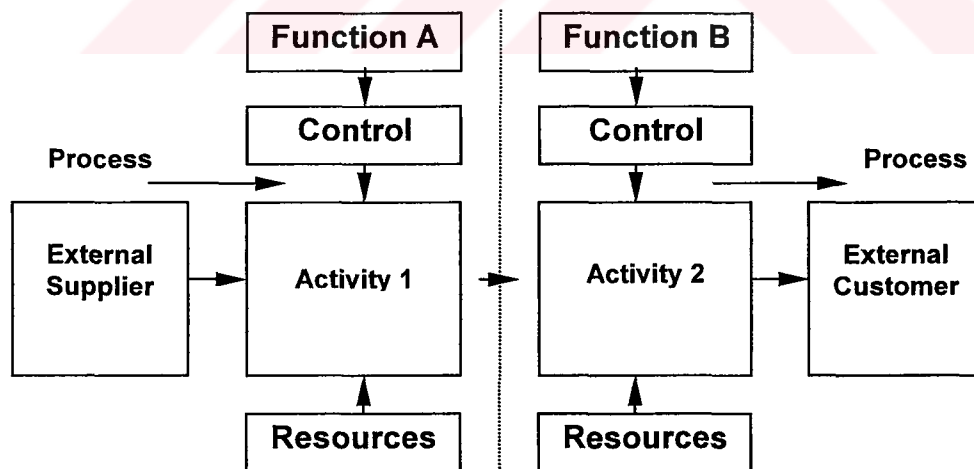
Processes are generally identified in terms of beginning and end points, interfaces, and organization units involved. Melan (1993) and Lowenthal (1994) define a process by its four key functions. These are:

1. Endpoints: Inputs can be equipment, materials, methods or the environment necessary to produce the products and services of the process. Outputs are the products or services produced by the process. Customers, internal or external, are the users of the products or services produced by the process. Catalyst event is the signal event that signals the beginning of the process.
2. Transformation: Physical transformation changes some tangible item, such as raw or semi-finished material into another state. Locational transformation changes the location of objects or materials and does not change the materials in any other physical manner. Transactional transformation involves modification of non-tangible items, such as data processing, financial planning and production control.

3. **Feedback:** This involves communication and evaluation channels by which the transformation activities are modified, or corrected, to maintain the desired attributes of the output.
4. **Repeatability:** A process is or can be executed regularly in the same manner with the same output. Some processes are continuous, while other operate cyclically or intermittently.

Companies operate on a highly complex set of processes. Identifying them is complicated, because they cross departmental and hierarchical boundaries. A process is simply the largest unit referring to the flow of work through an enterprise beginning with suppliers and ending with customers. On the other hand, a function is a specified type of work applied to a product or service moving within a process. Since processes are horizontal while functions are vertical, processes cut across functions and functional activity feeds processes (Peppard & Rowland, 1995; Carr & Johansson, 1995; DoD, 1996).

As illustrated in Figure 3.4, Function A, sets the rules for, and controls the resources assigned to Activity 1, and Function B controls and funds Activity 2. Function B is the internal customer of Function A, and much of the challenge of process management is optimizing the transition of processes across functional boundaries.



Adapted from DoD, (1996), <http://www.dtic.dla.mil/c3i/bprcd/3000sl.html>

Figure 3.4. Process and Function

The organizational structure and the way of doing business also affect the working mentality. When work is managed by function, managers naturally emphasize resource consumption by unit of work and the rigid application of controls or rules. Since employees are strongly motivated to follow functional rules and conserve resources, relationships with suppliers and customers are not optimal. When work is managed by process, managers emphasize working with suppliers and serving customers within the context of controls and resources. In this situation, employees are motivated to focus on product and service quality, customer service and fast response to exceptional situations.

Most large organizations have very few (from five to twenty) processes. For example, typical core processes for manufacturing companies are product & process design, research & development, order fulfillment, conversion, procurement, logistics, materials management, channel management, and supply chain.

Processes are identified during business systems planning activities and mapped to the organizational structure. This forms the basis for building cross-functional teams. According to Carr et al. (1995), the main goal in BPR is to focus on core business processes, which directly touch customers, rather than on processes that are completely internal to your company. Manganelli & Klein (1994) also suggest not only to look at the strategic, value-added business processes, but also at all of the systems, policies, and organizational structures that support these processes.

Davenport & Short (1990) define types of processes in three dimensions. These are the organizational entities or sub-units involved in the process, the type of objects manipulated, and the type of activities taking place. (Table 3.3).

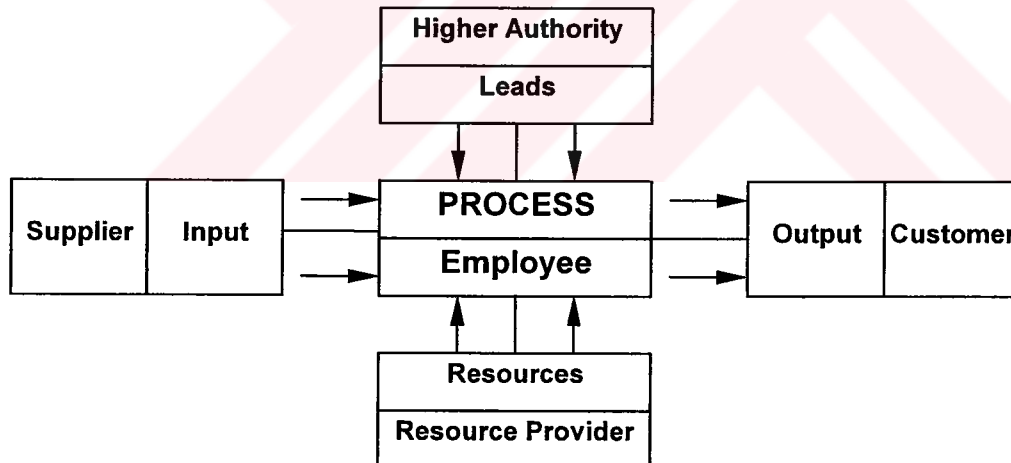
A process can not be changed unless all the supporting elements are changed. It is essential to clearly identify and evaluate all factors that have an effect on each process. As illustrated in Figure 3.5, there are process stakeholders who have a defined relationship or stake in process performance, including customers (recipients or users of outputs), suppliers (providers of inputs), higher authorities (leaders of processes), and resource providers.

Table 3.3 Types of Processes

Process Dimension & Process Type	Typical Example	Typical IT Role
Entities		
Interorganizational	-Order from a supplier	-Lower transaction costs; eliminate intermediaries
Interfunctional	-Develop a new product	-Work across geography; greater simultaneity
Interpersonal	-Approve a bank loan	-Role and task integration
Objects		
Physical	-Manufacture a product	-Increased outcome flexibility; process control
Informational	-Create a proposal	-Routinizing complex decisions
Activities		
Operational	-Fill a customer order	-Reduce time and costs; increase output quality
Managerial	-Develop a budget	-Improve analysis; increase participation

Adapted from Davenport & Short, (1990), p. 23.

Each has a different interest in the process, defines process performance success differently, and benefits from process performance in different ways. Moreover, interests, success criteria and expected benefits vary both with the nature of the enterprise (public or private) and with the purpose of the process.



Adapted from DoD, (1996), <http://www.dtic.dla.mil/c3i/bprcd/3000sl.html>

Figure 3.5 Process Stakeholders

As mentioned previously, process and information technology (IT) are the two most important parts of BPR. As an enabler, IT helps to gain benefits of shared databases, and centralization or decentralization through telecommunications

networks. However, processes should be redesigned to add value to customers and corporate strategies by exploiting IT.

To thrive in the new business world of customer satisfaction, companies should focus on improving processes as well as products. By redefining business strategies through business process management, companies can gain previously unattainable benefits. Enabling this process management is the power of information technology.

3.2.2. Why Business Process Reengineering (BPR)?

In doing reengineering, businesspeople must ask the most basic questions about their companies and how they operate: "Why do we do what we do?" and "Why do we do it the way we do?" (Hammer & Champy, 1993). They argue that asking these fundamental questions forces people to look at the tacit rules and assumptions that underlie the way they conduct their businesses; often these rules turn out to be obsolete, erroneous, or inappropriate.

The pace of change has accelerated. Since the 1980s, companies added a list of competitive must haves that included quality, innovation, functionality and cost. Yet, "How to increase productivity, provide higher levels of service and responsiveness and at the same time reduce costs?" is not sufficient to survive in today's business (KPMG, 1996). As Hammer & Champy (1993) suggest, businesspeople must ask themselves the question "Why do we do what we do at all?" instead of "How we can do what we do faster?" or "How can we do what we do better?" or "How can we do what we do at a lower cost?". That questions many of the things the company is founded on.

The rise of BPR and the interest in processes stems from a number of different roots. Increased competition, deregulation, recession, the maturing of TQM and the disappointments of IT have all led to a search for ways to achieve step improvements in effectiveness, efficiency and adaptability popular (Peppard & Rowland, 1995). Davenport (1993) also notes six areas that influenced the emergence of BPR. These are the total quality approach, industrial engineering, the systems approach, the socio-technical approach, the diffusion of innovations, and the use of information systems for competitive advantage.

The recent interest in BPR closely follows the productivity paradox observed by many experts in regard to information technology. Despite massive investments in these technologies in 1970s and 1980s, neither researchers nor practitioners had yet been able to clearly demonstrate that major productivity gains had been made. Investment in technology, particularly IT has brought disappointment and merely depleted company reserves without realizing the benefits sought.

During the 1980s, companies spent billions of dollars on IT. Yet, IT has been used to hasten office work rather than transform it (Business Week, 1993). With few exceptions, IT's role in the redesign of non-manufacturing work has been disappointing; few firms have achieved major productivity gains (Davenport & Short, 1990). Despite the proliferation of personal computers and advanced IT in the workplace, white-collar productivity remained virtually unchanged throughout the decade (Harrington, 1991; Bowen, 1986, Morton, 1991). This was a productivity paradox, where investments in IT failed to realize the benefits expected.

Venkatraman (1994) also stated that the business world entered the 1990s highly skeptical of IT's benefits since the productivity gains from IT investments have been disappointing. Despite years of impressive technological improvements and investments, there is not yet any evidence that IT is improving productivity or other measures of business performance (Computerworld, 1991). Yet, the potential of IT to transform business is not in question; it is how to unlock that potential that is the question.

According to Peppard & Rowland (1995), one of many reasons why IT had failed to deliver its potential is that it had been applied to old and existing ways of doing business by using computers to speed up and mechanize the business. Rather than focusing on how work should be done, and then considering how technology might help with this, most companies sought merely to automate existing tasks, so that efficiency savings could be gained.

Traditional organizations are also not matched with the competitive needs of today's businesses such as flexibility, speed, time to market, and service and support. They are very bureaucratic and slow, putting a premium on control instead of on responsiveness and entrepreneurial spirit. They are internally focused instead of being geared for customer satisfaction. The contemporary performance problems companies experience, are the inevitable consequences of process fragmentation (Carr et.al, 1995; Hammer & Champy, 1993).

Getting results from IT investment required changing the way business is done. The concept of BPR was thus seen as a way to change this situation, and it seems that BPR would succeed where other approaches had failed in making IT investments profitable, because it overcomes limitations inherent in other management concepts and approaches. BPR views information technology as an enabler, not as a driver (Bowen, 1986; Raymond et. al., 1998).

According Carr et.al.(1995), the compelling need for BPR is driven by the marketplace and by the competitive environment. Indeed, the major events or compelling factors that triggered the initial BPR efforts were competitive pressures, regulatory changes, significant market opportunity, and benchmarking exercise.

Organizations implement BPR not just to be competitive, but to survive in the global market. Reducing costs, controlling efficiency and effectiveness, bringing systems on-line and task automation is not enough; complete metamorphosis is required. Organizations must be flexible, streamlined and strategically placed to remain competitive and maintain a strategic or competitive advantage. In contrast to traditional improvement approaches, reengineering the organization requires fundamentally rethinking the entire processes, from suppliers through customers (Farmer, 1993; MacArthur et al.,1994).

Raymond et al. (1998) reviewed the scientific and professional literature, and regrouped the advantages of BPR under five factors. These are greater market coverage, improved quality in goods and services, improved quality of organizational coordination and communication, administrative and production cost savings and increased productivity from workers and managers.

In summary, intense competition and disappointment in IT coupled with unmatched organizational structures caused people to question the way business is conducted. Managers started to reconsider the existence of companies, and restructure organizations that are customer-focused and market-driven in their external relations and process-focused and team-oriented in their internal operations.

3.2.3. Business Process Reengineering Methodologies

Business Process Reengineering (BPR) is known as a breakthrough approach at every level of the organization over a short period of time. Amazingly, it

is the most discussed management approach in the history of quality management. There are still discussions going on whether it is a new approach or just a repacked TQM approach.

The most critical questions of change management programs are what to do and how to do it as well as where to start. Though it is preferred to start with a clean slate, many academicians and practitioners proposed systematic approaches or frameworks to reduce the risk of failure, and understand and measure the progress throughout the program.

Reengineering strives to break away from the old rules about how we organize and conduct business by recognizing and rejecting some of them and then finding imaginative new ways to accomplish work (Hammer, 1990). Thus, Hammer & Champy (1993) urge that processes, not organizations, are the objects of reengineering, and companies should not reengineer their functions, rather the work that the people in those departments do.

According to Gadd & Oakland (1996), it is essential to focus on outcomes rather than tasks, and the required outcome will determine the scope of the BPR exercise. Schaffer & Thomson (1992) also highlighted how focusing on results rather than just activities makes the difference between success and failure in change programs. At every level of reengineering, a focus on outcome gives direction and measurability; whether it be cost reduction, head count reduction, increase in efficiency, customer focus, identification of core processes and non-value-adding components or strategic alignment of business processes.

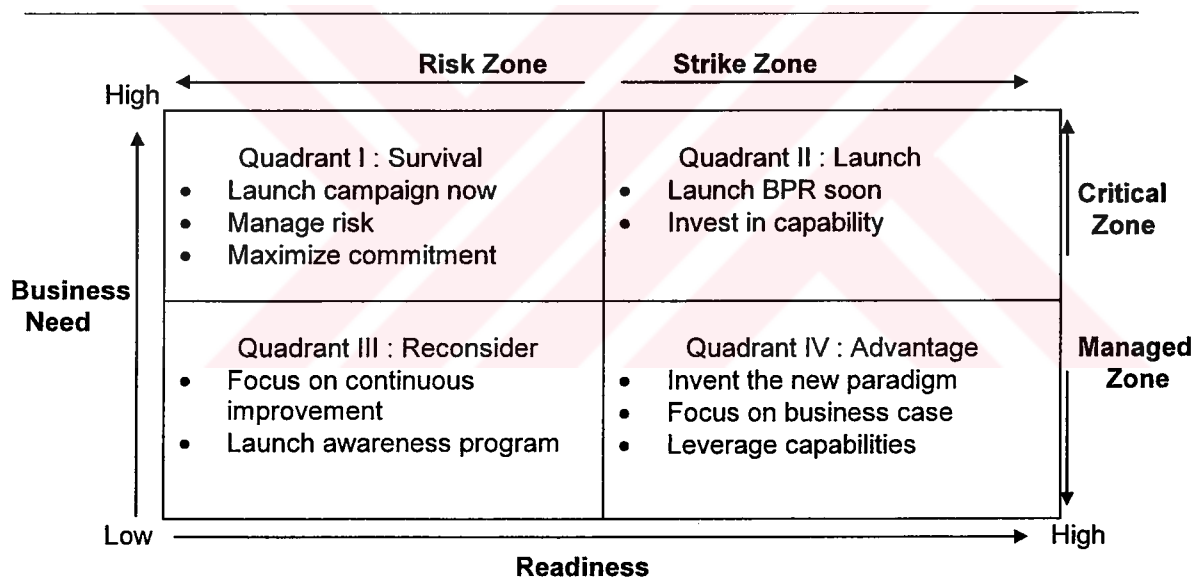
The best place for the reengineering team to understand a process is on the customer end. What are the customers' real requirements? What do they say they want and what do they really need, if the two are different? What problems do they have? What processes do they perform with the output? Since the eventual goal of redesigning a process is to create one that better meets customer needs, it is critical that the team truly understands these needs.

Customers are a good source of information in comparing the relative importance of various processes. By so doing, companies can determine what issues their customers care strongly about. Before a reengineering team can proceed to redesign, it needs to understand the existing processes: what it does, how well (or poorly) it performs, and the critical issues that govern its performance.

Once processes are identified and mapped, organizations use three criteria to prioritize. The first one is dysfunction: Which processes are in the deepest trouble? The second one is importance: Which processes have the greatest impact on the company's customers? The third is feasibility: Which of the company's processes are at the moment most susceptible to successful redesign?

Belmonte & Murray (1993) propose a Need/Readiness Analysis framework whether to launch BPR, and the timing and urgency of starting BPR. As illustrated in Figure 3.6, Quadrant 1, it is critical to improve business performance as soon as possible, yet it is very risky and requires maximum sponsorship commitment. Quadrant 2, it is critical to improve business performance, where companies will benefit from investing in the development of BPR capabilities at a moderate risk.

Quadrant 3, the company is healthy and has a low need for dramatic improvement at this time. Quadrant 4, although there is no urgency for dramatic improvement, there would be a strategic advantage in undertaking a BPR initiative.



Adapted from Belmonte & Murray, (1993), p 25.

Figure 3.6 BPR Business Need/Readiness Analysis Framework

Martilla & James (1977), also suggested the performance/importance matrix, which is similar to Belmonte & Murray's framework. It might help companies and project teams to identify the areas that are in most need of improvement, find the place to start for, and focus their attention on those areas. Processes or the outcomes of processes can be plotted on the matrix relative to how well the organization performs them and how important they are.

Janson (1992/93) urges us to look at the organization's current objectives and underlying assumptions to examine how well they incorporate the renewed commitment to customer satisfaction. Furthermore, critical success factors, in which the organization clearly stands apart from the competitors, should be examined. By so doing, elements that should be redesigned to make jobs satisfying and more customer-focused will be uncovered.

According to Stead (1994), reengineering through the strategic framework should be based on finding out what is important to our customers and what tools our associates need to delight our customers. Change itself is a core business competency, and successful change is not the result of mere compliance. The wisdom to change must come from the people who have the power, permission, and protection to own it. Ultimately, everything the company does or creates contributes to the quality of life for people. Therefore, it is most appropriate that the people create the quality of the companies.

Breadth and depth are two critical factors in reengineering efforts in order to improve performance across the entire business unit. And the redesign must penetrate to the company's core, fundamentally changing six crucial organizational elements or depth levers: roles and responsibilities, measurements and incentives, organizational structure, information technology, shared values, and skills-otherwise reengineering fails (Hall et.al, 1993).

According to Champy (1995), in the new order, one of a manager's most critical jobs is to explain what is going on and why (purpose). The manager must be able to restate the business purpose and fully mobilize the company for change by communicating why the company is changing. The manager must give a vision of what the organization is moving toward, so that people can cope with the sense of loss associated with change.

3.2.3.1. Methods/Models for Reengineering

There is still an argument going on whether or not to start with a clean slate and depend only on imagination and experience. Intuitive practitioners maintain that rules of thumb and general information about what has been done in other companies is useful, but that formal benchmarking constrains the BPR team from finding truly innovative solutions. Methodologists, by contrast, feel that benchmarking can bring breakthrough as well as inject reality into the process. In

other words, the intuitive tells you where to go, and the methodological approach tells you what to do to get there (Klein, 1994).

The systematic redesign approach has the advantage that change can be made incrementally and thus quickly, in small chunks at reduced disruption and risk. On the other hand, the clean sheet approach throws away the existing assumptions implicit in the existing process and allows a fundamental rethinking of the way business is conducted (Peppard & Rowland, 1995).

A more affordable approach for most companies is to use clean slate design, which entails a detailed vision for a process without concern for the existing environment (Davenport & Stoddard, 1994).

Although reengineering can deliver radical designs, it does not necessarily promise a revolutionary approach to change. Moreover, a revolutionary change process might not be feasible given the risk and cost of revolutionary tactics.

One of the difficulties in assessing the relative value and efficacy of intuitive and methodological approaches to BPR is that most of the reported case studies were of necessity intuitive, because no methodologies existed at the time the projects were done. The second difficulty exists in assessing the relative cost and effectiveness of different BPR methodologies (Klein, 1994).

The systematic approach is most often used to implement performance improvements in the short term, while the clean sheet approach allows the company to develop new ways to compete in the medium to long term. After the 1990s, many quality experts and academicians started to propose BPR frameworks and systematic approaches, some of which are very innovative, and offered new ways to redesign the business processes. However, some of them were just a collection of previously used tools and principles for different type of quality management approaches.

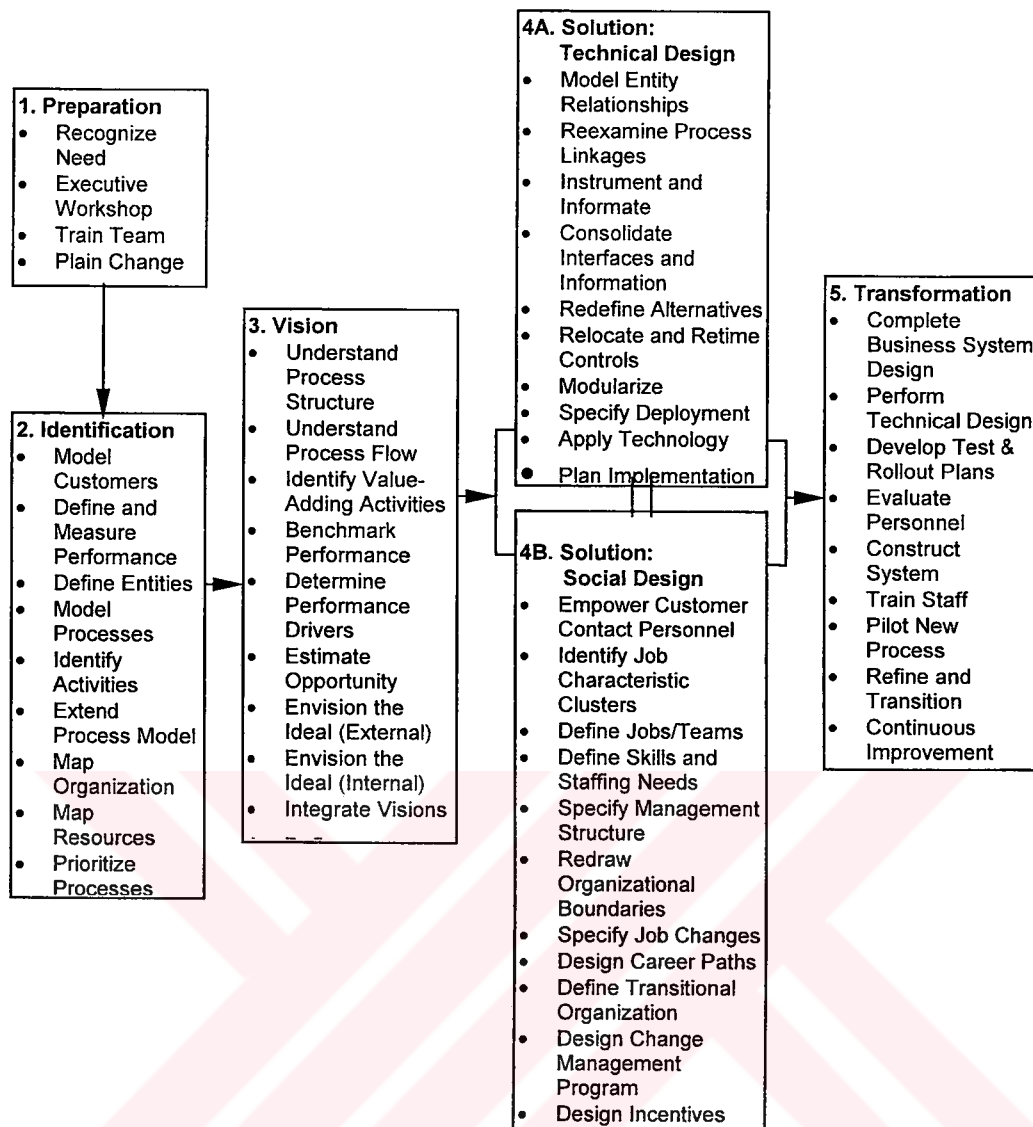
Davenport and Short (1990) offered a five-step approach to reengineering; developing the business vision and process objectives, identifying the processes to be redesigned, understanding and measuring the existing processes, identifying IT levers, and designing and building a prototype of the process respectively. The proposed approach, in which main strategic management steps are used, is very simple in understanding the steps in reengineering, but too general for implementing reengineering.

Klein (1994) suggests using reengineering tools, such as project management, coordination, modeling, business process analysis, human resources analysis and design and systems developments, on methodology-based BPR projects in order to concentrate on value-added work. However, these BPR tools should be used by businesspeople (managers and professionals), not technicians, to enhance the clarity of the BPR team's vision, enforce consistency in analysis and design, and, ideally, permit iterative, top-down refinement from the BPR project goals to the solution.

Manganelli & Klein (1994) propose a five stage, fifty-four-step methodology (Rapid-Re) that enables organizations to achieve swift, substantive results by making radical changes in strategic value-added business processes. Included in the methodology is a set of integrated management techniques that are used to develop and analyze the information needed to identify opportunities and reengineer core business processes.

As illustrated in Figure 3.7, this approach involves five stages; preparation for change, identifying the needs and processes, developing the business vision and process objectives, designing technical and social parts of the business system and getting ready for organizational transformation.

The most significant contribution of this model is its emphasis on the social part of the organization. Many methods used in different quality management regard social design as a sideline activity, which is a major handicap in change management. Social design will help companies to ease up the transformation and institutionalize organizational culture.



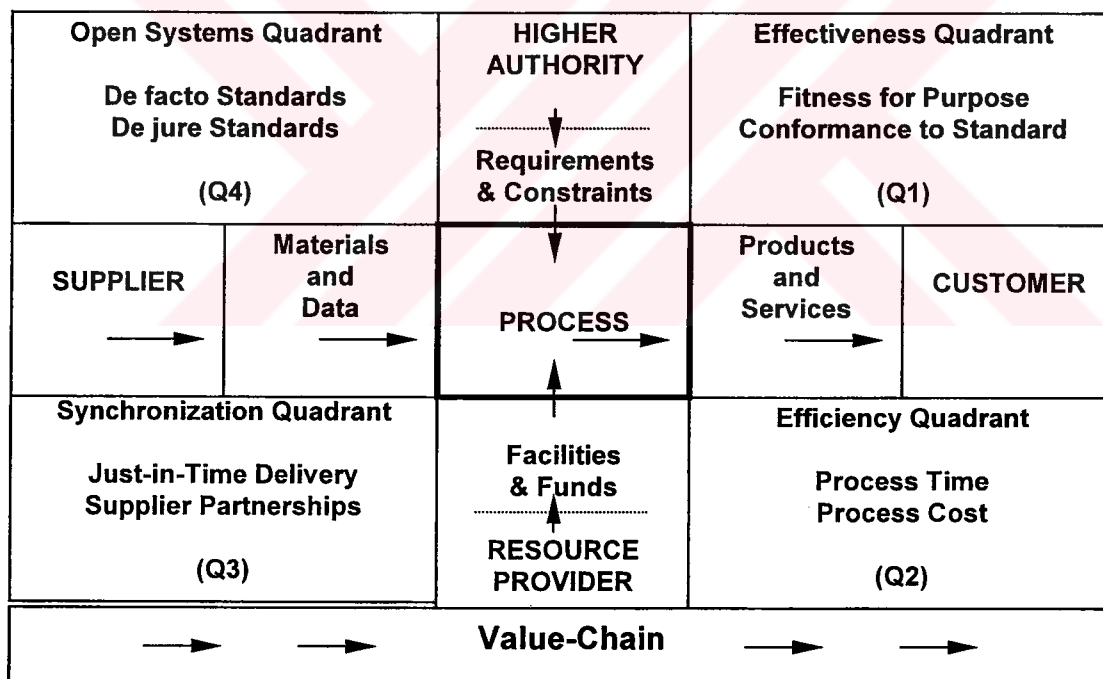
Adapted from Manganelli & Klein, (1994), p. 47.

Figure 3.7 Rapid-Re Methodology's Stages and Tasks

Lowenthal (1994) designed a three-phase framework, which provides reengineering step by step. The first phase of organizational reengineering, preparing for change, sets the foundation for future activity. The second phase, planning for change, provides a process by which management can envision the future and develop actions needed to operate effectively in that future by building on the organization's core competencies. The third phase, designing change, provides a method to identify, assess, map and ultimately redesign business processes. It offers the necessary framework for translating insights about the process being explored into quantum leaps of change. The last phase, finalizes the process and evaluates the progress periodically.

In this framework, generic strategic management steps such as planning, designing and evaluating change are used. However, the first phase, preparing for change, is a significant step in quality management approaches. Top management's commitment and understanding is vital for the success of reengineering, since the major force in transformation is management. Moreover, preparing workforce for involvement and change at the beginning is also important in obtaining the willing contribution of workers.

As illustrated in Figure 3.8, in Total Systems Management Model, the horizontal flow is called the value-chain and suggests the need for each component of a process to add value to the work product moving through the process. The vertical flow is called the control-chain and suggests the need for the process to conform to functional objectives, goals, and strategies. In many ways, these two chains are in dynamic tension. One of the responsibilities of a process manager is to achieve the appropriate balance between value-chain objectives and control-chain objectives (DoD, 1996).



Adapted from DoD, (1996), <http://www.dtic.dla.mil/c3i/bprcd/3000sl.html>

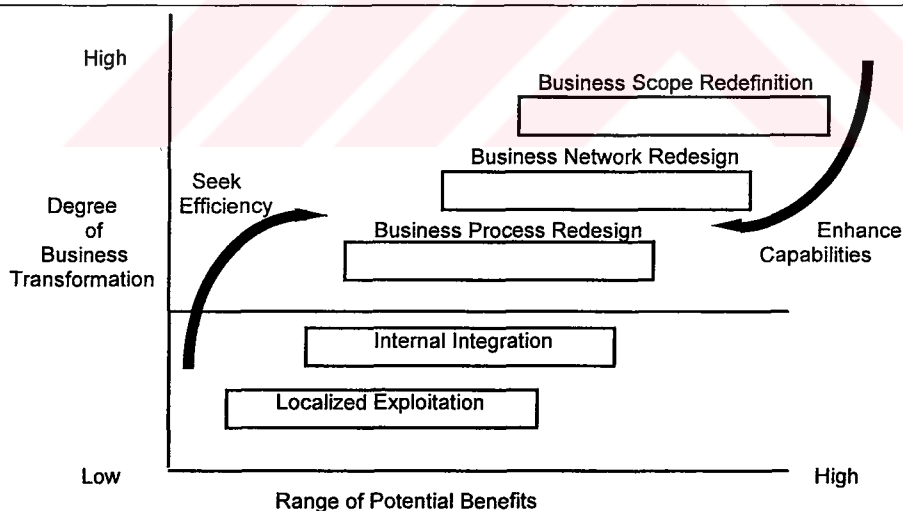
Figure 3.8 Total Systems Management (TSM) Model

The four quadrants refer to areas of process management and improvement where stakeholders' interests intersect. For instance, effectiveness goals for a process must be balanced with efficiency, synchronization, and standardization

goals. Quadrant 1 (Q1) measures require a balancing of Customer interests with Higher Authority interests. Quadrant 2 (Q2) measures require a balancing of Customer interests with Resource Provider interests. Likewise, Supplier interests must be balanced with the interests of both Resource Providers and Higher Authority in Q3 and Q4, respectively.

This management model gives useful insights about the conflicts between stakeholders' different interests. Considering all these elements, it is significant to balance all these different interests by adding value to customers and corporate strategies. Therefore, it would be helpful to demonstrate difficulties within the organizations and understand the conflicts in stakeholders' interests.

Venkatraman's (1994) framework proposes a hierarchy of five levels of IT-enabled business transformations. The higher levels of transformation indicate potentially greater benefits, and require a correspondingly higher degree of changes in organizational routines. Each organization should first identify the transformational level where the benefits are in line with the potential costs (efforts) of the needed organizational changes. Over time, however, higher levels may be necessary, depending on competitive pressures and the need to deliver greater value than competitors in the marketplace (Figure 3.9).



Adapted from Venkatraman, (1994), p. 77.

Figure 3.9 Five Levels of IT-Enabled Business Transformation

A company can approach BPR from two different perspectives: seek efficiency or enhance capabilities. When a company seeks efficiency, the boundaries of the current strategy (business network and business scope) are fixed

and given, and the main objectives of redesign are to achieve operational excellence within the boundaries. On the other hand, when a company enhances capabilities, it starts with the articulation of business scope and the corresponding logic for business network redesign to specify which business processes need to be redesigned and under what guiding conditions. This starts with a careful and focused analysis of how the organization is likely to be positioned in the business network before deriving the objectives and requirements.

From all of the above mentioned methods and frameworks, it can be derived that generic steps for reengineering, in general, should include project initiation (preparation), business vision and objectives, process identification, process redesign and transformation. In the first phase, it is important to plan for organizational transformation, especially in preparing top management and workforce for involvement and change. Business vision and objectives are needed for a direction and measure up the progress. After the processes are analyzed, the emphasis should not only given exclusively on technical sides in the redesign phase. More importantly, the social side of transformation, like organizational culture should be reconsidered.

3.2.4. Reengineering Examples in Industry

There have been some marvelous advances achieved through reengineering programs. Some of them are major improvements in customer services and satisfaction by integrating order and customer information, and communicating orders through Electronic Data Interchange (EDI) or by reorganizing the organization according to the real customer needs and expectations. Process orientation, cross-functional teams, self-directed teams and so on are some of the means used in reengineering cases.

Being the best of the market, takes radical changes and there is no easy way to do it. Becoming an agile world class company requires overcoming organizational inertia. According to Ligus, (1993), the things that are often overlooked are outdated cultures, ineffective management skills, bureaucratic red tape, and a reward system that does not fit.

In most service organizations, jobs are not designed with the customer in mind. Yet, service organizations must regain a strong commitment to customer satisfaction and focus more closely on real customer needs and expectations.

Instead of working toward goals that are internally generated, like work efficiency, they must now operate according to a set of standards defined by their customers: quality, innovation, responsiveness, convince and the ability to offer variety (Janson, 1992/93). As seen on Table 3.4, the industrial office and the reengineered office are compared according to their characteristics and results.

Table 3.4 Industrial Office vs. Reengineered Office

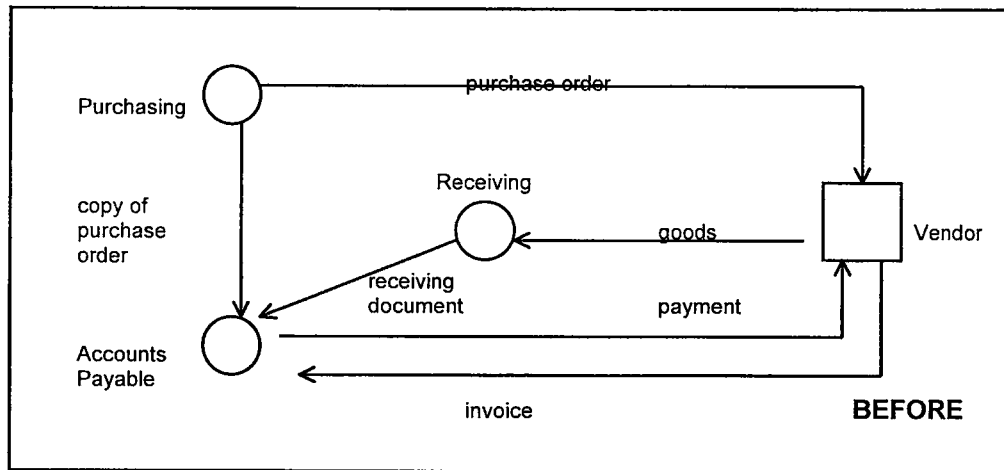
Industrial Office	Reengineered Office
Characterized by:	Characterized by:
- production lines	- emphasis on individuals
- fragmented work	- "whole" jobs
- little customer contact	- extensive customer contact
- people organized to fit system	- flat organization
Results :	Results :
- numerous errors	- high-quality, personalized service
- multiple management layers	- minimum supervision
- anti-customer attitudes	- good customer relations

Adapted from Janson, (1992/93), p. 47.

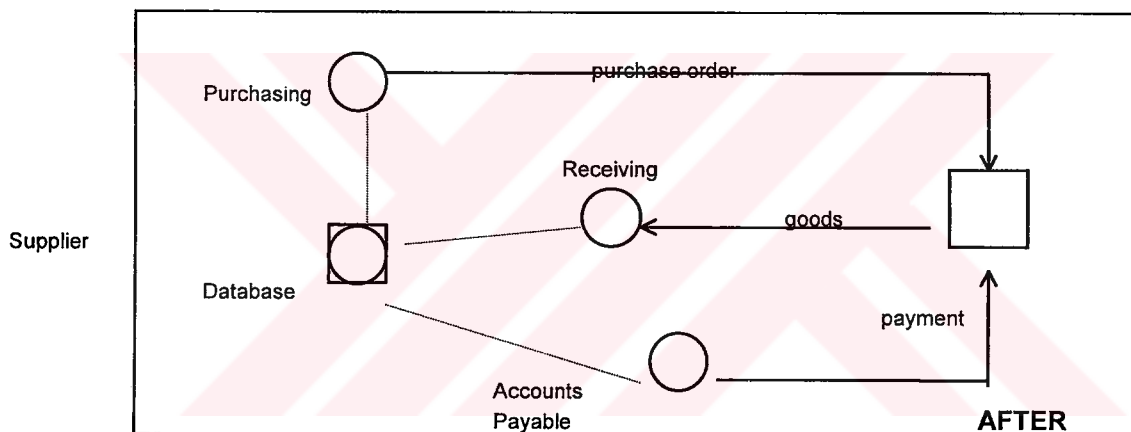
The use of shared computing resources to reduce the mediation level is a powerful testimony to the distinctive value of IT in creating a public good. Unlike other forms of natural resources that are depleted upon utilization, a shared information resource is not depleted upon usage and may retain its value for additional functions after access by the initial user.

In the Ford case, before reengineering the accounts payable process, a number of paper documents were processed sequentially by three functions who participate in the process indirectly with a work force of 500 clerks to perform many intermediate steps. After reengineering the accounts payable process, with a work force of only 125, the three functions participate in the process directly by accessing a shared database, eliminating many intermediate steps and sequential flow of paper documents (Figure 3.10).

The Ford's case was a good example of reengineering in terms of radically transforming organizational processes through the optimal use of IT to achieve major improvements in performance. The application of shared databases has turned many indirect processes into direct ones, cut cost and increased speed.



1. The purchasing function issues a purchase order to the supplier and sends a copy to the accounts payable function.
2. Upon arrival of purchased goods, the inventory function sends a copy of the receiving document to the accounts payable function.
3. When the invoice from the supplier arrives in the mail, the payable function matches it against the purchase order and the receiving document before issuing payment to the supplier.
4. More efforts are needed to resolve frequent discrepancies between the documents, and a total of 14 data items must be checked in the process.



1. The purchase order is entered into the shared database by the purchasing function.
2. Upon receiving goods, the inventory function accesses the database. If a match is found, the goods are shipped and the status of the order in the database is updated. Otherwise, the goods are returned to the sender.
3. The payable function routinely access the database to prepare payment checks for orders that have changed status, and invoices from suppliers are eliminated.
4. Matching and discrepancy resolution of paper documents are no longer needed, and only 3 data items need to be checked in the process.

Adapted from Teng et al. (1994), p. 23.

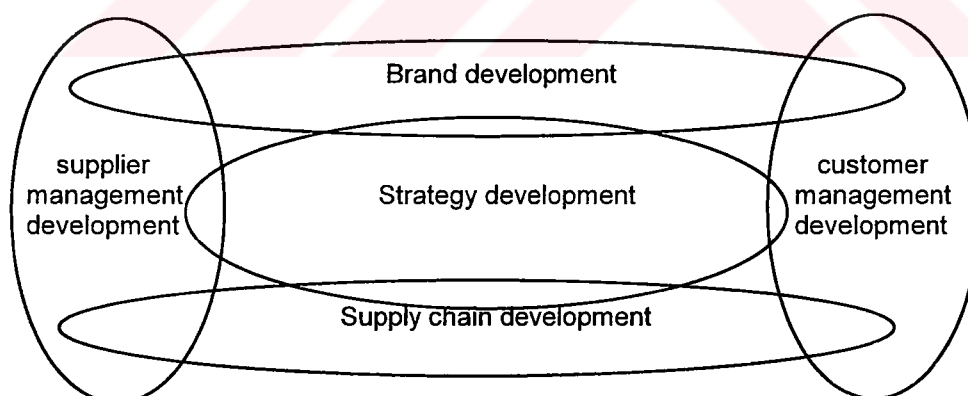
Figure 3.10 Reengineering the accounts payable process at Ford

Improving communication and IT-enabled collaboration between different functions is facilitated primarily through the application of telecommunication technologies. At Hewlett-Packard laptop computers are provided to salespersons with communication links to their peers and superiors, enabling frequent exchange of sales intelligence among the salespersons. A higher degree of collaboration was achieved between marketing, inventory and the sales functions.

In an uncertain environment, collaboration is central to group activities, and telecommunication-based support systems can greatly enhance collaboration and teamwork. For example, new product development for Texas Instruments is now routinely conducted at locations in several different countries: India, Malaysia, Japan and the US. The company's global network and advanced computing resources enable design teams in different countries to sustain a high level of collaboration, while permitting them to work on different parts of the design directly without sequential flow of documents. As a result, the development cycle time for various products decreased substantially.

For all reengineering cases IT is a potential enabler, yet successful reengineering often employs other behavioral or organizational techniques and methods, such as self-directed teams and process orientation.

As illustrated in Figure 3.11, Elida Faberge undertook a program of core process redesign after mapping its existing processes. The core processes necessary to reach its strategic objectives are identified, and its entire organization is redesigned around these processes (Mitchell, 1994). The functional specialisms have not disappeared, but are no longer managed as functions, since work is managed around the processes. Thus, there are marketing managers in brand development, supply chain development, and customer management development.

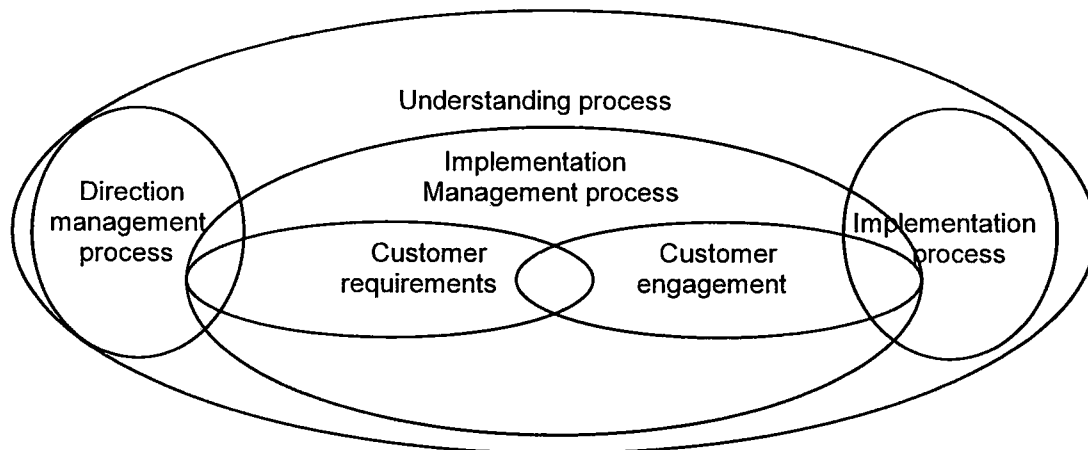


Adapted from Mitchell, (1994), p. 46.

Figure 3.11 Elida Faberge Organizational Chart

According to O'Brien & Wainwright (1993), the design of an organization can also be the main barrier to change, and it may therefore be necessary to implement

a fundamental redesign before an organization can even start to handle the continuous challenge in today's environment.



Adapted from Coulson-Thomas, & Coe, (1991), p..21.

Figure 3.12 National & Provincial Building Society Organizational Structure

As illustrated in Figure 3.11 and Figure 3.12, organizations were redesigned and reorganized around business processes to serve customer needs. The organizational structures and the work were managed by processes, and the way of doing businesses were changed as the working mentality.

The evolutionary systems development approach based on continuing process redesign aimed for a completely flexible organization, and reusable process components allowed new processes to be created from stock.

3.3. Differences Between BPR and Other Quality Management Techniques

In the late 1980s, there was a general sense of business process reengineering, yet it was not clearly named until the concept of BPR was introduced by Hammer in his famous article "Reengineering Work: Don't Automate, Obliterate" in 1990. Since then, the debate over what BPR is started. Discussions on differences and boundaries of BPR are still ongoing.

The concept of reengineering is mostly misunderstood, often equated with several other management concepts or conceptualized as another buzzword. It is criticized as the old wine in new bottles. It is new in that old quality management techniques are combined in a new synthesis.

Quality Management approaches might share a number of common themes, tools or methods, but there are definitely some major differences among them. The main differences in terms of managerial aspects are in the time period of change, whether change involves in a short period of time or not, and the depth or dimension of change, whether change is incremental or radical. That is:

- Traditional Quality Management approaches in contrast to BPR are more in line with how organizations naturally deal with change by working within the framework of a company's existing processes (Hammer & Champy, 1993; Manganelli & Klein, 1994).
- Mostly traditional Quality Management approaches place emphasis on small, incremental changes or gradual improvements, since the objective is to improve on what an organization is already doing. Yet, BPR seeks breakthroughs, radical redesigns and drastic improvements of processes, not by enhancing existing processes, but by discarding them and replacing them with entirely new ones (Hammer & Champy, 1993; Davenport, 1993; Manganelli & Klein, 1994).
- BPR pursues multifaceted improvement goals, including quality, cost, flexibility, speed, accuracy, and customer satisfaction, concurrently, whereas the other approaches focus on fewer goals or trade off among them (Manganelli & Klein, 1994).
- In order to accomplish these results, BPR adopts a process perspective of the business, where most of the other programs mainly retain functional or organizational perspective. BPR takes a holistic approach to business improvement, encompassing both the technical aspects of processes and the social aspects by leveraging technology and empowering people (Manganelli & Klein, 1994).

Besides managerial perspective, Quality Management approaches also differ in terms of use of tools or methods. Reengineering is different from other approaches.

- Reengineering is not the same as automation. According to Hammer & Champy (1993), automating existing processes with information technology is analogous to paving cow paths, and it simply provides more efficient ways of doing the wrong kinds of things. Manganelli & Klein (1994) also support that reengineering

is not automation, although it often uses technology in creative and innovative ways.

- Reengineering is not the same as restructuring or downsizing. Hammer & Champy (1993) state that downsizing and restructuring only mean doing less with less. Reengineering, by contrast, means doing more with less. Harrison (1994) also suggested that restructuring which tends to be done by management directive, is unlike reengineering which tends to be done by cross-functional employee teams, and may involve complete withdrawal from certain products and market segments.
- Reengineering is not the same as reorganizing, de-layering, or flattening an organization. Although it almost always requires organizational change, it may, in fact, produce a flatter organization (Manganelli & Klein, 1994). Hammer & Stanton (1995) conclude that reengineering eliminates work, not people or jobs.
- Reengineering is not the same as quality improvement, TQM, or any other manifestation of the contemporary quality movement. BPR may contain elements of the traditional Quality Management programs, yet BPR differs from them (Manganelli & Klein, 1994).
- Reengineering is not the same as software reengineering, which means replacing obsolete information systems with more modern technology (Hammer & Champy, 1993).

Manganelli & Klein (1994) also tabulated the differences among Quality Management approaches and tools (Table 3.5).

Table 3.5 Reengineering vs Other Programs

	Reengineering	Rightsizing	Restructuring	TQM	Automation
Assumptions Questioned	Fundamental	Staffing	Reporting Relationships	Customer Wants & Needs	Technology Applications
Scope of Change	Radical	Staffing, Job Responsibilities	Organization	Bottom-up	Systems
Orientation	Processes	Functional	Functional	Processes	Procedures
Improvement Goals	Dramatic	Incremental	Incremental	Incremental	Incremental

Adapted from Manganelli & Klein, (1994), p. 43.

Total Quality Management and Reengineering share a number of common themes (Hammer & Champy, 1993; Carr & Johansson, 1995; Manganelli & Klein, 1994; Gadd & Oakland, 1996; Krieter, 1996). Some of the linkages between TQM and BPR are as follows:

- Both BPR and TQM are quality movements, involving looking at the company as it is today and trying to improve it for the future.
- Both focus on process thinking (process-focused), that is continuous improvement in the quality of process in TQM, and the redesign of process in BPR. They both recognize the importance of processes, and they both start with the needs of the process, customer and work backwards from there.
- Both focus on customer satisfaction and the processes that support it.
- Both emphasize the importance of a team culture and shared values. Internal customer-supplier chains (processes) have led to cross-functional quality improvement teams.
- Both require fundamental changes in organizational culture, and challenge conventional systems with the support of employees and top management.
- TQM and BPR have resulted in flat organizational structures. Redesign of business processes has enabled the empowerment of frontline individuals, with fewer supervisors and fewer layers of management.
- Both use a similar tool kit for problem solving.
- Both quality initiatives require the company to see where they are, to put the changes into place, and then measure the effect of changes in the company. In other words, the results of TQM and BPR are measurable.

Since both TQM and BPR have a lot in common, some practitioners as well as some academicians think these two approaches are similar. Some even consider BPR as the extent of TQM, and it builds on many TQM principles. Hermel (1997) argue that reengineering is largely inspired by total quality, whereas all the TQM variables (process, customer, quality, delay, cost, etc.) are present, but their weights are different. Harrison (1994) also state that BPR is in a sense the rebirth of TQM, but with much more focus on tangible performance improvements. However, Krieter (1996) observed that academicians and businesspeople perceive significant differences between TQM and BPR.

BPR has many similarities to TQM as well as some very major differences. Reengineering involves fundamental rethinking and a redesign of business processes to achieve dramatic improvements, whereas TQM requires everyone in

the organization to gradually improve operations through measurements and standardizing all the changes. These two definitions differ in that reengineering is top down, rapid, dramatic, macro and reinventing, while TQM is bottom up, gradual incremental, micro and improving (Youngblood, 1994). According to Hermel (1997), reengineering puts quantitative first, whereas TQM puts pre-eminence on qualitative ones.

According to Youngblood (1994), Davenport (1993), Carr & Johansson (1995), Gadd & Oakland (1996), Hoffman (1995) some of the differences between TQM and BPR are as follows:

- On a time basis, TQM focuses on incremental improvement in work processes and outputs over an open-ended period of time, resulting in an evolutionary change process. In contrast, BPR seeks to achieve breakthroughs and improved work processes in a bounded time frame. Therefore, the rate and extent of change required is a very significant difference.
- TQM has enabled functional hierarchies to remain intact, focusing as it does on individual internal customer-supplier interactions. In practice, TQM tries to improve processes by identifying problems and solving them one at a time with continuous improvement as the goal, whereas often the processes are contained within functional boundaries. BPR has forced organizations to take a process view and to fundamentally rethink cross-functional processes, so that functions are not allowed to constrain the processes.
- BPR has encouraged a holistic view of process improvement and has sought to make massive performance gains, whereas TQM focused on incremental improvement within functions and departments and has generally not achieved the same scale of improvement.
- TQM has been demonstrated to be a long-term investment for future gain. While BPR has also been shown to be long term in both outlook and the time taken to achieve radical change, it has achieved quick wins, dependent on the scope of the process redesign.

Carr et.al. (1995), concluded that the process after Reengineering answers the question, "How should the business be run?" The question TQM answers, "How can each fragmented function be run better?" (Table 3.6)

Table 3.6 Fundamental Differences Between TQM and BPR

Factors	Process Improvement (TQM)	Process Innovation (BPR)
Level of change	* Incremental * Evolutionary (a better way to compete)	* Radical * Revolutionary (a new way of doing business)
Type of Change	Cultural	Cultural/Structural
Typical Scope	* Narrow, within functions * Encompass whole organization	* Broad, cross-functional * Focus on core business processes
Starting Point	Existing Process	Clean Slate
Frequency of Change	One-time/Continuous	One-time
Time Required	Short	Long
Participation	Bottom-up	Top-down
Method	Adds value to existing processes	Challenges process fundamentals and their very existence
Risk	Moderate	High
Primary Enabler	Statistical Control	Information Technology
Role of technology	Traditional support (e.g. MIS)	Use an enabler

Adapted from Davenport, (1993), Carr et.al., (1995).

Youngblood (1994), Carr et.al. (1995), and Imai (1986) combined TQM and BPR to achieve on-going performance after breakthroughs. Combining these two approaches will help companies to keep the performance at a higher level, that is, between big jumps, repeated small steps would ensure perpetual progress with no backsliding.

In this chapter, two of the new quality management philosophies of the 1990s, TQM and BPR, have been overviewed in depth. As seen, these two approaches, in some extent, depend on the previous theories and management practices as well as they brought new ways of thinking. The cultural ideology of quality management in several organizations has provided the environment, necessary to sustain the new approaches.

Both TQM and BPR focus on processes and start with the needs of the process, customer and work backwards from there. They both emphasize the importance of a team culture and shared values as well as fundamental changes in organizational culture. However, reengineering involves fundamental rethinking and a redesign of business processes to achieve dramatic improvements, whereas TQM requires everyone in the organization to gradually improve operations through measurements and standardizing all the changes. In other words, reengineering is top down, rapid, dramatic, and macro, while TQM is bottom up, gradual incremental, micro and improving. They both have strengths and weaknesses.

Many companies have launched different quality management programs. Some of them obtained good results, however, some lost their interest or abandon their quality management programs. There are several reasons for dissatisfaction, from lack of management commitment to lack of sufficient resources, employee resistance, unrealistic expectations, wrong scope and use of tools.

In many organizations, quality management activities are regarded as a sideline activity, which requires only a few hours each week, and established apart from the normal business processes, rather than blended in as a way of life. It is often believed that the use of certain tools and techniques constitutes quality management, and employee behavior changes when a company's system is changed.

Whatever the reason is, these management philosophies or tools are not silver bullets. It all depends on whether the people in the organization, from top to bottom, understand, accept and practice these tools or philosophies consciously and fully. They are potentially very powerful when applied to right problems, but extraordinarily dangerous in the wrong hands.

No matter what management approach is implemented, the compatibility of the current organizational culture with the new management philosophies will determine the success of the program and the smoothness of the organizational transformation.

It is essential to understand how successful change can be made, because change does not come as a result of a change in the system. In fact, it is unrealistic to expect people to change the way they have done things for years over night. Proper management of the transition of people through the process of change is critical to the success of the new system.

The formula for success is to develop an adaptive organizational culture in which not only people understand the change, but also they take part in it, take risks and responsibilities, and think creatively. Organizations whose culture is more supportive and whose senior managers are more actively involved in programs, have significantly higher success in quality management efforts.

As people go beyond quality management, the fundamental principles of the emerging paradigm become a natural part of daily business processes, rather than

something that people are preoccupied with implementing or worried about putting in place.

In the next chapter, quality management approaches in the world will be examined in order to analyze the phases of evolution of quality in the world. Some useful insights will be obtained, and comparisons of quality management efforts in different countries can be made.



IV. QUALITY MANAGEMENT APPROACHES/PRACTICES IN THE WORLD

Since the 1980s, new paradigms for management have emerged. A number of developments were brought together and reconfigured into new approaches. Many elements of previous quality management approaches are incorporated into new ones that may at first appear to be just a repackaging of old ideas. However, there are dramatic differences from earlier ones. As Steingraber (1990) mentioned, for the first time top managers began to view quality positively as a competitive advantage, and to address it in their strategic planning processes, which focused on customer value.

Companies today realize the need to create a true management quality to obtain a good management of quality (Hermel, 1989). Thus, quality management practices appear more and more linked to strategic management, which implies deeper involvement of top management, in order to legitimize the change and to formalize the goals (Bertsch & Williams, 1994). Total quality is now primarily a real strategic resource rather than a simple technique serving other more general goals (Powell, 1995). Previous attempts did not take into account traditional management conceptions, which prevented an effective implementation of total quality.

A variety of external forces brought quality to the attention of top managers. They began to see a link between losses of profitability and poor quality. The forces that brought this connection to their attention included:

- increasing economic liberalization in the world (globalization),
- challenges from domestic or foreign competitors,
- a rising tide of multimillion-dollar product liability suits for defective products,
- constant pressure from consumer advocates,
- pressures from the government on several fronts, including closer policing of defects and products recalls.

Perhaps the most salient external force for European countries and the United States was the growing market share incursions from foreign competitors, particularly the Japanese, in such diverse industries as semiconductors,

automobiles, machine tools, radial tires, and consumer electronics. The results achieved by Japanese companies and the Japanese revolution in quality encouraged the Western world to interest in the Japanese style of management and make some progress in the new management philosophies.

With the advent of the trend toward economic globalization and the concurrent increase in international trade, the need to compete on a worldwide scale is recognized by government agencies in numerous countries. To assist local industries in improving their competitive edge, government agencies emphasised the economic fact that survival in global competition requires improvement to world-class status (Laszlo, 1996).

Companies are facing increasing challenge everyday in order to survive in the competitive world. Since there is no uniform set of guidelines as how to evaluate the success of companies in quality management practices, how do companies assess their readiness to respond to those challenges? What are the quality criteria? That's the issue researchers and practitioners are debating.

4.1. Quality Criteria

In our competitive world, it is not easy to assess a company's readiness for challenges, since there is no universal guideline. Evaluating the success of a company in quality management practices is very subjective since the measurements vary depending on the application. Therefore, progress through the application of these philosophies can only be measured by monitoring process improvements and the variation of outcomes and results.

Grandzol & Gershon (1997) constructed a list of quality measures in Table 4.1 to describe the relationship between TQM practices and measures of organizational performance.

Table 4.1 Measures of Quality

Malcolm Baldrige Award (1996) Product/service quality Supplier performance Corporate responsibility Productivity Financial Indicators Human Resource Performance and Development	Garvin (1987) Performance Features Reliability Conformance Durability Serviceability Aesthetics Perceptions
Rehder and Ralston (1987) Financial position Quality of management Value of long-term investments Use of corporate assets Quality of products and services	Reeves and Bednar (1994) Excellence Value Conformance to specifications Exceeding customer expectations
European Quality Award (1997) Leadership People Management Policy & Strategy Resources Processes People Satisfaction Customer Satisfaction Impact on Society Business Results	Brown, Hitchcock & Willard (1994) Product/service quality Financial indicators Operational indicators Public responsibility Customer satisfaction Employee satisfaction

Adapted from Grandzol & Gershon, (1997), p. 47.

Moreover, Grandzol & Gershon (1997) suggested a list of selected measures and indicators of quality in Table 4.2, in order to evaluate the success of the company in quality management practices.

Table 4.2 Selected measures and indicators of quality

Product/service quality • Accuracy • Completeness • Conformance • Innovation Financial indicators • Return on Investment • Market share • Capital investment ratio Operational indicators • Productivity • Cycle time • Scrap/waste • Energy/efficiency • Material usage	Public responsibility Environmental complaints Community involvement Employee satisfaction Turnover Requests for transfer Grievances/complaints Absenteeism Surveys Customer satisfaction Surveys Complaints Inquiries
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Adapted from Brown et.al, (1994), p. 42.

The debate and search for the criteria of quality assessment is still ongoing since there is no accepted universal guide for that. The criteria may vary depending on the organization. Therefore, the evaluation of the degree of success achieved through quality management practices involves the review of the overall organizational success under a harmonized set of quality assessment procedures.

Bohoris (1995) suggested that Quality Awards' assessment procedures seem to be the only comprehensive means available to date by which quality management initiatives can be thoroughly monitored and assessed. This procedure also provides any business with a competitive internal mechanism necessary to face the imposition of future new barriers to trade in the form of technical or quality standards requirements.

Since the 1980s, several national and regional quality awards have been established not only to promote quality but also serve as frameworks for quality management practices. These awards are major stimulus to quality management practices and self-assessment around the world. Indeed, many organizations use self-assessment to get a better focus on continuous improvement and also to measure the progress of their improvement initiatives.

Though underlying values and concepts of each model represented in their frameworks are different, and each model has its unique award system and set of examination criteria, their contributions to the quality management movements are countless. These frameworks for awards offer many benefits. Some of them are:

- Offer a continually changing blueprint for organizational self-analysis.
- Provide a framework for performance excellence, that will help companies measure performance on a wide range of key business performance indicators: customer, product and service, operational, and financial.
- Focus on the strategic implications of quality, which will allow the company to identify its strengths and to target key opportunities for improvement.
- Sharpen the focus of the organization and its improvement activities, since processes and results affecting all key stakeholders, including customers, employees, owners, suppliers, and the public, are examined.
- Foster teamwork - working to tight deadlines provides people with a clear aims and adds an exciting challenge to life at work.
- Heighten the awareness of people to quality management practices, which might also provide motivation for continuous improvement.
- Improve company communication and performance with resources aligned to achieve company goals.
- Provide the feedback report outlining strengths, opportunities and areas for improvement, based on an independent, external assessment made by recognized experts to supplement and validate their own findings.

4.2. The Major Quality Awards

Quality Awards' assessment procedures give some idea to assess the quality management initiatives. Since each model has its unique set of examination criteria, it is meaningful to make a comparison of these national awards in order to understand different approaches in different countries. Three of the most famous and now widely used frameworks for quality management practices are the Deming Application Prize (Japan), the Malcolm Baldrige National Quality Award (USA), and the European Quality Award (Europe). (Table 4.3)

Table 4.3 Comparison of Four Major National Quality Award Criteria

	<u>Japan</u>	<u>USA</u>	<u>Canada</u>	<u>Europe</u>
Leadership	Policy and Administration	Leadership	Strategic direction and involvement	Drive TQM
Planning	Plan and future	Strategic quality Plan and quality plan	Policy and improvement	strategy
Customers	Services and Relations	Customer satisfaction	Customer relationships	Customer satisfaction
Employees	Labor and Personnel	Human Resource development	Participatory environment	Release full potential
Processes	Company wide	Process Management	Process optimum	Continuous Improvement
Suppliers	Vendor relation	Supplier quality	Partnering	In leadership
Results	Effects	Quality and Operations	In each area	Total Business

Adapted from Laszlo, (1996), p. 16.

4.2.1. The Deming Prize (Japan)

The Deming Prize (DP) was set up by the Union of Japanese Scientists and Engineers in 1951 to commemorate Dr. Deming's contribution to Japanese industry. The Deming Prize is given to companies that have achieved distinctive performance through the application of company-wide quality control (CWQC).

A company is evaluated through two examinations: the document examination and the on-site examination. The aim is to find out how well a company implements total quality control by assessing its quality assurance policies and activities, the implementation of company-wide quality control practices, and the results achieved (quality improvement, productivity improvement, cost reduction, expanded sales, increased profits, etc.) through application of statistical techniques and quality circles. The examination results are scored. Each of the ten examination items carries ten points.

The Japanese Deming Prize criteria encompass all business functions where organizations demonstrate overall success that is not limited only to certain aspects in isolation such as product quality or profitability. Good results should be achieved through successful implementation of company-wide quality control activities. It serves as a symbol for company-wide quality efforts, the pursuit of continuous improvement, and the extension of quality management to the suppliers of the firm.

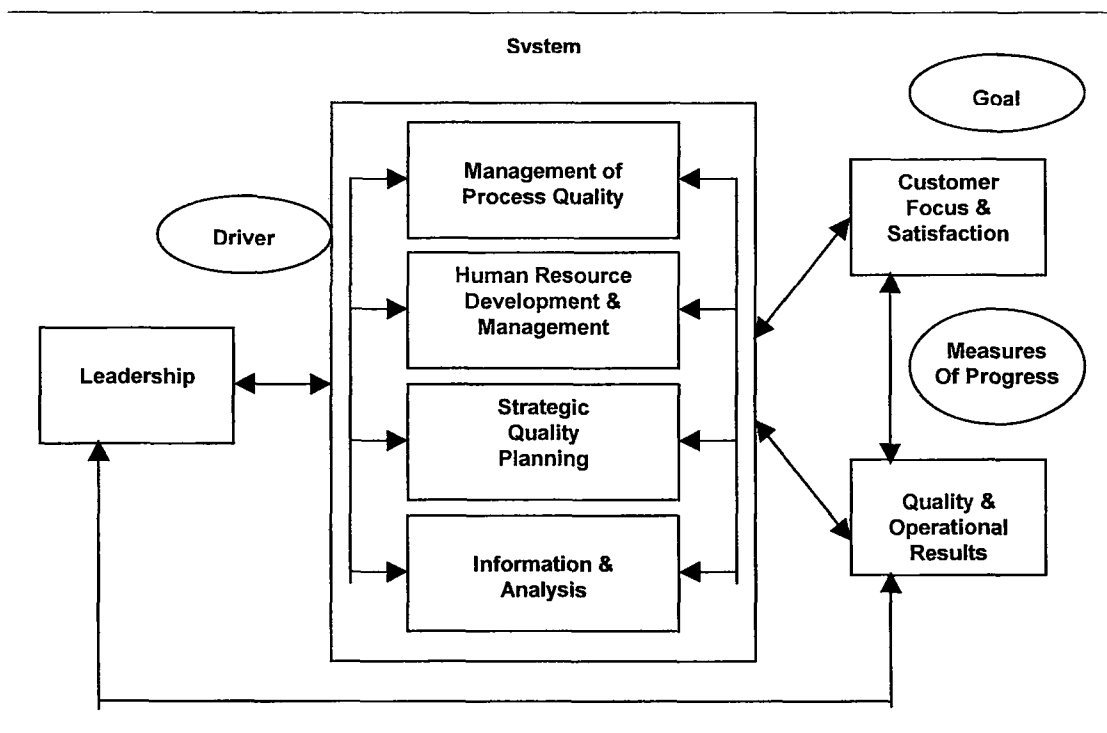
Deming Prize's framework is focused on the implementation of a set of principles and techniques, such as process analysis, statistical methods and quality circles. Therefore, most of its criteria are confined to the application of these principles and techniques. Even criteria such as company policy and planning, results or future plans, which are considered in a broader text in both Malcolm Baldrige and European Quality Award, are primarily concerned with quality assurance activities and quality results, especially the elimination of defects. Its evaluation dimensions such as cost, productivity, delivery, safety and environment, are not as explicitly measured as in the Malcolm Baldrige and European Quality Award (Bohoris, 1995, Laszlo 1996).

4.2.2. The Malcolm Baldrige National Quality Award (USA)

This award was established in 1987 to promote quality awareness and understanding of the requirements for quality excellence, to recognize quality achievements of US companies, and to publicize successful quality strategies. (MBNQA, 1998)

The award assessment is based on a set of examination criteria. A total of 1000 points is allocated to seven examination categories, each of which emphasizes a major quality system requirement and includes a set of specific areas to address. Each area illustrates the type and amount of information on the company's quality processes and quality improvement results, the applicant should provide (Figure 4.1).

The Malcolm Baldrige Award has seven critical factors, which are leadership, information and analysis, strategic quality planning, human resource development and management, management of process quality, quality and operational results, and customer focus and satisfaction.



Adapted from ASQC-MBNQA, (1998), p.13.

Figure 4.1 Malcolm Baldrige Award Criteria Framework

The award guidelines offer a model which describes every category as a “driver” element (senior executive leadership), a “goal” (customer focus and satisfaction), a “measure of progress” (quality and operational results) or a “system” element (strategic quality planning, human resource development and management, management of process quality, and information and analysis).

The Malcolm Baldrige Quality Award criteria are intended to emphasize the key requirements for providing increased value to customers through the optimization of overall productivity within the organization. The overall approach still places emphasis on customer satisfaction to achieve competitiveness. The principle behind its award criteria is that leadership drives the activities (such as people management, policy and strategy, policy and strategy, management of processes, and management of resources) towards excellence in quality results and customers’ satisfaction. These results need to be quantifiable, measurable and benchmarked (Bohoris, 1995; Laszlo, 1996).

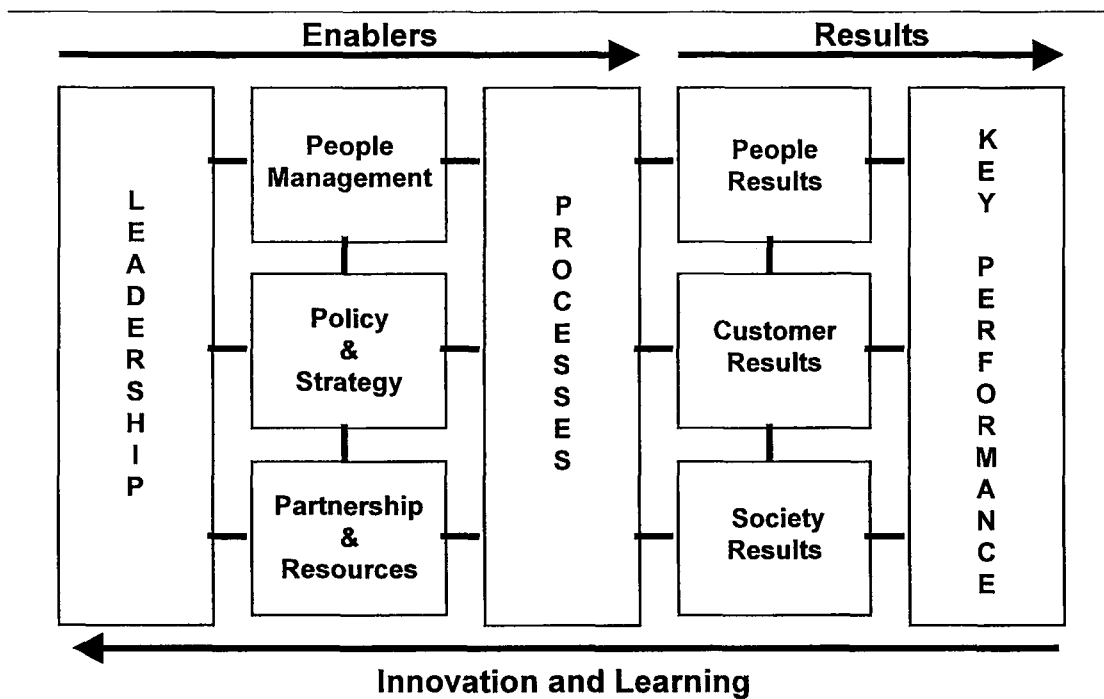
4.2.3. The European Quality Award (Europe)

The award was established in 1991 by the European Foundation for Quality Management (EFQM) with the support of the European Organization for Quality (EOQ) and the European Commission (EC). The aim of the award is to enhance the position of Western European companies in the world market by accelerating the acceptance of quality as a strategy for global competitive advantage and by stimulating and assisting the development of quality improvement activities. (EFQM, 1998)

The model was called the EFQM Business Excellence Model before 1999. Now it is called the EFQM Excellence Model, because the word “Business” led some people to consider that the model was not applicable to non-business orientated organizations such as government departments and agencies, non-profit organizations etc. Despite the changes, there is little difference to the way the model looks.

The examination process consists of three main sections, namely initial assessment, site visits, and the final review and decision. The award assessment criteria have nine categories that are divided into two groups, the results and the enablers. A maximum total of up to 1000 points is allocated to these nine award criteria. Each criterion carries a different number of points in accordance with its relative value within the award. Business results, including the company's achievement in its financial and non-financial objectives, are vital to the company's success so it is the next most highly scored criterion.

As seen in Figure 4.2, the EFQM Excellence Model consists of nine criteria and thirty-two sub-criteria. The first five categories are termed “enablers”, which include leadership, policy and strategy, people management, partnership and resources and processes, and essentially concern people and processes in the organization. The last four categories capture the “results” criteria, which cover the results of customer, people, society and key performance. One of the key changes to the look of the model is the inclusion of an arrow depicting the inclusion of innovation and learning as a theme throughout the model.



Adapted from EFQM (1998), revised from <http://www.efqm.org>

Figure 4.2 The EFQM Excellence Model

The rationale for the EFQM Excellence Model is that the results, including customer, people and society are achieved through leadership driving the enablers, such as policy and strategy, people management, partnership and resources, and processes, leading to excellence in key performance results. This model represents a radically broader guideline for addressing total quality issues, and introduces a host of new ideas. It provides two evaluation tools: the Pathfinder Card and the RADAR Scoring Matrix.

In summary, the Deming Prize focuses on the dissemination of company-wide quality control (CWQC), continuous improvement and relations with suppliers. The most important aspect is the thorough application of statistical Quality Circles (QC) techniques. The Malcolm Baldrige accepts that quality is customer-driven and therefore focuses on customer satisfaction, benchmarking, competitive comparisons with the industry average, the industry leader, and the principal competitors in the company's key markets. The European Quality Award focuses on the relations with the community, and customers' and employees' satisfaction. Another major difference between the Deming Prize and the other two is that examination criteria such as human resource management, customer satisfaction, impact on society, and operational results are not included in the former.

4.3. A Comparison of Quality Management Approaches in the World

To cope with environmental change and turbulence, companies in the world are going through organizational transformation. However, there is no uniform set of guidelines to practice quality management approaches. Each country has its own unique way of applying the philosophies depending on cultural and socio-economic values. Some countries are good at or focus more on certain quality management tools or philosophies. The Japanese are good at quality circles and continuous improvement, Americans focus on radical approaches like BPR, and Europeans tend to mix and harmonize TQM and BPR.

The applicability of quality management philosophies in any organization depends not only on the organizational culture but also the business environment/culture of the country they are in. Many quality practices have evolved and taken different directions in different nations. In order to understand how cultural factors affect quality management practices in different countries and organizations, insights from studies done in the past can be drawn.

Before comparing the practices in different countries, it will be helpful to explain some socio-cultural facts in order to understand, evaluate and compare quality management approaches in different countries. As Hermel (1997) stated companies' change processes are like icebergs: they have a very small visible part (the strategic, structural and technological aspects) and a large hidden part (the values, behaviors, perceptions and implicit paradigms). The successes, failures, revivals and transformations are directly linked to the progressive discovery of hidden elements. In other words, socio-cultural factors will reveal the reasons and the means of quality management approaches in different countries.

To understand socio-cultural factors, culture and its dimensions must be examined. Culture is defined as a set of values shared by members of a group, organization or society; and through which values and attitudes that shape individual and group behavior, are formed. It is learned through both education and experience, passed from one generation to another, and constantly undergone change as people adopt to new environments (Hodgetts & Luthans 1991, Rugman & Hodgetts 1995).

Hofstede (1980) has conducted a study, covering over 116,000 questionnaires completed by respondents from 70 different countries. He has found four cultural dimensions that help to explain how and why people from various cultures behave as they do. It will be helpful to understand whys and why nots in quality management efforts, and by so doing set the tone for the change effort.

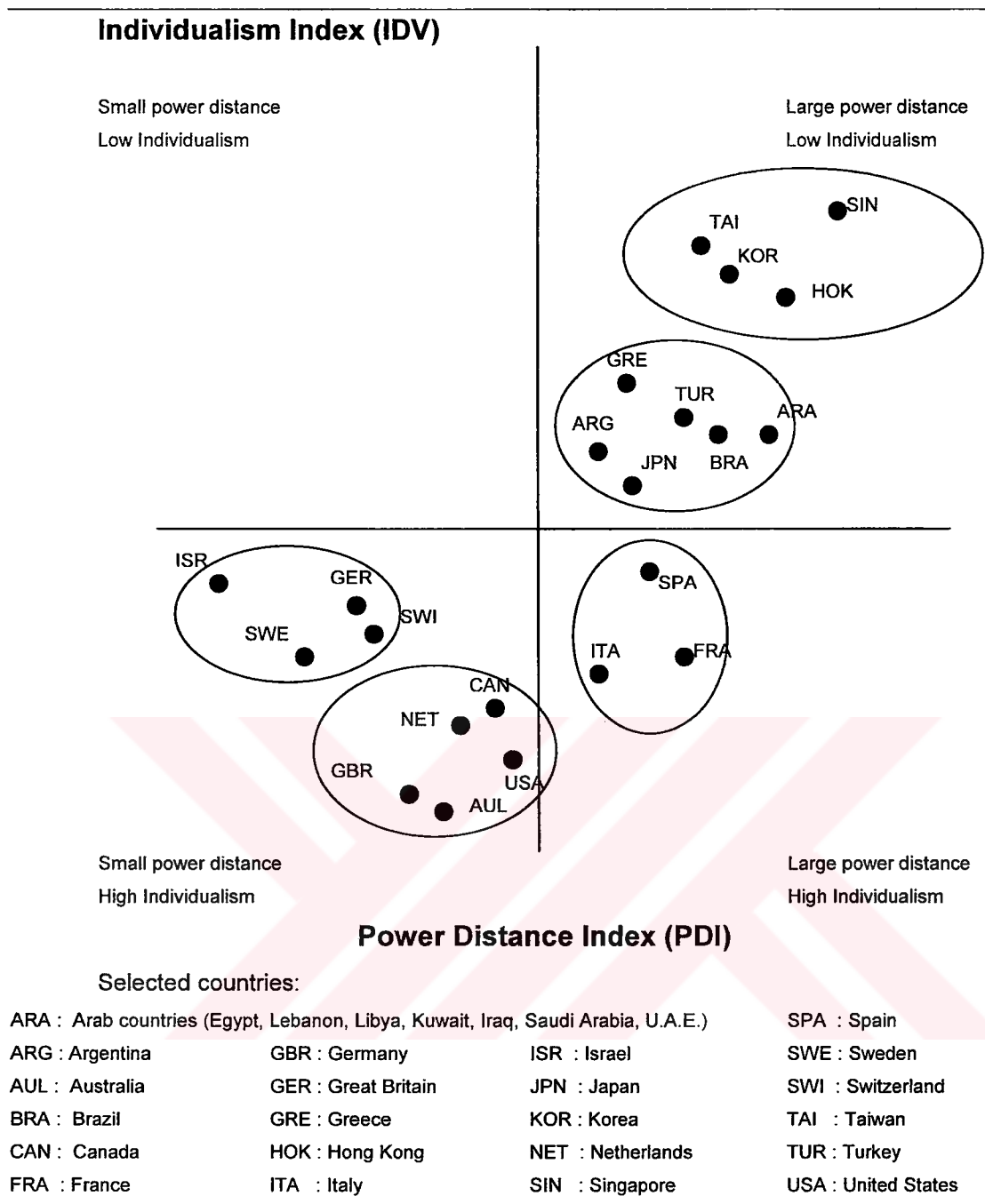
As seen in Figure 4.3, the matrix of power distance index and individualism index, the US and a host of western European countries are located in the lower left-hand quadrant, which has high individualism and small power distance. Turkey is located in the cluster including Greece, Argentina, Brazil, Arab countries and Japan, but is slowly moving into the lower right-hand quadrant which has higher individualism and larger power distance than today. In other words, Turkey is moving or targeting the cluster that includes Italy, Spain and France.

The most interesting one is Japan's position. Japan is not in the same cluster as most of the other oriental nations, which indicates that the effect of technology and affluence may cause a culture to change in a direction that makes it more like others with a similar economic and technologic environment as Japan becomes one of the major force in international business. (Rugman et.al., 1995).

In Figure 4.4, countries with strong uncertainty avoidance tend to formalize organizational activities and depend heavily on rules and regulations to ensure that people know what they are to do. Countries with strong masculinity place a greater deal of importance on wealth and recognition, such as earnings, recognition, advancement and challenge instead of a friendly work environment, cooperation and employment security which are what they term feminine characteristics.

In short, Turkey is at the crossroad of oriental and western cultural characteristics, with increasing individualism in a moderate-to-high level power distance, moderately strong masculinity with a moderate uncertainty avoidance. All of these cultural characteristics show some similarities with countries like Brazil, Argentina, Arab countries, and in some sense France, Spain and Greece.

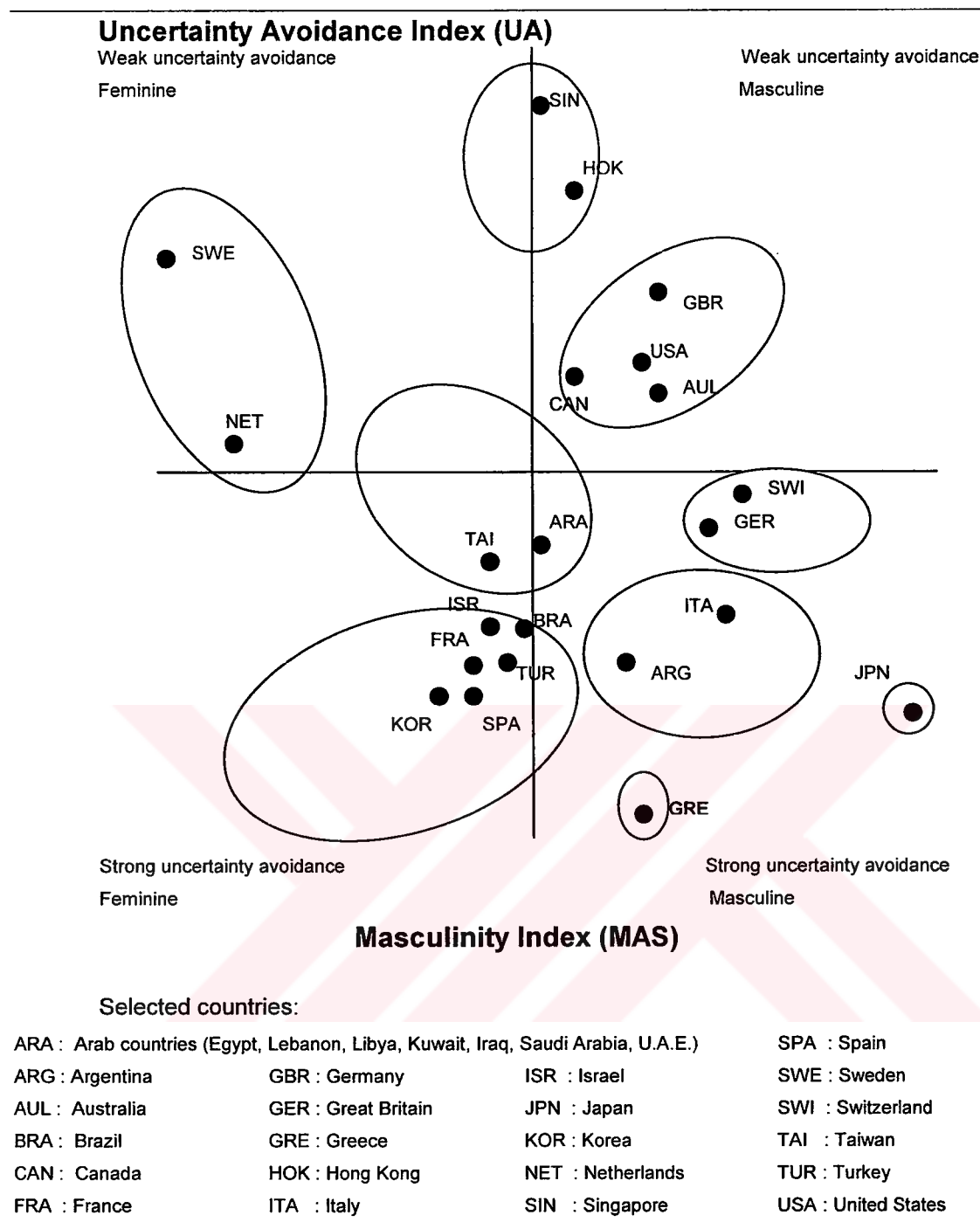
As seen in these figures, countries are located at different points, based on four cultural dimensions. This helps to understand the socio-cultural facts of whys and why nots in quality management efforts, and the means used by companies in different countries.



Adapted from Hofstede, (1983), p.82.

Figure 4.3, The Power Distance & Individualism Plot for Selected Countries

Although it is not easy to compare and evaluate the degree of success achieved by countries through quality management practices, a harmonized set of criteria, mainly used by major quality awards, can be used to compare quality management approaches in different countries or regions under these cultural characteristics.



Adapted from Hofstede, (1983), p.86.

Figure 4.4 Masculinity & Uncertainty Avoidance Plot for Selected Countries

In general the US, Canada, Australia and most of the western European countries are culturally more ready for smoother transition in change efforts than others. As Macedo-Soares and Lucas (1996) mentioned in their study, the prior existence of some quality-of-working-life culture with a minimum of relevant participative features is the main reason for easier cultural change compared to the other countries.

The main criteria harmonized from EFQM, MBNQA and DP, are categorized as leadership/management, employees, customers and suppliers, policy and strategy, organizations/processes and business results.

4.3.1. Leadership/Management Commitment

As mentioned before, leadership is the vital factor for success in quality management. Leaders/managers should lead and commit themselves to the change management process, communicate the need for change to assure buy-in, support improvement and involvement by providing appropriate resource and assistance, coach people, facilitate teamwork and empower people. Though these are the global tasks of contemporary leadership/management in the business world, each country has its own management style in quality management efforts depending on several factors such as cultural and socio-economic factors.

Hofstede (1980) observed in his study that managers in North America and most western European countries consult with their subordinates and empower them. On the other hand, managers in most South American and Asian countries are more autocratic, and make more paternalistic decisions.

North America (U.S.A., Canada)

In the US and Canada, leadership is recognized as the key driver in quality management efforts. Leaders implement and review quality and operation performance plans, and integrate the company's quality values and customer focus into day to day management. In order to achieve this, they use quality management methods, tools and techniques to develop and maintain an environment for quality excellence (Bohoris 1995, Lazslo 1996, MBNQA).

Initial failures of total quality in the 1980s, have allowed managers to re-examine and rethink about their quality programs. They learned to approach quality management efforts in a broader perspective and lead the change instead of following it. Hermel (1997) stated that, there have been difficulties with some specificities of quality management fit in with their culture, as in the strong communication of credos by top management. However, management sometimes put emphasis on quick fixes, which may hurt quality management movement in the long run.

Europe (Germany, France, Italy, United Kingdom)

In Europe, managers/leaders act as role models leading by example and demonstrate their commitment to quality improvement. The behavior and actions of the executive teams and all other managers in driving the organization towards TQM efforts is the key factor (Bohoris 1995, Lazslo 1996, EFQM, 1998).

Hermel (1997) noted that European companies find themselves better positioned for the implementation of their quality programs. This is mainly because of the role model of managers in driving organizations towards quality programs. Moreover, management places greater emphasis on long term change, as opposed to quick fixes (Zairi, 1996). In contrast to many western experts, Hannam (1993) stated that in western companies, compared to Japanese companies, management is based far less on consensus and participation at all levels. Japanese managers often delegate decisions to a group and try to achieve a consensus decision.

In Europe, including Germany, France and UK, managers in general commit to quality management. In fact, the quality movement has focused quickly on quality culture more than just approaching the quality tools, which allows for a better adaptation of quality management (Hermel, 1997).

In Italy, top management commitment has a higher value, which demonstrates that management believes in quality (Ruggieri & Merli, 1998). Management's involvement and conviction in the introduction and the development of a TQM program appears to constitute the fundamental element for its successful application.

Asia (Japan, Singapore, Korea)

In Japan, leadership is mainly practiced by policy and administration rules. Managers' roles in the management systems are clearly defined. They are responsible for promoting, establishing, implementing and improving quality practices (Bohoris, 1995, Lazslo 1996).

Generally, Asian countries are good at practicing quality management tools and techniques, but they have some difficulties in cultural and philosophical perspectives. Despite technological advance, managers have more power over employees, and decision-making process and power structure are still not well decentralized.

Despite the cultural and social differences from the western world, Hannam (1993) argued that western managers are more authoritarian than Japanese managers and see it as part of their job to take decisions. Furthermore, western companies are staffed and mostly managed by individuals with depth but little breadth of experience in contrast to Japanese ones, which are run by executives who had a range of jobs within the company.

Gosh and Hua (1996) observed in their study that managers in Singapore in general revealed a greater degree of commitment to quality programs.

South America (Brazil)

Since the 1970s, South America has experienced a series of paradigm shifts regarding quality. Managers in general strongly commit to the quality movement by acting as the key/autocratic figure in the organization.

Macedo-Soares and Pastor-Braga (1990) state that Brazil's dominant cultural traits of concentration of power, personalism and paternalism greatly contribute to its organizations' difficulties in giving up the traditional, hierarchical functional paradigm, and adopting more horizontal and decentralized structures. Only about one third of the companies could affirm that senior managers' commitment to total quality was strong and visible in a study of leading firms in Brazil (Macedo-Soares and Lucas, 1996).

4.3.2. Policy and Strategy

Strategies and policies are as important as leadership and management commitment. In fact, organizations should formulate their policies and strategies by thinking from a long-term perspective, and turn them into plans and actions. Policies and strategies should be regularly improved and communicated throughout the organization.

Each country has its own way of planning and implementing quality management strategies and policies. However, it is almost common for all countries that they are developed and formulated at the top management level, and not well communicated throughout the organization. In fact, Zeith, Johannesson and Ritchie (1997) pointed out that policies instituted at the top management level causes some

common problems in quality management programs, and do not affect actual behavior and work group culture of supervisors and operatives.

North America (U.S.A., Canada)

The mission, vision and the strategies of corporations are created on the basis of the quality-related information. In other words, companies formulate their policies and strategies on a strategic quality basis. Companies deploy their business plans to all work units and to suppliers, and they ensure that the plan requirements are met by them (Bohoris 1995, Lazslo 1996, MBNQA, 1998).

Although US companies focus on strategies based on relevant and comprehensive information, the way they take interest in the “how” rather than the “why” of things might cause some big problems in the short-run. The competitive pressure on leadership and short-term performance measures might force companies to put emphasis on quick fixes and wins rather than long-term approaches. The radical way of doing business might also cause big failures as well as enormous successes in the global market.

Europe (Germany, France, Italy, United Kingdom)

In Europe, a company's policy and strategy formulation is still done in traditional way, though the effectiveness and relevancy of strategies and policies are regularly reviewed and improved. Policies and strategies are communicated throughout the organization, whereas employees' awareness of corporate strategies and policies are high (Bohoris 1995, Lazslo 1996, EFQM, 1998).

In general, European companies prefer smoother transition strategies in balance with the social and economic facts. They focus more on the why of things, which might cause a slow down in change movement.

Many Italian companies have implemented total quality management programs, some obtaining good results, others, after a few attempts, decide to abandon it. However, only a few companies declare themselves to be in a clearly advanced position, because of insufficient confidence in the strategic importance of TQM, and strategic plans (Ruggieri & Merli, 1998).

Asia (Japan, Singapore, Korea)

In Japan, the company's future policies, plans and measures for managing quality and other related issues should be established as well as present ones. These should be communicated and disseminated throughout the company, and the implementation measures should be developed and promoted (Bohoris 1995, Lazslo 1996)

The Japanese companies are in general committed to long-term strategies and future plans. However, it might take longer time to formulate strategies and turn into action plans, whereas positive results might not appear immediately.

South America (Brazil)

Macedo-Soares and Lucas (1996) underlined that cultural traits in South American countries, such as a loose sense of time and measure, immediateness, lack of planning, etc., that were reinforced by the country's erstwhile economic uncertainty and instability, account for the difficulty in carrying out quality practices with the necessary sustained rigour and method.

In Brazil, there is a high awareness of the strategic planning. However, very few of these companies are systematically integrating customer-relevant information into their principal planning and decision-making processes. Generally, these practices lack the necessary alignment with the business' strategic objectives.

4.3.3. Organizations/Processes

The most difficult challenge of organizational transformation is the cultural change, because it does not come from training programs, wish lists of values and beliefs or changed organizational structure and systems (Beer et al. 1990, PWCIT 1996). However, the cultural changes help shaping up the organizational structure and vice versa. For example, new communication networks, globalization, and changing societal values are all factors of organizational and cultural changes. The process management approach helps in reshaping and/or restructuring the way organizations do business and the way people do work.

Generally, North American and European companies and some Asian ones are reshaping their organizations to meet the global needs. However, they should also be aware of organizational flexibility, not to create new dysfunctional methods

or systems. As Hofstede (1980) observed, countries with high uncertainty avoidance tend to formalize organizational activities and develop systems and methods for dealing with ambiguity. Unlike Japan, Korea and Greece, countries such as the US, Canada, the UK, Singapore and Sweden have weak uncertainty avoidance, and yet people are less stressed, have more acceptance of dissent and disagreement and rely heavily on their own initiative and ingenuity in getting things done.

North America (U.S.A., Canada)

A new conception of total quality which goes beyond a simple application of techniques in integrating broad and many criteria has been promoted in North America since 1980s (Easton 1993, Hermel 1997). However, interest in the quality movement has declined. Organizational and cultural factors seem to be the main reasons in this transitional period, and this allows for organizational learning.

In North America, the focus is on process management in which the company's quality and customer requirements are integrated. Also, the company assesses and improves the performance of its systems, processes and the quality of its products and services (Lazslo 1996, Bohoris 1995, MBNQA 1998). As Harrington (1996) observed in his study that North American companies put primary emphasis on statistical process control and business process improvement in use of quality improvement tools, but should also put emphasis on process simplification.

Europe (Germany, France, Italy, United Kingdom)

In Europe, the quality movement has focused on quality culture more than just approaching quality tools, which allows for better adopting of quality management approaches, and helps to avoid the trap of blind and mechanical implementation of fixed procedures (Hermel 1997). Because of approaches in handling implicit and ambivalent situations, European companies find themselves better positioned for the implementation of their quality programs to overcome some cultural contradictions more easily (Segal 1989, Hermel 1997).

European companies tend to focus more on continuous improvement in process management to evaluate how the process performance measurements and feedback from people, customers and suppliers are used in establishing standards and setting targets for improvement (Lazslo 1996, Bohoris 1995, EFQM, 1998).

Hannam (1993) argue that some western companies are moving down the path of computer integration, whereas the motivational needs of staff will be addressed in the computer integrated company. However, Japanese do not require complex communications equipment or high technology. Instead, they require people to talk, observe and think. This might be the answer to failures in change management, where companies are integrating computers around the wrong organizational structures.

Harrington (1996) observed in his study that German companies should pay attention to process simplification like their American competitors to compete head-on with Japan. Also, German companies should set higher priorities on business process improvement. This is also valid for the most European countries.

Ruggieri & Merli (1998) observed that statistical techniques and process control approaches, such as statistical tools, zero defects, benchmarking and process improvement and control, are the least applied factors, and are still not applied in an integrated way. The lack of attention by companies and the impracticability of benchmarking are considered the main reasons.

Asia (Japan, Singapore, Korea)

Mainly, Asian countries focus more on 'quality tools' to adopt quality management programs. They value social harmony and long-term commitment; the quality improvement tools such as quality circles were developed to train Japanese employees in order to create an organizational culture, which is different than the Western world. The change in organizational culture is not as fast and radical as the western countries.

Japanese companies focus more on company-wide process improvement. How the company manages and controls the quality and performance of the processes as well as quality control management practices are the main concerns of process management (Lazslo 1996, Bohoris 1995, DP).

Harrington (1996) stated that Japan's emphasis on process simplification was one of the major differentials from the western countries. Compared to North American companies, Japan emphasize the use of the problem-solving tools more, rather than statistical process control. However, Japan is far ahead on process simplification compared to the US and Europe.

Hannam (1993) observed that in Japanese companies, employees at all levels form a think-tank to generate ideas for all aspects of a company's activities. In western companies, functional specialists are employed and are expected to come ideas for improvements in methods and processes.

South America (Brazil)

The greatest challenge with regard to removing the barriers to the effectiveness of the quality practices at issue is managing cultural change in an adverse social and economic environment. However, a great majority of the leading firms in Brazil with total quality initiatives have adopted, to some extent, most of the key quality management practices at issue.

Most of the sampled firms are mapping and improving their processes without giving up their traditional functional managerial paradigm. Over two-thirds of the firms make some use of statistical process control methods. Around three-quarters adopted ISO 9000 series for their quality assurance practices and two-thirds either completed or are at an advanced stage of the certification process in compliance with these standards (Macedo-Soares and Lucas, 1996)

Likewise, only a small minority, less than one-fifth reported that they were systematically applying the process improvement practices and regularly carrying out thorough statistical analyses with the help of SPC.

4.3.4. Employees

Employee empowerment is one of the most important factors in quality management. Any successful organizational transformation effort must take into account the employees' needs, fostering commitment and ownership at all levels. In other words, organizations should release the full potential of its people by sustaining and developing its resources (EFQM 1998, Hammer & Stanton 1995, PWCIT 1996).

It is important for the employees who will be affected by change management to understand how the effort will unfold and affect them as individuals. People need to know clearly where the company is headed and how to get there. People must understand why improvement is needed, the vision of the future and their part in it. Thus people will understand the company's strategic framework, and

commit to the company's vision, mission, values, objectives and strategies (Peppard & Rowland, 1995, Harrington, 1991).

Zairi (1996) state that in countries with a culture that values social harmony and respect for human resources as the reservoir of an organization's cumulative intelligence, there is a preference for smoother transition patterns to more desirable organizational structures. In these, management places greater emphasis on approaches that nurture effective long-term change, as opposed to quick fixes.

In Hofstede's (1983) study, countries are also identified by their characteristics in individualism and masculinity. Countries with high individualism expect people to be self-sufficient rather than strong group support and affiliation. In addition, countries with high masculinity place a great deal of importance on earnings, recognition, advancement and challenge rather than friendly work environment, cooperation and employment security.

North America (U.S.A., Canada)

In general, companies' quality and operational performance objectives are incorporated into their human resource plans. Corporations make sure that for all their workforce, employee development and empowerment programs are provided as well as several involvement methods/tools, training and education programs and employee performance and recognition approaches (Lazslo 1996, Bohoris 1995, MBNQA). Lazslo (1996) observed that in US, the emphasis is more on human resource development, whereas it is more on participatory environment in Canada.

Most of the North American companies give importance to employee satisfaction. They try to achieve this by implementing employee development programs and fostering teamwork. Culturally, they are more ready for employee empowerment and participative management than other countries. They encourage autonomy and individualism as well as teamwork, which they find do not contradict with each other. As Harrington (1996) observed in his study that North American companies have a higher percentage of their employees on teams than Japanese corporations do; and probably a higher percentage of team involvement will be valid for the coming future.

Organizational commitment and job satisfaction are also important indicators for North American corporations in their employee satisfaction efforts. A survey

done by Lincoln (1989) also reveals that worker commitment among US factory employees is almost as high as that of their counterparts in Japan and job satisfaction is higher among US factory workers than among Japanese factory workers.

Europe (Germany, France, Italy, United Kingdom)

European companies focus on human resources and how people are involved, empowered and recognized within the organization. Also, they appraise and continuously review their employee development programs. The key is the release of people's full potential.

Traditionally, employees and working conditions are secured by labor law and unions, which give extra security to employees in Europe (Hermel, 1997). However, Hannam (1993) stated that the social contracts and legislation for industrial participation in European companies can be viewed as very positive as well as negative. It might benefit the deliberations of the board, but having a workforce representative on the board might encourage management to communicate less with the workforce, not more. In fact, western companies put considerable effort into communicating to their staff, but spend little time listening to their staff (Hannam, 1993).

Ruggieri & Merli (1998) observe that true engagement in the human resource factors in Italian companies is confirmed by the training and open organization values. Companies are constantly training and constructing an organization based on trust and autonomy. However, employee empowerment has a lower place value, which is a source of trouble for Italian companies when they try to operate in an active way, introducing policies directed to involve personnel completely in the company's strategies.

Asia (Japan, Singapore, Korea)

In Asia, companies apply quality concepts into their human resource management and offer education and training programs for their employees. However, their approach to human resources management is not the same as most western countries. For instance, employee involvement means employee performance and recognition.

In general, Asian countries have less individualism and large power distance. Collectivism, teamwork and authority are given high value as part of their social values. However, as Hofstede (1983) observed in his study, individualism is increasing in Japan as that nation has become a major force in the international economic area. Harrington (1996) also noted that team involvement in various quality-related teams in Japan is below than North America and Germany. He added that Japan seems to be changing its focus from a team concept to an individual excellence approach, whereas North America and Germany are focusing on team improvement to maintain and improve their competitive position.

South America (Brazil)

It is generally thought that a great majority of the firms in South America are still managed by the traditional (functional) paradigm. Macedo-Soares & Lucas (1996) observed that decision-making process and power structure are still decentralized, although a majority of firms take hard technological and organizational measures.

To some extent, nearly all the firms sampled are making some participative management efforts, and establishing multi-functional teams for quality-related activities, such as problem solving and quality process improvement. However, appropriate quality-related training programs are still considered insufficient for employees.

4.3.5. Customers/Suppliers

In general, the customer is the main focus of all quality management programs. But they are not involved in the programs in real life and they are not asked what they need or want. This is one of the main reasons for failing quality management programs, since companies do not match the needs of the customers they serve. Experts suggest that companies should ask, listen and develop strategic framework based on what the customers want and expect by conducting a comprehensive review of customer needs, economic leverage points, and market trends. In fact, customers and suppliers might give valuable insights and suggest ways to cultivate better relations (Hall et al. 1993, Manganelli & Klein 1994)

North America (U.S.A., Canada)

For North American companies, customer/supplier management and satisfaction is very significant. They build, maintain and enhance their relationships with customers/suppliers. They develop their commitments to their customers to promote their trust and confidence in their products and services. This is measured and evaluated by customer satisfaction and dissatisfaction relative to competitors (MBNQA, Bohoris 1995, Lazslo 1996). Lazslo (1996) summarized this focus area as customer satisfaction for the US, and customer relationships for Canadian companies.

Harrington (1996) observed in his study that customer satisfaction is a very significant criteria in their strategic planning process for North American companies, and will be in the future. Also, North American companies place great emphasis on competitor comparisons (benchmarking) as an important consideration during the strategic planning process. However, Harrington (1996) observed a contradiction, that is, the percentage of businesses where departments always or almost always translate customer expectations into the design of new products/services is lower in North American companies than Japanese and German ones. Although most innovative products/services come out in the US, both Germans and Japanese are including customers on their teams that create the new design specifications.

Europe (Germany, France, Italy, United Kingdom)

In Europe, the customers' perception of the organization's products, services and customer relationships are as important as in North America or Japan. Supplier relationship is managed and maintained by leadership.

Harrington (1996) observed that both North American and Japanese companies place greater emphasis on customer satisfaction and competitor comparisons (benchmarking) than to German ones. However, Germany's strong emphasis on technology in order to meet customer expectations and translate into design of new products and services may make up for part of this apparent advantage which North American and Japanese competitors have.

Italian companies are making a remarkable effort to manage relationships with their customers and suppliers. These efforts do not depend only on the quality goal, but are connected with many of the company's roles and functions. It is

possible that some companies use advanced techniques of customer and supplier management without a structured commitment to quality or TQM implementations (Ruggieri & Merli, 1998).

Asia (Japan, Singapore, Korea)

Generally Asian countries are increasing their emphasis on customer satisfaction by improving product and service quality. Lazslo (1996) also summarized the key difference between Japan and the western countries as services and relations in Japan, compared to customer satisfaction in North America and Europe.

Harrington (1996) observed that Japan has a significant business advantage on customer satisfaction emphasis, competitor comparisons (benchmarking) and incorporating customer expectations into new product designs in strategic planning process.

Supplier relation is an important part of Asian economic life, thus companies have strong ties with suppliers. Lazslo (1996) also defined this relationship as vendor relationship versus supplier quality or partnering in North America.

South America (Brazil)

Macedo-Soares & Lucas (1996) observed that very few of the firms are systematically integrating customer-relevant information into their principal planning and decision-making process. Consequently, these practices usually lack the necessary alignment with the business' strategic objectives.

A study done by Deloitte International also reveal that while in the US and Canada leading firms explicitly quoted customer satisfaction together with product quality, delivery reliability and productivity, as the most important performance measurements, in Brazil the principal metrics are manufacturing costs, product quality, profitability and sales revenue.

4.3.6. Business Results

Business results are the final products of all efforts and activities. But, they need to be quantifiable, measurable and benchmarked. Progress or success might be measured financially or non-financially.

Business results are achieved through leadership, driving the enablers or systems. The focus is mainly on customer satisfaction, operational results, competitive comparisons as well as impact on society. Depending on the country, the focus, the weighting and the importance of measurable result might change.

North America (U.S.A., Canada)

Business results are the final evaluation of the company's key financial and/or operational performance with those of appropriately selected companies. According to Lazslo (1995), US companies evaluate the results from quality and operation perspectives versus Canadian ones, which look into results in each area.

Europe (Germany, France, Italy, United Kingdom)

In Europe, results and trends for key financial and operational measures are evaluated by companies to see what has been achieved in relation to their planned business objectives. Lazslo (1996) state that European companies evaluate the total business results.

Europeans also put emphasis on the impact of organization on society, that is what organizations achieve in satisfying the needs and the expectations of the local, national and international community at large. They continuously take into account the quality of life, the environment and the preservation of global resources.

Asia (Japan, Singapore, Korea)

In Asia, companies mainly focus on quality and operational results by comparing their actual performance with their targets. As Lazslo (1995) stated Japan's focus is more on the effects of business results.

South America (Brazil)

In most Brazilian firms, a key measurement is the implementation of integrated performance metric systems that include customer satisfaction among the company's key global performance indicators (Macedo-Soares & Lucas, 1996).

From all of the above, it can be seen that each country has it's own work ethics, affected by many factors including cultural traits. Generally, North American and European countries, with a more developed work-life culture, have easier

cultural changes compared to the other countries. Although the compatibility of the organizational culture to the new management philosophies is a prerequisite for successful transformation, it is heavily influenced by the business climate in the country, even by the global business climate.

Ferdows et.al. (1987) observed in their three-year study of nearly 1500 large manufacturers in western Europe, North America and Japan, the time frames and indeed the basic paradigms for strategic planning and action in Japan and in the West are substantially different. In America and Europe, almost regardless of the competitive priorities set for the company, managers are under direct and short-term pressure to perform well in contrast to Japanese managers.

In the next chapter, the future of the quality movement in the world will be examined. Trends and key forces shaping the future of business will be examined in addition to success and failure factors of successful organizational transformation.



V. QUALITY MOVEMENTS IN THE FUTURE

In this chapter, quality movements in the world will be examined to explore the future of the quality movement. As we know, change has been the only constant concept since the beginning. The tremendous advance in information technology accelerated the pace of change in this century. It affects all facets of our lives from art to economy, from technology to social values and so on.

Horton (1989) stated, today's corporations do not have the luxury of stability whereas the external business environment is so unpredictable that surprise rather than managed change is inevitable. Indeed, rapidly changing conditions often create discontinuous environmental changes for organizations. To survive in a rapidly changing environment, companies must have flexibility for adaptation, be able to find ways to handle the new conditions and capitalize on the opportunities of the changing environment.

Today, in the 1990s, quality has become the first step or basis of entry to the market in most industries. However, as new technologies and competitive pressures in the economy increase, consistent high quality will become more a given and less a differentiator. (KPMG, 1996) In fact, the company that supplies the right product with the right quality and service at the right price, place and time does not always win, nor does the first to market. That's because the scale, intensity and even the nature of competition is changing.

In recent years, managers, experts and academicians started to discuss the future of business, and therefore, the future of quality management: What are the trends and key forces shaping the future of business? How can we succeed in organizational transformation? What are the success and failure factors? Where is the quality movement heading toward? Is there a universal set of frameworks or guidelines? What is next?

There is no easy way to answer these questions. Over the last few years, the world's economies have evolved from more closed economies to global economies, where international trade is deregulated. More and more companies

find themselves in global markets, since the world has gotten smaller. The shift in this paradigm is the result of trends and key forces shaping the future of business, and therefore the future of quality management.

The current key drivers of the rapidly changing business world are changes in the economic environment, changes in technology, changes in organizations, and changes in societal values and customers.

5.1. Changing Economic Environment

The new business climate is a fiercely competitive environment in which the globalization of markets and deregulation of international trade has already increased. Currid et.al. (1994) stated that with trade barriers falling, products, services and ideas flow freely across national borders. Good performers drive out the inferior, because the lowest price, the highest quality and the best service available from any one of them soon becomes the standard for all competitors.

The globalization of markets has forced companies to become more competitive or face possible extinction. Thus, companies go global and cross national frontiers or become involved in different types of relationships, such as strategic alliances, joint ventures and partnerships.

Privatization, deregulation and outsourcing are also increasing. New communication networks and a new emphasis on communication also have enormous implications on globalization. As a consequence, there are more opportunities than ever with the risk of luring enterprises into non-core business areas and new challenges (Garelli, 1997).

5.2. Changing Societal Values and Customers

According to Drucker (1992), in the knowledge society managers must prepare to abandon everything they know, since knowledge is the primary resource for individuals and for the economy overall. Knowledge is a very dynamic concept and has a shelf life, therefore, it can quickly become outdated in this business world. Consumer trends change, competitors enter and leave markets, and paradigms shift. What we knew about business yesterday might not be so meaningful today (Currid et.al., 1994).

In today's business world, the emphasis is shifting from mass production to mass customization, the ability to offer personalized versions of otherwise standard products while still maintaining the cost/volume advantages of mass production plus quality, service and price. Companies must strive to meet or exceed the service offered by other companies in the same or even different industries as standards are continuously being raised (KPMG, 1996).

Companies today have customers who know what they want, what they want to pay for it and how to go it on the terms they demand. Indeed, new consumers demand value in the form of high-quality, low-cost, rapid service. Market leaders continuously focus on improving their position in their core competency, constantly exceeding their customers' expectations in the area that the customer values most (Currid et.al., 1994; Treacy & Wiersema, 1994).

5.3. Changing Information Technology

At the turn of the century, one of the tools which is transforming organizations to the degree that Taylorism once did, is information technology; the capabilities offered by computers, software applications, and telecommunications (Davenport & Short, 1990). In fact, the pace of change has accelerated with the help of IT. Porter (1985) also stated that of all the things that change the rules of competition, technological change is among the most prominent, whereas IT plays a major role in industry structural change.

Porter & Millar (1985) identified three vital means by which the information revolution is affecting competition between companies and within industries,

- It creates competitive advantage by giving companies new ways to outperform their rivals
- It spans whole new businesses, often from within a company's existing operations
- It changes industry structure and, in so doing, alters the rules of competition

A handful of companies, in fact, proved how combining innovative ideas with enabling technologies dramatically changed their market position over the last decades. Effective management of technology is therefore an important source of competitive advantage, and many successful companies use IT to respond to the challenges. Venkatraman (1994) also said that successful companies will be

differentiated by their ability to visualize the logic of the new business world and leverage IT to create an appropriate organizational arrangement. For firms today, comparative advantage derives primarily from knowledge-intensive value-added technology, and the strategic integration of that technology with market-driven needs and services (Merrifield, 1991).

5.4. Changing Organizations

The information age represents a paradigm shift in the way enterprises, especially large ones, are organized and how they function. With the use of computers and communication gears, organizations can form in many ways based on talents and information technology, and not on function or geographic convenience. The enterprise will no longer be a physical entity organized around structure, but an ephemeral, intangible entity loosely associated in alliances to serve customer needs. Thus, new work models are emerging, such as cross-functional project teams, self-managing and virtual teams (Currid et.al, 1994, DoD, 1996).

Companies increasingly find it necessary to develop more flexible, team-oriented, coordinative, communication-based work capability. Rather than maximizing the performance of particular individuals or business functions, companies must maximize interdependent activities within and across the entire organization. IT's promise, and perhaps its ultimate impact, is to be the most powerful tool in the twentieth century for enabling this coordination (Malone & Crowston, 1988).

In the information age, educated and skilled workers need only information and the authority to act for the enterprise to be successful. The role of the manager is shifting from giving direction and rating performance to individual coaching and team facilitation (DoD, 1996). In fact, more and more companies are empowering employees to make decisions by giving them greater information access.

As the new millennium draws to a close, increased global competition and deregulation, changing societal values, organizations and customers and the tremendous advance in IT have all led to a search for ways to survive in this chaotic business world. The danger becomes greater for companies that do not keep up with developments, as economies and industries restructure and new rules apply.

The time available for recovery is shortening while the time required to develop a corporate culture that embodies current realities and effectively innovates is long.

In order to recognize the new rules of the business world and keep up with developments, companies should have their own change management guidelines. By so doing, organizations might understand and take actions for environmental changes, and cope with the resistance to change throughout the organizations.

5.5. Change Management

Most companies today are under severe pressure to recognize the new rules of business. But some of them face possible extinction, since they don't understand the change, and are not ready for the wind of change.

A company's level of readiness to change is determined by a host of variables, including the strength of the corporate culture and how often the organization has engaged in formally managed change efforts before. It is important to get beyond "gut feeling" when assessing an organization's readiness for change. It is equally important that the organization's leadership get beyond their own ego in thinking that they have projected a compelling need to change and therefore the company must be ready, willing and able to change (Carr et al, 1995).

According to Rye (1996), change management must take account of each of these factors:

- The historical and political evolution of a company will have a significant bearing on its acceptance of change.
- The roles of management and the structure and operation of the organization will be affected by the change.
- It is impossible to invoke even the most modest of changes without impacting the manner in which someone works.

Since most change programs don't work, it is important to understand how change can be brought about to boost performance. Implementing change at every organizational level is difficult because it threatens the comfortable status quo. Dervitsiotis (1998a) said that there is either a passive resistance, which includes the widespread cynicism often found among workers exposed to frequent management initiatives to change, or an active resistance, which is generated by those

threatened by an anticipated redistribution of political power resulting from the transition to a new state.

Because of possible changes in power or organizational structures, it is important to identify the common barriers in order to understand how to manage organizational transformation successfully. It is also necessary to understand how individuals are likely to react to the proposed changes. Hammer & Stanton (1995) underlined the fact that the number one source of difficulties is in the area of coping with the reactions of the people in the organization to the enormity of the change.

Strong leadership from the top can help overcome the resistance to change. The constant visibility of senior management throughout the change management effort demonstrates commitment to the renewal process and builds confidence in the new direction being taken (Janson, 1992/93). Therefore, the most significant catalyst for change management is a strong leadership, which exceeds the traditional tasks of management. According to Kotter (1990), producing change is the primary function of leadership. While managers plan deductively and produce orderly results, leaders set direction and develop vision and strategy. Managers organize and staff activities, while leaders align people by communicating the vision and empowering action.

In change management process, leaders are needed to create a climate for change and provide the general direction in which the company should move. Only leaders create transformational change that is deep rooted, persuasive and long lasting. The workforce, on the other hand, needs to focus its energies on resolving specific business issues and providing input for directional change based upon its front-line experience.

Despite these facts, managers, in general, ignore the role of management in organizational transformation. Senior managers often misunderstand what it takes to bring about organizational change. Indeed, they assume that company-wide programs such as the development of a mission statement, training courses and a new performance-appraisal system will suddenly transform an organization. Moreover, it is assumed that employee behavior is changed by altering a company's formal structure and system. Thus, once people "get religion", changes in their behavior will surely follow (Beer et al, 1990). .

To assure buy-in, some organizations encourage workers to actively take part in the change management process. Participation drives understanding, and it helps prepare people for jobs that will require a stronger sense of responsibility and ownership by putting people into new roles in the organization. Teamwork gives them a strong personal rôle in the process and helps them develop better self-managing skills and abilities (Janson, 1992/93; Beer et al., 1990).

Like many researchers, Carr et al (1995) noted that clear, honest and frequent communication is one of the most important tools in obtaining buy-in from employees at every level of the company for change. Sharing information and empathizing with employee concerns can help minimize speculation, anxiety, rumours and lack of trust. A strong communication strategy can set the tone for the change effort, inject the process with energy and excitement and create an awareness of the consequences of inaction (Janson, 1992/93).

Though there is no uniform set of change management plans, many academicians as well as many practitioners suggest guidelines for successful organizational transformation. Hammer & Stanton (1995) suggested a change management guide which takes into account five principles, ranging from the recognition that change is natural and inevitable to developing an understanding that there is no one universal approach to overcoming change. The five principles are incentives, information, intervention, indoctrination and involvement. Provide incentives to individuals to change. Provide them with information and then more information. Intervene; deal with people on a one-to-one basis.

Three interrelated factors are needed to change an organization effectively. These are coordination, commitment and competencies. Coordination of effort, or teamwork, is especially important if an organization wants to benefit from the existing synergy of employee knowledge and understanding. With proper coordination of effort, an organization can discover cost, quality and product development opportunities. Commitment to change is essential if management wants cooperation with, and effective implementation of the changes. New competencies, such as knowledge of the business as a whole, analytical skills and interpersonal skills are required if members of the organization must identify and solve problems as a team (Beer et al., 1990).

For a successful organizational transformation, it is important to understand the shifts in the marketplace and change drivers. In so doing, companies could

determine the needs of customers as well as stakeholders. After that, strategies should be developed that will incorporate company goals and targets.

In a customer-focused world, companies must be good at every aspect of their business. Organizations must be more flexible than they have ever been, in order to compete and exploit opportunities at unprecedented levels. They should constantly keep up with developments in the business world, and put into practice their change management programs. As Kotter (1996) stated, management must avoid a number of common traps that result in poor quality strategic decisions in order to ensure an effective transformation. These common traps include a lack of future foresight and stretch goals, a neglect in building core competencies for new product and process innovations, poor utilization of resources, especially human resources and ineffective competitive strategies.

5.6. Success and Failure Factors in Management Practices

Companies that visualize the new rules of business world put in change management programs in order to cope with increasing environmental dynamics. Some companies have achieved enormous successes by recognizing the new business world and leveraging company resources. However, many companies were disappointed by the difficulties of change management programs, and decreased their interest or even quit implementing the programs.

There are several factors affecting the success and/or failure chance of change management programs. Statistically, many programs will fail since they are not either planned well or implemented successfully. As Dervitsiotis (1998a) stated, without a shared vision and sufficient participation of those in charge of implementing them and those affected by their impacts, reduces the probability of success in quality management programs.

Hammer and Stanton (1995) noted that failures in organizational transformation are due to high-level managerial misunderstanding of quality management approaches. Other reasons are implementing quality management where it cannot fit, spending too much time analyzing existing processes, lack of leadership, timidity in redesign, from new design to implementation, transforming slowly, placing some aspects of the business off limits, adoption of conventional implementation style and ignoring the concerns of employees.

Though there is no universal prescription or guideline for success in quality management efforts, surveys and studies done in a variety of countries would give some insights about the means for success and strategies, and what works and what doesn't. As used before, the harmonized categories from major quality awards in the world would be helpful for guidance. These are management/leadership, organizations/processes, employees, strategies and policies, customers and suppliers and business results.

5.6.1. Leadership/Management

Leadership is the vital factor for successful quality management practices. Efforts without the proper leadership are doomed to fail, because only top level managers have the breadth of perspective and authority needed to see the big picture from start to finish and to overcome the resistance that will occur along the way. Obstacles to success generally have little to do with technology or process design but rather with leadership. (Bashein et.al, 1994; Manganelli & Klein, 1994; Caron et al, 1994; Hall et al, 1993; Hammer & Stanton, 1995; Stead, 1994; Price Waterhouse, 1996; EFQM, 1998; MBNQA, 1998; Macedo-Soares, 1996; Nwabueze & Kanji, 1997; Zeitz et.al, 1997).

- Managers/leaders must be a visible role model for change, create the strategic framework, communicate it continuously and make assure that everyone completely understands the company's strategic framework; success follows associate commitment to the company's vision, mission, values, objectives and strategies.
- Managers/leaders should demonstrate their commitment by being visibly involved with the process, taking ownership of initiatives and budgeting time for both reviewing progress and spreading awareness of the need for change throughout the company. Indeed, the commitment must be measured by action not words.
- The support, energy and drive of top management must be sustained over a long period to ensure things actually get done and that the organization does not fall victim of 'fad' management programs, which come and go regularly.
- Managers/leaders should overcome paradoxical problems, not with some set of formula or rigid management doctrines, but by working flexibly and by managing

paradox itself. In fact, they should create a working environment and a culture where the confidence and trust of employees are won and failure is tolerated as long as the organization learned from it.

5.6.2. Organizations/Processes

The most difficult challenge of organizational transformation programs is the cultural change, which must typically accompany the process changes that are underway. Many experts believe that the organization's culture is a strong determinant of employee behavior and decision patterns, whereas the way people behave and the decisions they make reinforce the organization's strategy. That's why the effort for organizational change must be powerful and deep-seated and all employees must participate in a mindset shift to enable the success of the initiative. Widely shared and deeply held values are necessary to transform organizational values to be successfully implemented in organizations. (Manganelli & Klein, 1994; Hammer & Stanton, 1995; PWCIT, 1996; Hermel, 1997; Nwabueze & Kanji, 1997; Zeitz et.al., 1997).

- Companies should focus on institutionalizing the organizational culture, which cannot be established or changed quickly. Therefore, expectations should be lowered as the real benefits may take some time to realize.
- Strategic and value-added processes that are critical to customers/suppliers and the company itself should be identified and the boundaries should be redefined.
- Interfaces and information flows should be simplified by fully using Information Technology to realize the benefits of centralization versus decentralization, and split the control points.
- Companies should focus on changing a process instead of fixing it, and focus on main business processes without neglecting people's values and beliefs.

5.6.3. Employees

One of the main barriers in successful quality management implementation is lack of proper fit between people and structure, inconsistency between the culture of the workforce and the demands of a formal quality management program. In fact, many experts believe that any successful organizational transformation effort should take into account the employees, because it could only be accomplished when the

employees are fully committed to the initiative as well as the management commitment (Hammer & Stanton, 1995; PWCIT 1996; Zeitz et.al., 1997; Nwabueze & Kanji, 1997; Stead, 1994).

- The new leadership should empower people, relying more on the power of influence, effective communication, than on command and control.
- Any organizational transformation effort must take into account the people who will be affected, convince them why change is needed, their part in it, and provide commitment and ownership at all levels.
- A new business environment, founded on the understanding that people are worthy of trust and respect, should be created. Therefore, the handcuffs that bind people should be removed - anything that stops them from being successful, whether it be policies, bureaucracy, or past practice.
- The brightest, most energetic and most talented people, best suited to lead the change management, should be employed for the major transformation efforts.

5.6.4. Policies and Strategies

Strategies and policies are important for organizations, since everybody in the organization, as well as the shareholders, need to know clearly where the company is headed and how they are going to get there. The company's strategic framework should be fully understood, and commitment and ownership of the company's vision, mission, values, objectives and strategies should be achieved at all levels of the organization.

- Before starting, management should fully understand and assess the change program, whether it is necessary and it can be successful in light of the characteristics of the organization.
- Information Technology, a powerful enabler of new strategies, must constantly be evaluated by organizations in order to evaluate how technology both old and new can be used to exploit new opportunities.
- Companies might aim for some quick hits (early demonstrable successes), but not on quick fixes in order to encourage people, to build momentum and

a 'can do' attitude and decrease the fear, resistance and discomfort within the organization.

5.6.5. Customers and Suppliers

The customers' trust, support and interest are the very reason companies exist. Therefore companies should develop their strategic frameworks based on who the company exists to please, what they need, and what exactly they expect (Hall et al, 1993; Manganelli & Klein, 1994).

- Companies should conduct a comprehensive review of customer needs, economic leverage points and market trends, such as customer interviews and visits, competitor benchmarking, analysis of best practices in other industries and economic modeling of the business in order to generate their strategies.
- Customers and suppliers who can give valuable insights and suggest ways should be involved in the change management effort. This might be useful in cultivating a closer relationship and have a positive effect on the volume of business conducted with customers and suppliers.

The success of a new system requires that well planned, rigorous and disciplined efforts involving the users be implemented along with the technical installation (Lapointe & Parker-Matz, 1998). The activities begin with identifying the scope of the new system and assessing the changes it will introduce. Involving users early in the project will promote a sense of ownership of the new systems.

Besides the above mentioned success and failure factors, many other factors can be observed in different studies. Each of these factors might have different effects on organizations in their change management practices. In fact, each organization survives in an environment, with local elements and global ones. It all depends on how strong an organizational culture the company has and how fast the company recognizes the changes in the environment.

5.7. The Future of Business and Quality Management in the World

As long as the pace of change in the environment remained more or less predictable, companies in well defined industries could meet competitors by one of Porter's generic competitive strategies of cost leadership, differentiation or focus

(Power, 1985). However, as competition has intensified with globalization of the economy, industry boundaries have become increasingly blurred and companies face a greater number of competitors not only on next door but also anywhere on the globe.

Today, cost cutting is not sufficient for survival. Once costs are appropriately in line with the size of the company, it is no longer the denominator (cost) in the profit equation but the numerator (sales growth) that ultimately becomes important (KPMG, 1996). Garelli (1997) also claimed that in a world of high capital and technological mobility, the consequence of any imbalance in operating costs, especially those related to labor, is the relocation of industry abroad and rationalization of production at home.

Speed, on the other hand, is one of the primary roots of new competition. Reducing development time to market for new products, introducing simultaneous vs. sequential production techniques, providing Just-In-Time distribution, increasing product turnover in retail outlets and utilizing electronic transfer of funds are all examples of driving time (and therefore unnecessary cost and waste) out of the economic value chain (KPMG, 1996).

Some new economy theorists claim, in fact, that innovation will be the only source of profit left. These observers argue that products that are not amended regularly and rapidly will quickly become commodity items, lacking enough contribution margin in their selling price to fund continued innovation and growth. Totally new product categories, which anticipate rather than respond to market demand, should be created. Internet, fax machines, and mini-vans are examples of concepts which were not requested by customers, but which have been wildly successful, growing to become entirely new product families.

New, innovative competitors will take advantage of shifting conditions to replace much larger, better-financed and previously dominant players. In this regard, knowing how to spot and exploit new opportunities becomes more important than having large amounts of tangible resources. Competition will increasingly be based on conscious efforts of rivals to change the shape of an industry. Often this intentional change in industries will be empowered by breakthrough applications of technology and by seeking out synergies on a global scale. The rapidity of technological change also promotes innovation. In fact, product life cycles have

gone from years to months, and every day companies introduce product and service innovations to the market.

Prahalad and Hamel (1993) addressed the question of how to develop the organizational capabilities required to operate in the emerging new economy. They accept the assumption that innovation drives profitability and growth, but have examined how innovation is derived from particularly valuable capabilities that they call core competencies. These core competencies are bundles of aligned knowledge, skills and technologies within an organization that are repeatedly utilized to provide new solutions valued by customers. Core competencies may exist without companies realizing that they possess them, and can also be carefully selected and systematically nurtured to ensure ongoing future competitiveness.

The winning strategy usually involves driving down the learning and experience curves as quickly as possible, becoming good at core businesses. Learning is a conscious attempt on the part of organizations to retain and improve competitiveness in uncertain technological and market circumstances.

Senge (1990) described learning organization as the organization in which people continually expand their capacity to create the results they truly desire. People continually learn how to learn together, share common goals that are larger than individual goals and function together in extraordinary ways, complementing each other's strengths and compensating for each other's limitations.

Grantham & Nichols (1993) also stated that learning enables quicker and more efficient responses to a complex and dynamic environment, and increases information sharing, communication, understanding and the quality of decisions made in organizations. The significance of learning organizations derives from their ability to learn more quickly than competitors, viewed as the only sustainable competitive advantage to survive and promote innovation.

Learning is stimulated both by environmental changes and internal factors, such as individuals and culture. IT can facilitate the learning process by supporting the processes of knowledge acquisition, information distribution, information interpretation, and organizational memory.

To decide if a company is ready to capitalize on the opportunities and avoid the pitfalls of the changing environment, objectives, strategies and operations of the company should be benchmarked against the rivals. A customized benchmarking

will be helpful. In general, the larger the gap between the current profile and the ideal, the greater the need to consider transforming the company.

The challenge in the new economy is to get everyone involved and coordinated in balancing the multiple requirements for success. That is, companies should act big and small, local and global, mass and customized, long range and short term at the same time. These requirements often seem conflicting, but the truth is that balancing is not about being good at either/or, it is about being good at both (KPMG, 1996)

In the new economy, however, the key factor is the human factor. By investing in people who can contribute their knowledge, particularly in providing complete solutions, companies would strengthen their competitiveness. As Stoner and Freeman (1989) claimed that no matter how new or technologically advanced, an organization cannot be truly efficient unless its people, processes, and structure are efficiently coordinated.

There are several ways to gain better insights about the future of quality movement in the world in order to understand where the quality management in world is heading. One way is to develop forecasts from current trends, including economic, technological and societal changes. A second way is to identify and manage important paradoxes as early as possible. Finally, a scenario analysis is an alternative way to gain better insights about the future.

To understand the trends in quality movements, change management efforts in several companies should be overviewed in depth. As noted before, Hermel (1997) said companies' change processes are like icebergs, they have a very small visible part (the strategic, structural and technological aspects) and a large hidden part (the values, behaviors, perceptions and implicit paradigms). The successes, failures, revivals and transformations are directly linked to the progressive discovery of hidden elements.

Studies done in several countries reveal the current situations and trends in quality management in these countries. Many companies in these countries have implemented quality management programs. Some of them obtained good results, some decreased their interest in the quality movement, and some even abandon their quality management programs.

In the early 1980s, Quality Management was in rise and quality became widely accepted as a basic minimum that companies needed to survive in global market. In fact, several quality awards have been established not only to promote quality, but also serve as frameworks for quality management practices. Despite difficulties, companies were encouraged to re-examine and rethink about their quality management programs.

In recent years, there is, however, a time of change of management philosophies, and at the same time, diffusion of quality culture. More and more companies are turning to philosophical approaches to get a better focus on quality (Ruggieri & Merli, 1998; Finn & Porter, 1994; Gosh & Hua, 1996; Macedo-Soares & Lucas 1996; Yoo 1998; Hermel 1997, Rigby 1998)

Despite difficulties and initial failures, quality management activities are blended in as a way of life and become a natural part of daily business processes. With the advance in IT, especially in internet technology, companies focus on new ways of thinking and doing business. The highest performing organizations are and will be the ones in which technology is coupled effectively with human resources and quality management strategies. The most successful companies of the new millennium are those who create the future rather than follow it.

In this chapter, the trends and key forces shaping the future of business in addition to success and failure factors in change management were discussed. In the next chapter, quality management approaches in Turkey will be examined. After a brief history of quality movement in Turkey, the quality management efforts will be analyzed. By so doing, Turkey's position in quality management in comparison to major countries of the world will be evaluated.

VI. QUALITY MANAGEMENT APPROACHES/PRACTICES IN TURKEY

The previous chapters covered quality management approaches and practices in the world. After reviewing the emerging reasons for the quality movement, the quality management approaches/practices in the world were analyzed in accordance to six main criteria. Then the trends and key forces shaping the future of business in addition to success and failure factors in change management were discussed.

In this chapter, quality management approaches/practices in Turkey will be overviewed. After a brief history of quality movement in the country, the trend in quality management will be analyzed as well as the National Quality Award Model for Excellence. To evaluate the quality management approaches/practices in Turkey, a comprehensive survey was conducted to determine what was achieved, how improved quality was achieved, and what changed by adopting these practices. Finally, the present and the future of quality management efforts in Turkey will be analyzed and discussed.

Quality management practices in Turkey mainly launched after the 1980s, with the liberalization and globalization efforts. Before that, a limited number of companies implemented some quality management tools, such as quality control circles, quality assurance and so on.

Since the liberalization and globalization movements of the 1980s, Turkish corporations started to face intense competition. Unfortunately, competition was no longer constrained by national boundaries. In addition, deregulation in international trade and tax issues, changing societal values and customers, coupled with advance in technology, particularly in information technology, forced companies to become interested in new management approaches. Companies seeking to survive and gain a global competitive edge started to launch quality management practices one by one. However, quality management was given a major boost in the early 1990s when ISO 9000 became widely accepted as a basic minimum that companies needed to do to sell in the European Union (Kasa, 1999).

The driving forces of quality management in Turkey are as follows:

1. Increasing domestic and foreign competition, especially after Customs Union.
2. The adoption of ISO 9000+/ISO 14000+ quality standards by the Turkish Standards Institute (TSE).
3. Increasing awareness of quality, and demand for better products at lower prices.
4. Following the trends in the market.

So far, many big corporations and groups such as Koc Group, Sabanci Group, Eczacibasi Group, Anadolu Group, Netas, Tusas, Vestel, Garanti Bank and Turkish Military Force have launched their own quality management programs. There have been some very successful results, which have been crowned by international awards. For example, Brisa, Beksa, Beko have been the winners of EFQM award in their categories, and Netas was the winner of Prize for many years. As Arguden, the Chairman of KalDer, stated, Turkey has become the country with one of the largest number of EFQM award winners, and has been the home of the largest national quality congresses in Europe.

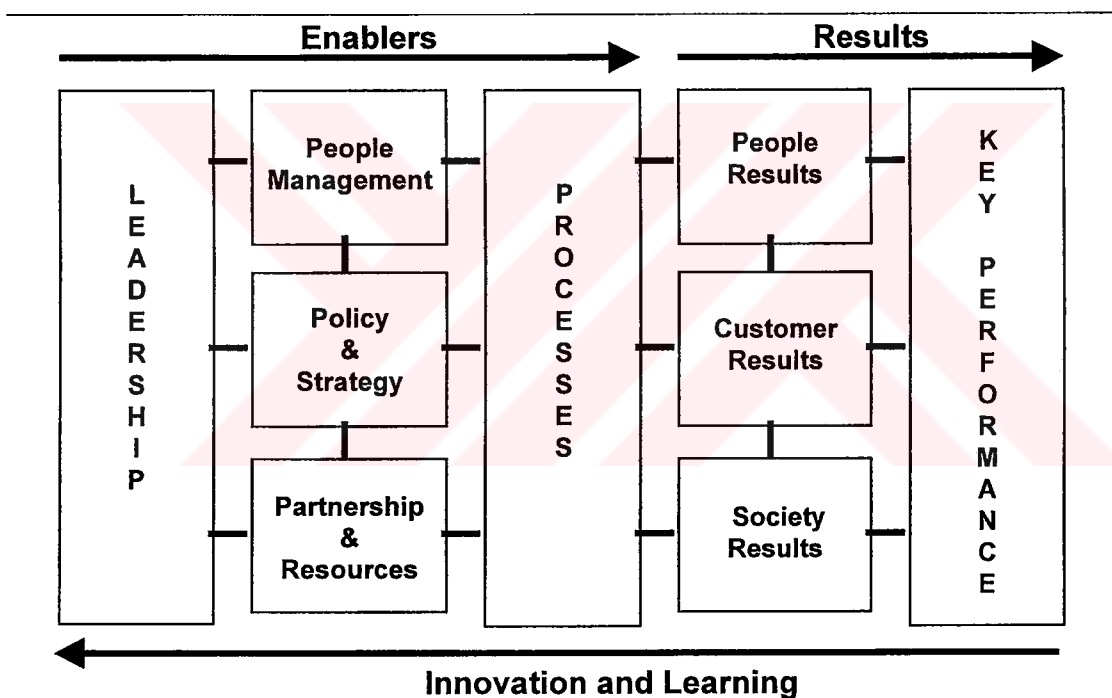
Although interest in quality management approaches has risen in recent years, there are some drawbacks or misconceptions holding back the quality movement and shadowing the success stories. These include:

1. Quality management awareness is not on a wide scale.
2. A limited number of companies, mainly large corporations, are engaging in quality practices.
3. Most companies want to start quality management programs, but they don't know how to implement them.
4. Some companies still regard quality management philosophies/approaches as quality management tools, more on the operational level.

Quality management efforts in Turkey are promoted by government agencies and non-governmental organizations, such as the Association of Turkish Businessmen and Industrialists (TUSIAD), the Society of Quality, Turkey (KalDer), the Turkish Standards Institute (TSE), the National Productivity Center (MPM). Universities are also taking part in quality management efforts. For example, University of Istanbul has launched Quality Management and Engineering programs in 1994/1995, and University of Marmara started International Quality Management program in recent years (Kasa, 1999).

One of these organizations, KalDer, was formed in Istanbul in 1991 as a non-governmental organization for the development and promotion of Total Quality. TQM is considered as a major prerequisite for national institutions and corporations to strengthen their international competitive position in a changing and transforming world. Since 1992, the National Quality (KalDer) Awards has been organized using the framework of the European Model for Excellence. The framework was adapted from EFQM and the award winners were Brisa, Tusas, Netas, Kordsa, Arcelik and Beko, respectively.

As seen in Figure 6.1, the National Quality Award Model is same as the European Model for Excellence. The first five categories are termed enablers, including leadership, people management, policy and strategy, partnership and resources, and processes. The last four categories are termed results, covering people results, customer results, society results and key performance results.



Adapted from KALDER, (1997), p. 9., revised from <http://www.efqm.org>

Figure 6.1. The National Quality Award Model for Excellence

The rationale for the Award is same as the European one. Results, including customer, people and society are achieved through leadership driving the enablers, such as policy and strategy, people management, partnership and resources, and processes, leading to excellence in key performance results.

The model provides two evaluation tools: the PATHFINDER Card and the RADAR Scoring Matrix. The PATHFINDER Card is a Self-Assessment tool, used to identify opportunities for improvement and build improvement plans. It is not a scoring tool, rather it is a series of questions designed to be answered quickly whilst undertaking a Self-Assessment. This tool can be used at either criterion or sub-criterion level.

The Pathfinder card reflects the RADAR logic that is at the heart of The EFQM/KALDER Excellence Model. RADAR consists of four elements: Results, Approach, Deployment, Assessment and Review. This logic states that an organization needs to:

- Determine the Results it is aiming for as part of its policy and strategy making process. These results cover the performance of the organization, both financially and operationally, and the perceptions of its stakeholders.
- Plan and develop an integrated set of sound Approaches to deliver the required results both now and in the future.
- Deploy the approaches in a systematic way to ensure full implementation.
- Assess and Review the approaches followed based on monitoring and analysis of the results achieved and ongoing learning activities. Based on this identify, prioritize, plan and implement improvements where needed.

The National Quality Movement has been launched, which aims to spread the utilization of the European Model for Excellence throughout the country. The target of national quality movement for the year 2000 is to increase quality awareness nationwide, to seek out and promote role model corporations in Excellence anywhere and in any sector, to create a snowball effect in Turkey with regard to Excellence practices and to secure the commitment of 1000 corporations to undertake self-assessment practices by the year 2000.

Quality management programs are in rise. However, there is a limited number of surveys or studies of the present situation. In order to understand how deeply quality management efforts are accepted by Turkish companies, a comprehensive survey has been conducted.

6.1. Objective of the Study

The purpose of this study is to examine quality management efforts in Turkey. To do so, a comprehensive twenty-one-question survey was conducted to determine what has been achieved by adopting these practices in the organization, how improved quality was achieved and what changed since then. (Appendix A).

The questionnaire was constructed, after reviewing several international sources, including Buttler (1996), Lawler (1995), Grandzol & Gershon (1997), Macedo-Soares & Lucas (1996) and most literature covering success and failure factors in quality management practices around the world. This also helps to benchmark quality management efforts around the world and in Turkey according to six predefined criteria.

The main objectives of this study are listed as follows:

1. Evaluation of Turkey's position in quality management in comparison to major countries of the world.
2. Understanding how deeply quality management efforts are accepted and adopted by Turkish companies.
3. Examine how cultural parameters affect success and failure factors.

By so doing, recommendations, constructed with universal theories and global parameters as well as local socio-cultural parameters, could be developed to fit the organizations they are in. In fact, after a thorough statistical analysis, recommendations which might be applicable to Turkish companies, will be listed.

6.2. Research Methodology

Questionnaire items were designed by rating system (ratings were on a scale of 1 to 5, 5 being most important and 1 being the least, in relation to a question), and then tested by studying their statistical characteristics. (Appendix A).

Statistical means and standard deviations were computed. Furthermore, several statistical analysis, such as reliability analysis, factor analysis and cluster analysis were also conducted to establish the questionnaire's reliability and validity by using SPSS 6.0. T-Test is used for significance. When sampling is from a nonnormally distributed population, the central limit theorem guarantees an approximate normally distributed sampling distribution of $\bar{x}$ when the sample size is

large. The size of the sample (sample size, $n \geq 30$), rather than whether to use z or t as the reliability coefficient when constructing confidence intervals. This is reasonable, because the distribution level approaches the standard normal distribution as the size of the sample increases.

6.2.1. Factor Analysis

Factor analysis is a statistical technique used to identify a relatively small number of factors that can be used to represent relationships among sets of many interrelated variables. For example, variables such as scores on a battery of aptitude tests may be expressed as a linear combination of factors that represent verbal skills, mathematical aptitude, and perceptual speed. Variables such as consumer ratings of products in a survey can be expressed as a function of factors such as product quality and utility. Factor analysis helps identify these underlying factors based on a set of observable variables. (SPSS Guide Book, 1996)

The mathematical model for factor analysis appears somewhat similar to a multiple regression equation. Each variable is expressed as a linear combination of factors, which are not actually observed. The equation differs from the usual multiple regression equation in that variables are not single independent variables. Instead, they are labels for groups of variables that characterize these concepts, which constitute the factors. The factors useful for characterizing a set of variables are not known in advance but are determined by factor analysis.

The Factor Analysis Model can be expressed as linear combination of the original variables. That is, for case k , the score for the j th factor is estimated as

$$F_{jk} = \sum_{i=1}^p W_{ji} X_{ik} \quad (1.1)$$

where X_{ik} is the standardized value of the i th variable for the case k and W_{ji} is the factor score coefficient for the j th factor and the i th variable.

The steps in a Factor Analysis are:

1. In the first step, the correlation matrix for all variables is computed. Variables that do not appear to be related to other variables can be identified from the matrix and associated statistics. The appropriateness of the factor model can also be evaluated. At this step, one should also decide what to do with cases that have missing values for some of the variables.
2. In the second step, factor extraction (the number of factors necessary to represent the data and the method for calculating them) must be determined. At this step, you also ascertain how well the chosen model fits the data.
3. The third step, rotation, focuses on transforming the factors to make them more interpretable.
4. At the fourth step, scores for each factor can be computed for each case. These scores can then be used in a variety of other analyses.

One of the goals of factor analysis is to obtain factors that help explain correlations; the variables must be related to each other for the factor model to be appropriate. If the correlations between variables are small, it is unlikely that they share common factors.

Bartlett's test of sphericity can be used to test the hypothesis that the correlation matrix is an identity matrix: all diagonal terms are 1 and all off-diagonal terms are 0. The test requires that the data be a sample from a multivariate normal population. The value of the test statistic for sphericity (based on a Chi-square transformation of the determinant of the correlation matrix) should be large and the associated significance level should be small, in order to consider the use of the factor model.

The Kaiser-Meyer-Olkin measure of sampling adequacy is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is computed as:

$$KMO = \frac{\sum_{I=j} \sum r_{ij}^2}{\sum_{I=j} \sum r_{ij}^2 + \sum_{I=j} \sum a_{ij}^2} \quad (1.2)$$

where r_{ij} is the simple correlation coefficient between variables i and j , and a_{ij} is the partial correlation coefficient between variables i and j . If the sum of the squared partial correlation coefficients between all pairs of variables is small when compared to the sum of the squared correlation coefficient, the KMO measure is close to 1.

Small values for the KMO measure indicate that a factor analysis of the variables may not be a good idea, since correlations between pairs of variables cannot be explained by the other variables. Kaiser characterized measures in the 0.90's as marvelous, in the 0.80's as meritorious, in the 0.70's as middling, in the 0.60's as mediocre, in the 0.50's as miserable and below 0.50 as unacceptable.

The goal of factor extraction is to determine the factors. In principal components analysis, linear combinations of the observed variables are formed. The first principal component is the combination that accounts for the largest amount of variance in the sample. The second principal component accounts for the next largest amount of variance and is uncorrelated with the first. Successive components explain progressively smaller portions of the total sample variance, and all are uncorrelated with each other.

It is possible to compute as many principal components as there are variables. In general, principal components analysis is a separate technique from factor analysis. That is, it can be used whenever uncorrelated linear combinations of the observed variables are desired. All it does is transform a set of correlated variables to a set of uncorrelated variables (principal components).

To decide how many factors are needed to represent the data, the percentage of total variance explained by each should be examined. The total variance is the sum of the variance of each variable, explained by Eigenvalue. One criterion suggests that only factors that account for variances greater than 1 (Eigenvalue greater than 1) should be included. Factors with a variance less than 1 are no better than a single variable, since each variable has a variance of 1.

A scree plot is used to show the distinct break between the steep slope of the large factors and the gradual trailing off of the rest of the factors. Experimental evidence indicates that the scree begins at the k th factor, where k is the true number of factors. Therefore, the scree plot is used to determine the number of factors to use in a model.

In short, in the factor extraction phase, the number of common factors needed to adequately describe the data can be determined. This decision is based on Eigenvalues and the percentage of the total variance accounted for by different numbers of factors. A plot of the Eigenvalues (the scree plot) is also helpful in determining the number of factors.

Since the goal of factor analysis is to identify factors that are substantively meaningful (in the sense that they summarize sets of closely related variables), the rotation phase of factor analysis attempts to transform the initial matrix into one that is easier to interpret, and to achieve a simple structure. This means that, each factor would have nonzero loadings for only a few factors, preferably one. This permits the factors to be differentiated from each other.

Rotation does not affect the goodness of fit of a factor solution. That is, although the factor matrix changes, the commonalities and the percentage of total variance explained do not change. The percentage of variance accounted for by each of the factors does change, however. Rotation redistributes the explained variance for the individual factors.

A variety of algorithms are used for orthogonal rotation (axes are maintained at right angles) to a simple structure. The most commonly used method is the Varimax Method, which attempts to minimize the number of variables that have high loadings on a factor. This should enhance the interpretability of the factors.

After rotation, the number of large and small factor loadings increases. Variables are more highly correlated with single factors. Interpretation of the factors also appears possible.

In this study, the principal components factor extraction method is used for factor analysis. By default, factors with Eigenvalues greater than 1 (the cut-off value for factor extraction) are extracted. For rotation matrix, the most commonly used Varimax Method (an orthogonal rotation) is used in order to minimize the number of variables that have high loadings on a factor. This should enhance the interpretability of the factors. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is computed for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients.

6.2.2. Cluster Analysis

Cluster Analysis is a statistical procedure used to identify homogeneous groups or clusters of companies that has similar characteristics. In fact, the number of groups will also be determined with the help of Cluster Analysis.

Although both cluster analysis and Discriminant Analysis classify objects or cases into categories, Discriminant Analysis requires one to know group membership for the cases used to derive the classification rule. For example, if one is interested in distinguishing among several disease groups, cases with known diagnoses must be available. Then based on cases whose group membership is known, Discriminant Analysis derives a rule for allocating undiagnosed patients. In cluster analysis, group membership for all cases is unknown. In fact, even the number of groups is often unknown.

Steps in a Cluster Analysis are:

1. In the first step, the variables which will serve as the basis for cluster formation must be determined. The initial choice of variables determines the characteristics that can be used to identify subgroups.
2. In the second step, the distance between cases must be measured. Distance is a measure of how far apart two objects are, and similarity measures closeness. Distance measures are small and similarity measures are large for cases that are similar. In cluster analysis, these concepts are especially important, since cases are grouped on the basis of their "nearness". Selection of a distance measure should be based both on the properties of the measure and on the algorithm for cluster formation.
3. During the third step, the criteria that will be used for combining cases into clusters should be decided. All of these criteria are based on a matrix of either distances or similarities between pairs of cases.

Since cases are grouped on the basis of their nearness, distance (a measure of how far apart two objects are) and similarity (a measure of closeness) are used in cluster analysis. Distance measures are small and similarity measures are large for cases that are similar. A commonly used index is the Squared Euclidean distance, which is the sum of the squared differences over all of the variables.

In this analysis, Agglomerative Hierarchical Cluster Analysis, which is a commonly used method for forming clusters, will be used. In Agglomerative Hierarchical Clustering, clusters are formed by grouping cases into bigger and bigger clusters until all cases are members of a single cluster.

Criteria used for combining clusters are based on a matrix of either distance or similarities between pairs of cases. Because of its simplicity, a commonly used method, Furthest Neighbor Technique (Complete Linkage) method is used to form groups of similar companies. In this method, the distance between two clusters is calculated as the distance between their two furthest points.

The Dendrogram, another way of visually representing the steps in a hierarchical clustering solution, identifies the clusters being combined and the values of the coefficients at each step. The Dendrogram produced by SPSS does not plot actual distances but rescales them to numbers between 0 - 25. It indicates not only which clusters are joined but also the distance at which they are joined.

Thorndike suggested a test for Cluster Analysis, which is similar to the 'Scree' plot in Factor Analysis in order to decide how many clusters are needed to represent the data in a model. The scree begins at the f th fusion coefficient, where f is the true number of clusters. The scree plot is used to show the distinct break between the steep slope of the large clusters and the gradual trailing off of the rest of the clusters. The optimum number of clusters is the point where the fusion coefficient starts to form the gradual trailing off.

Monjena (1977) and Monjena & Wishart (1980) improved the Thorndike Scree Test in order to decrease the subjectivity in determining the number of clusters. This method is used to identify the optimum number of clusters, and the formula is as follows:

$$Z_{j+1} > Z + k S_z \quad (1.3)$$

where Z_{j+1} is the fusion coefficient at $j+1$ th step, Z is the average fusion coefficient, S_z is the standard deviation of fusion coefficient and k is the standard error.

The number of clusters should be generated until this non-equilibrium is not correct. The formula for calculating k at each step is as follows:

$$k_j = \frac{Z_{j+1} - Z}{S_z} \quad (1.4)$$

In short, a commonly used method, agglomerative hierarchical cluster analysis is used. Furthest Neighbor Technique (complete linkage) is used as a cluster method. Squared Euclidean distance is used to calculate the similarity and dissimilarity measures for interval data.

6.3. Survey Database/Analysis

The sampling population, 350 companies, mainly consisted of companies represented by the Turkish Society for Quality, and in general members of the TUSIAD. A total of sixty-one responses, about 18%, was received from this population. The response rate seems to be low, since the survey was designed for companies, which already had started practicing and/or even implemented quality management practices. Furthermore, the companies in Turkey are relatively slow to move into quality management approaches for several reasons. Most of the companies are small and medium-sized enterprises, therefore they don't have the heavy bureaucracy caused by functional/hierarchical organizations, thus they are more flexible and able to change, or they don't have the resources or expertise to implement these practices.

As seen in Table 6.1, the survey responds were by the people who are in managerial or upper level positions, about 72%, and have the knowledge about the overall status and results of the practice. Most of the companies in this research are in production sector, 61%, but more and more organizations from private and public sectors are implementing quality management approaches day by day.

Companies with a total number of employees below 500, are defined as small and medium-sized, and the percentage of small and medium-sized enterprises (SME) in this survey is 64%, which is a majority of the population. The average percentage of managerial positions in organizations is 17%, which is an acceptable level since most of the organizations are small and medium-sized enterprises. (Managerial positions include middle-level and top management levels)

Table 6.1. Statistics of the Survey

Title/Position of the Respondents	
CEO/President	9 %
Director/Manager for Quality	58 %
Human Resources Manager	5 %
Others (Strategic Planning Experts, Experts..)	28 %
Industrial Groups	
Production	61 %
Banking/Finance	12 %
Sales/Logistics	7 %
Others (Computers, Electronics, Hospital..)	20 %
Total Number of Employees	
No. of Employees 250 and below	36 %
No. of Employees 250 – 499	28 %
No. of Employees 500 and up	36 %
Average Percentages for Positions of Employees	
Non-managerial positions	83 %
Managerial positions (incl. Middle)	17 %
Average Net Sales for Years	
1994	32 499 Billion TL
1995	57 448 Billion TL
1996	79 304 Billion TL

Average net sales per year for corporations are 32 499 billion TL for year 1994, and 57 448 billion TL and 79 304 billion TL for 1995 and 1996 respectively.

6.3.1. Business Environment of Turkish Corporations

In general, the business environment of Turkish companies is characterized by moderate level competition when all internal and/or external factors and challenges are considered. With the advent of the trend toward economic globalization and the concurrent increase in international trade, corporations are subject to heavy competition in the world market. By nature, many companies confront market competition with intense speed, in addition to quality and cost competition (Table 6.2).

The biggest advantage for Turkey, however, is a rapidly growing domestic market. Even though income per capita is not very high compared to the developed countries, Turkey is becoming more and more a part of the global economy. This was brought to the attention of multi-national companies, and created new investments and the formation of joint ventures and partnerships in Turkey.

In this question, Cluster Analysis was used to identify homogeneous groups or clusters of companies that have similar characteristics. The number of groups was also determined with the help of Cluster Analysis. Since cases are grouped on the basis of their nearness, distance (a measure of how far apart two objects are) and similarity (a measure of closeness) are used in this analysis.

Table 6.2. The Business Environment of Turkish Companies

Business Environment of Corporates	Avg.
Subject to Heavy Competition	4,16
Intense Speed to Market Competition	3,97
Intense Cost Competition	3,95
Intense Quality Competition	3,78
Rapidly Growing Domestic Market	3,51
Rapid Change in Industry/Competitors	3,13
Rapidly Growing Global Market	3,10
Shorter Product Life Cycles	2,90
Regulatory Changes	2,70

(Scale: 0: N/A 1: Little/No 2: Some 3: Moderate 4: Great 5: Very Great Extent)

The Agglomerative Hierarchical Cluster Analysis, which is a commonly used method for forming clusters, was used by grouping cases into bigger and bigger clusters until all cases are members of a single cluster. (Table B.1).

Because of its simplicity, a commonly used method, Furthest Neighbor Technique (Complete Linkage) method was used to form groups of similar companies. In this method, the distance between two clusters is calculated as the distance between their two furthest points.

The results of the cluster analysis are summarized in the Agglomeration Schedule, which identifies the clusters being combined at each step. The first row of the schedule represents Stage 1, the 60-cluster solution. At each stage, cases (companies) were combined as indicated in the Cluster 1 and Cluster 2 columns, under the heading Clusters Combined. The squared Euclidean distance between two companies is displayed in the column labeled Coefficient. The column entitled Stage Cluster First Appears indicates at which stage a multi-case cluster is first formed. For example, looking at the row for stage 9, the 5 in the Cluster 1 column indicates that case 1 was first involved in a merge in the previous step, stage 5. The last column, labeled Next Stage, indicates the next stage at which another case or cluster is combined with this one. (Figure B.1).

The Dendrogram, another way of visually representing the steps in a hierarchical clustering solution, identifies the clusters being combined and the values of the coefficients at each step. The Dendrogram produced by SPSS does not plot actual distances but rescales them to numbers between 0 and 25. Thus it indicates not only which clusters are joined but also the distance at which they are joined. Looking at the Dendrogram, it appears that the two-cluster solution may be appropriate, since it is easily interpretable.

Cluster analysis is much more ad hoc, identifying related groups of variables. Indeed, two main groups that share similar characteristics are identified in this study. As seen in Table 6.3, the fusion coefficients for clusters up to 15 are as follows:

Table 6.3. Fusion Coefficients Table (Thorndike Scree Test)

No. of Clusters	Fusion Coefficient	No. of Clusters	Fusion Coefficient
0	24.95	8	3.18
1	17.03	9	2.99
2	8.91	10	2.66
3	6.77	11	2.28
4	5.13	12	2.12
5	4.01	13	2.01
6	3.82	14	1.99
7	3.60	15	1.88

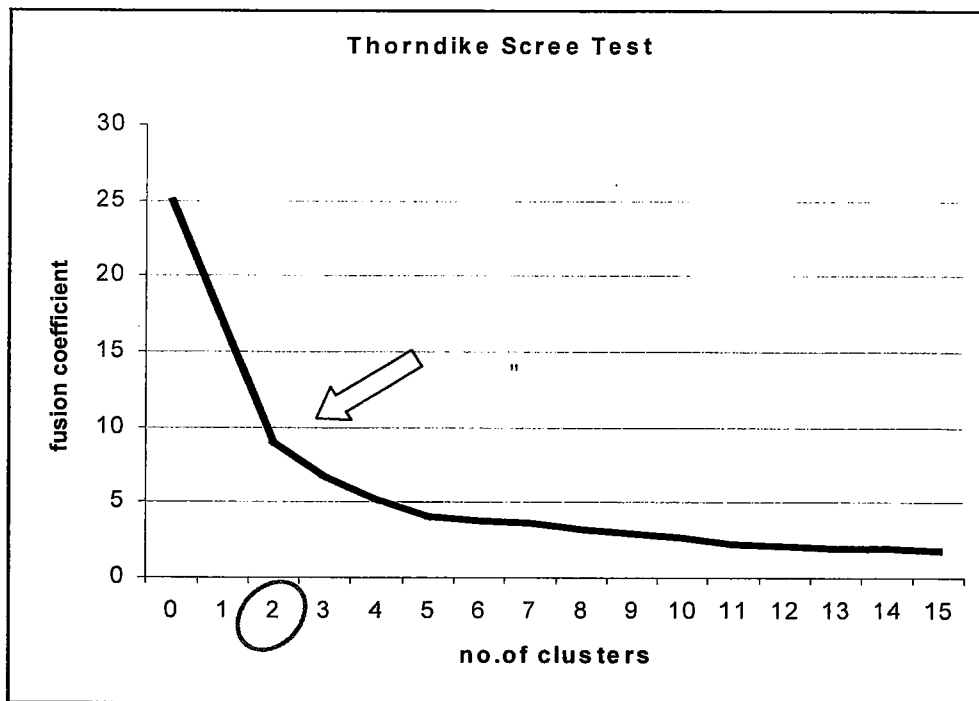


Figure 6.2. Thorndike Scree Test

As seen in Table 6.3, 6.4 and Figure 6.2, two clusters are determined to represent the data. According to Monjeno & Wishart (1980), the fusion coefficients and k-standard errors are calculated as follows:

Table 6.4. Fusion Coefficients and k-standard errors

No. of Clusters	Fusion Coefficient	k-Standard Error
1	17.03	3.91
2	8.91	1.28
3	6.77	0.83
4	5.13	0.71
5	4.01	0.50

As a result, two clusters would be satisfactory to represent the data. The first group (Group I) was mainly represented by service sector corporations such as banks, financial institutes, hospitals, sales & logistics, computers, electronics and telecommunications. The second group (Group II) was mostly formed by companies from the manufacturing/production sector, such as consumer durables.

Both of these two groups are subject to heavy competition under these business circumstances. The competition is intense in both cost and product/service quality. However, the business environment of Group I, is more dynamic and turbulent, and the nature and intensity of competition is heavier than the other one.

When the mean values are compared for both groups, there are major differences in some factors, as in shorter product life cycles, rapid change in the industry/competitors, regulatory changes and intense speed to market competition. This shows companies in Group I, as compared to Group II, are more sensitive to the environmental factors and changes in the business climate, and the nature of competition is much more fierce than the one for Group II. (Table 6.5)

The nature of business environment is very changeable, which determines the main difference between Group I and Group II. As a result, these factors are becoming more and more important and distinctive factors for Group I. In contrast, these factors are less effective on Group II companies. Therefore, change in the industry/competitors is not as fast as the one for Group I. In other words, Group I companies are more under pressure than Group II companies in competition.

Table 6.5. The Business Environment for Group I and Group II

Business Environment of Corporates	Avg. (Group I)	Avg. (Group II)
Subject to Heavy Competition	4,35	3,90
Intense Speed to Market Competition	4,06	2,87
Intense Cost Competition	4,13	3,40
Intense Quality Competition	3,77	3,13
Rapidly Growing Domestic Market	3,42	2,90
Rapid Change in Industry/Competitors	3,58	1,93
Rapidly Growing Global Market	3,23	2,33
Shorter Product Life Cycles	3,20	0,97
Regulatory Changes	2,84	0,97

At $t < 0.05$ significance level, there is no difference in competition, particularly in quality and cost competition and growing domestic market for both groups. Though both groups are subject to heavy competition; companies of Group

I have shorter product/service life cycles and environmental factors and/or competitors are changing more rapidly than the ones of Group II. (Table B.2 & B.3).

According to the total number of employees parameter, there is no significant differences between small or big size companies at $t \leq 0.05$ level. Therefore, the environmental factors are the same for small and large companies. (Median value of the total number of employees is 409. Below this value is a small-size company, and over this is a big-size company). (Table B.4, B.5, B.6 & B.7)

6.3.2. Quality Management Approaches in Turkey

In general, companies in Turkey are relatively slow to move into quality management practices. Moreover, they mostly prefer evolutionary approaches such as Total Quality Management, Continuous Improvement or ISO 9000+ standards in change management. (Table 6.6).

The Crosstabulation Method was used to examine the acceptance of Quality Management approaches by each industry group. The number and the percentage of companies practicing the Quality Management approaches were calculated for each industry group and approaches. In addition, the number and the percentage of companies that have special departments/project groups and/or budgets for implementation were observed. This analysis was also done according to the size of companies' total number of employees or the average sales per year.

From the results, it should be noted that one of the most common quality management practices in Turkey is ISO 9000+/14000+, which became very popular since 1990s. ISO 9000+/14000+ is an internationally harmonized set of quality standards, and can be measured through a compliance audit. The second most used practices is TQM, which is an incremental improvement approach at every level of operation over a long period of time. The other most used tools/approaches are SPC, QC and CI approaches. The least used one is Reengineering, which is a radical approach at every level over a short period of time (Table B.8).

The quality management approaches adopted by companies differ in each sector/industry group. In general, companies in the service sector practice more revolutionary approaches such as Reengineering, Reorganization or Continuous Improvement approaches over evolutionary ones. They mostly focus on business

processes and try to make fundamental/radical changes or redesigns over a short period of time. On the other hand, most production sector companies prefer quality management tools such as ISO 9000+, SPC or QC in order to improve performance incrementally. TQM is preferred by both groups (service and production sectors).

According to the total number of employees, large companies favor ISO 9000+, SPC or QC more than small-size companies do, but the difference is not that significant. (Table B.9, B.10 & B.11)

Table 6.6 Quality Management Approaches in Turkish Companies

Quality Management (QM) Approaches	Number of Companies Adopting QM (%)
ISO 9000+/14000+	82 %
Total Quality Management	66 %
Statistical Process Control	61 %
Continuous Improvement	53 %
Quality Circles	46 %
Reengineering	33 %
Others	21 %

Companies in Turkey generally have a special department or project group for implementing quality management practices. About 82% of the corporations have such a group or department to coordinate the activities and work in coordination with other groups or people. Amazingly, small companies often have these kinds of groups or departments in their organizations. The percentage of the companies with a special budget (fund) for quality management implementation is only 26%, which is relatively low. (Table B.12)

6.3.3. Quality Management Practices within the Organizations

Quality programs do not always start at the same time nor are they adopted simultaneously in all departments, functions or processes. Some of them may not even exist in the organization. In general, a pilot study may be conducted within the organization or department instead of the overall change program.

The Crosstabulation Method was used to examine which function/department or process the Quality Management approaches were practiced in the organization by each industry group. The number and the percentage of companies practicing Quality Management approaches were calculated for each industry group and approach. This was also done according to the size of companies' total number of employees or the average sales per year.

As seen on Table 6.7, sixty-one percent of organizations adopted quality management practices in all functions/units; and about half of the corporations practiced in it all processes. Production (41%), Marketing/Sales (30%) and Logistics (30%) are the functions/units targeted most frequently seen in quality management practices. Accounting/Finance unit seems to be relatively low (18%) compared to the other units. On the other hand, MIS unit is really low, only 10% of the corporations corporates are practicing in their MIS units. (Table B.13 & B.14).

Table 6.7 Quality Management Practices within the Organizations

Function/Unit Department	Company Adopted (%)	Process	Company Adopted (%)
<i>Accounting/Finance</i>	18%	<i>Production</i>	31%
<i>Production</i>	41%	<i>Purchasing</i>	33%
<i>Marketing/Sales</i>	30%	<i>Customer Service</i>	33%
<i>Logistics</i>	30%	<i>Order Management</i>	25%
<i>MIS</i>	10%	<i>New Product Develop.</i>	16%
<i>All functions/units</i>	61%	<i>All Processes</i>	46%
<i>Others</i>	8%	<i>Others</i>	-

About 54% of the companies are not focused on processes; that is why process management is still not well understood, conceptualized or practiced by Turkish companies. The processes targeted most often are purchasing and customer service processes, 33% for both, followed closely by production and order management processes, 31% and 25% respectively. The new product development process is only 16%, which is a key driver for innovative organizations

in most industrialized countries. In general, service sector firms are focusing more on processes than production sector firms. (Table B.15, B.16, B.17 & B.18).

6.3.4. Drivers of Quality Management

In almost all organization, support by top management is the main success factor for quality management practices. Support by middle-management is also very important and necessary to implement and maintain quality in the organization. Strong visible commitment and initiation by management is an essential factor to launch quality management practices in organizations. Third party consultants might have an indirect effect by influencing the management.

With globalization, Turkish companies are forced to adopt new quality management approaches by competitive pressures as well as significant market opportunities in order to catch up with their global partners and competitors. Availability of resources, mostly financial, to conduct the practices is also a major driver (Table 6.8).

Table 6.8 Drivers of Quality Management

Facilitators of Quality Management Approaches	Avg.
Support by top management	4,05
Support by middle-management	3,61
Significant market opportunity	3,41
Intense need to cut costs	3,25
Competitive pressures	3,10

(Scale: 0: N/A 1: Little/No 2: Some 3: Moderate 4: Great 5: Very Great Extent)

Some of the factors which are important for corporations in developed countries, such as a business crisis or threat, management changes, merger/acquisition, innovations programs and especially disappointment in Information Technology, are not as important for most Turkish companies. This might be the result of being in a different economic development phase.

For this question, Factor Analysis was used to reduce a large number of variables to a smaller number of factors, since a model with less factors may be adequate to represent the data.

At first, the Reliability Test was used to confirm the appropriateness of the factor analysis. For all variables included, the Alpha value is 0.7224, which is an acceptable level for factor analysis. Bartlett's test of sphericity, is large (377.8), and the associated significance level (0.0) is small, so it appears appropriate to use the factor analysis. KMO value is also large enough (0.597), characterized as "mediocre", to consider the use of factor analysis. (Table B.19).

Factors with an Eigenvalue one and greater than one were considered in this analysis. Almost 72.7% of the total variance is attributable to the first seven factors. The remaining eleven factors together account for only 27.3% of the variance. A model with seven factors may be adequate to represent the data.

As seen on Table B.20 and Table B.21, seven factors can be used to represent relationships among sets of eighteen interrelated variables in order to identify the drivers to launch quality management practices in the organization. From the Rotated Component Matrix, the seven factors can be interpreted as follows:

- Factor I, consists of the external results of internal factors. High costs and disappointment in IT will cause dissatisfied customers (internal and external) in a competitive environment. This may bring up a merger/acquisition scenario. Therefore, poor business results will drive them to launch quality management practices under new management.
- Factor II, consists mostly of market and competition factors. With the trend toward economic globalization and with the fall of walls in world trade, companies are facing new competitors and threats as well as new opportunities. Therefore, the intensity and the borders of competition are expanding in the new era. In different countries and industries, new regulations in the standards enforced by law are putting pressures on companies. In fact, companies are searching for new ways to exploit new opportunities that comes with competition. All these elements are drivers to launch quality management practices.
- Factor III, consists of organizational and managerial factors as well as market results. It is hard to coordinate activities in an organization with an unmatched organizational structure. Companies with a dysfunctional organizational structure will have problems to survive in the long-run. Dramatic loss of market

share will also cause changes in management. Thus quality management practices might be a new starting point for the new management.

- Factor IV, is the self-managing work-teams factor, which might be the driver by itself.
- Factor V, consists of management, reward systems, motivation and innovation programs as well as open communication channels. In search of excellence, open communication channels and motivation are the two essential ingredients to foster the organizational culture. Therefore, employee involvement will be achieved and quality culture will be maintained in the organization. However, the most important factor is the support of management.
- Factor VI, is the third-party consultation factor.
- Factor VII, includes business crisis and resources factors. A business crisis or threat, coupled with the lack of availability of resources, mostly financial, might cause the initiation of quality management practices.

6.3.5. Target Goals of Quality Management Practices

The main goals of quality management practices in Turkish companies are to improve customer satisfaction and quality of product or service. By so doing, corporations will increase their competitiveness and improve productivity as well as employee satisfaction (Table 6.9).

Table 6.9 The Goals of Corporates in Quality Management Practices

The Goals in Quality Management Practices	Avg.
Improve quality of product/service	4,69
Improve customer service/satisfaction	4,62
Improve productivity	4,41
Increase competitiveness	4,13
Improve employee satisfaction	4,05

(Scale: 0: N/A 1: Little/No 2: Some 3: Moderate 4: Great 5: Very Great Extent)

The goals, such as increased profitability, sales and market shares as well as quality of employee work-life, and reduced cycle times and costs, are the

secondary ones. Fortunately, downsizing is the least favored goal among corporations in quality management practices.

Factor Analysis is used to reduce a large number of variables to a smaller number of factors. At first, the Reliability Test is used to confirm the appropriateness of the factor analysis. For all variables included, the Alpha value is 0.8901, which is an acceptable level for Factor analysis. (Table B.22 & B.23).

Bartlett's test of sphericity, is large (596.1), and the associated significance level (0.0) is small, so it is appropriate to use factor analysis. KMO value is also large enough (0.710), characterized as "middling", to use the factor analysis.

Factors with an Eigenvalue of one and greater than one were considered in this analysis. Almost 72.9% of the total variance is attributable to the first five factors. The remaining twelve factors together account for only 27.1% of the variance. That is, a model with five factors may be adequate to represent the data.

As seen in Table B.24, five factors representing the seventeen interrelated variables, were extracted to identify the main goals of quality management practices in organizations. From the Rotated Component Matrix, the five factors can be interpreted as follows:

- Factor I, consists of employee satisfaction by focusing on processes. To increase employee satisfaction, the quality of work-life should be improved. In order to achieve this, companies should focus on processes such as money-making processes, and eliminate non-value adding processes. Thus employee satisfaction will increase, and the processes will be more efficient and effective.
- Factor II, consists of increasing competitiveness by improving customer service and satisfaction. By improving customer services, companies will increase their sales, and consequently market shares. As a result of increased customer satisfaction, companies will increase their competitiveness in the market.
- Factor III, involves improving product or service quality by using internal and external factors. Reducing cycle-time and product development time are important factors in process management. Companies that achieved internal as well as external (supply chains) integrity will exploit the benefits of quality management fully. In other words, to improve the product or service quality, internal and external factors should be integrated.

- Factor IV, consists of effective use of resources. In order to use resources effectively, the company must do such things as improve margins, cut costs or downsize
- Factor V, consists of productivity and profitability. In general, increased productivity also means increased profitability, but it is not necessarily one and only factor.

6.3.6. Changes by Adopting Quality Management Practices

Companies that adopted quality management practices experienced changes in many areas. The most significant change is in the education/training area, followed by teamwork, employee empowerment and customer relations. In order to achieve these changes in organizations, communication channels are kept open, and modern means of employee involvement, such as motivation programs and suggestion systems are conducted. To some extent, management style also helps make changes smoothly (Table 6.10).

Table 6.10 Fields of Change in Organizations

Changes Adopted in Organizations	Avg.
Education/training	3,72
Communication channels/methods	3,43
Teamwork	3,43
Employee empowerment	3,31
Organizational structure	3,25

(Scale: 0: N/A 1: None 2: Little 3: Some 4: Quite a bit 5: Very Much)

Organizations are becoming more and more knowledge-based, but Turkish corporations are not fully exploiting the information technology. Unfortunately, IT is one of the few critical areas that is changed the least in quality management practices. Partnership with suppliers in order to combine forces for synergy in quality management practices is also under-emphasized. Reward systems are not used frequently, which causes some problems, even barriers to change management efforts.

Factor Analysis was used to reduce a large number of variables to a smaller number of factors. The Reliability Test is used to confirm the appropriateness of the

the factor analysis. The Alpha value for all twelve variables included is 0.9449, which is an acceptable level for Factor analysis. (Table B.25 & B.26).

Bartlett's test of sphericity, is large (559.8), and the associated significance level (0.0) is small, so it is appropriate to use factor analysis. KMO value is also large enough (0.910), characterized as "marvelous", to use the factor analysis.

Factors with an Eigenvalue one and greater than one were considered in this analysis. Almost 70.6% of the total variance is attributable to the first two factors. The remaining ten factors together account for only 29.4% of the variance. That is, a model with two factors may be adequate to represent the data.

As seen in Table B.27 & Table B.28, two factors representing the twelve interrelated variables, were extracted to identify the changes in systems or values by adopting quality management practices. The two factors that represent the changes in organizations can be interpreted as:

- Factor I, consists of change in organizational structure and systems. Nowadays, organizations are becoming less hierarchical (flat), and more flexible and knowledge based. Dissolution of hierarchical structures and organizational layers causes a paradigm shift in the way companies are organized. Boundaries that separate functions/departments are slowly coming down, and close collaborations with other functions are emerging. Teamwork and cross-functional collaboration are key in new organization culture. Change in organization structures, formed new communication methods and channels based on information technology. More and more people in organizations are empowered to make decisions on the front lines by accessing the information. In addition, systems such as reward systems, suggestion systems and performance measures are also used to support the organizational structure and foster the organizational culture.
- Factor II, consists of change in MIS and internal/external relations. Companies today have internal and external customers. External customers are either business customers or individual customers. Today's customers are sophisticated ones, and companies must strive to meet or even exceed their expectations. Also a good partnership with suppliers will help companies integrate its quality management practices and extend the borders. On the other hand, the internal customers of companies are the employees who need

to be empowered to make decisions, share responsibilities, and take risks on the front lines.

In order to make all these things happen, managers should create a climate for change by changing the management style. Rather than just giving directions, managers need to lead the change management by coaching. According to the total number of employee parameters, there is no difference between small and large companies in changed areas except the suggestion systems. T-test results show that big companies use suggestion systems more frequently than small companies. (Table B.29, B.30, B.31, B.32, B.33, B.34, B.35 & B.36).

6.3.7. Change in Management Level

The most critical factor in quality management practices is at the management level. Since quality management practices are more philosophical approaches rather than a bunch of techniques, managers should zealously take part in change management.

As seen in Table 6.11, top management contribute to quality management efforts to a moderate extent. On an average, top management has realistic expectations of the results, because they have received adequate training and education, and have sufficient knowledge about quality management practices. In addition, top management communicates with the project team and/or employees frequently and in a timely manner. Overall, top management's commitment to the quality management practices could stronger.

Table 6.11 Change in Management Level

Change in Management Level	Avg.
Top management has realistic expectations	3,85
Top management has sufficient knowledge	3,75
Top management communicates with the project team	3,61
Top management has received adequate education/training	3,54
Top management communicates with the employee	3,51
Top management strongly committed	3,36

(Scale: 0: N/A 1: Strongly Disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree)

Factor Analysis is used to reduce a large number of variables to a smaller number of factors. Bartlett's test of sphericity, is large (200.0), and the associated significance level (0.0) is small. KMO value is also large enough (0.845), characterized as "meritorious", to use the factor analysis. (Table B.37 & B.38).

In Factor Analysis, only one factor representing all variables, is extracted to identify the changes in management level. Factors with an Eigenvalue one and greater than one are considered in the analysis, and the KMO value is 0.845, characterized as "meritorious".

In small companies, management is more strongly committed and they take part in the quality management practices. (Table B.39).

6.3.8. Change in Organizational Level

In general, change in organizations is not done at an adequate level. Compared to organizations in developed countries, companies in Turkey are moving very slowly into organizational restructuring. As seen in Table 6.12, change in organizations and relations is at moderate level.

Table 6.12 Change in Organization Level

Change in Organizational Level	Avg.
Cooperative interaction among people	3,51
Superiors facilitate upward communication	3,49
Superiors seek subordinates' ideas/opinions	3,43
Technical&Professional knowledge is fully used	3,33
Subordinates can influence the goals	3,31

(Scale: 0: N/A 1: Strongly Disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree)

Interaction among people is cooperative and teamwork-based (cross-functional), technical and professional knowledge is fully used in decision-making where decision-makers are completely aware of problems. In addition, superiors facilitate upward communication, seek subordinates' ideas and opinions, and make constructive use of them. Meanwhile, subordinates can influence the goals, methods and activities of their unit. However, not all staff, particularly subordinates, are involved in decisions related to their work. Superiors aren't the only ones who

can influence the goals, methods and activities of their unit. Most company activities are guided by written rules and procedures, but are not enforced strictly.

In Factor Analysis, two factors representing ten interrelated variables, were extracted to identify the changes in organizational level. Bartlett's test of sphericity, is large (429.2), and the associated significance level (0.0) is small, so it is appropriate to use factor analysis. Factors with an Eigenvalue one and greater than one were considered in the analysis, and the KMO value is 0.849, characterized as "meritorious". Almost 70.6% of the total variance is attributable to the first two factors. (Table B.40, B.41, B.42, B.43, B.44).

6.3.9. Change in Information Level

In general, companies are routinely providing information on business related internal issues. About half of the employees are informed on business plans and goals based on functional or personal goals. In addition, companies are providing more than half of the employees with the information about their unit's operating results as well as the company's overall operating results. On the other hand, companies are very reluctant to share information on their competitor's relative performance with most of the employees. Unfortunately, benchmarking is one of the least used tools in most organizations. In addition, not many employees are exposed to advance information on new technologies that may affect them (Table 6.13).

Table 6.13 Number of Employees Informed

Number of Employees Informed (%)	Avg.
Info. About the unit's operating results	3,55
Info. On business plans/goals	3,53
Info. About the overall operating results	3,33
Info. On functional/personal plans	3,45
Advanced info on new technology	3,15

(Scale: 1: 0%- None 2: 0-25%-Almost None 3: 25-50% About Half 4: 50-75% Most..)

Factor Analysis was used to reduce a large number of variables to a smaller number of factors. Bartlett's test of sphericity, is large (244.6), and the associated significance level (0.0) is small, so it is appropriate to use factor analysis.

In Factor Analysis, only one factor representing all six variables, was extracted to identify the changes in information level. Factors with an Eigenvalue one and greater than one were considered in the analysis, and the KMO value is 0.853, characterized as “meritorious”. (Table B.45, B.46 & B.47).

6.3.10. Change in Education/Training

Companies are focusing on education and training, but still the number of employees exposed to the new quality management related education or training program is not high (Table 6.14).

About half of the employees are trained in job-skills and group decision-making or problem-solving skills. However, less than half of the employees have received education/training on leadership, team-building, quality-statistical analysis, cross-training skills and skills in understanding the business.

Table 6.14 Number of Employees Educated/Trained

Number of Employees Educated/Trained (%)	Avg.
Group decision-making/problem solving skills	3,02
Job skills training	3,02
Quality/statistical analysis skills	2,89
Team building skills	2,77
Skills in understanding the business	2,74

(Scale: 1: 0%- None 2: 0-25%-Almost None 3: 25-50% About Half 4: 50-75% Most..)

In Factor Analysis, only one factor representing all seven variables, was extracted to identify the changes in education and training. Bartlett’s test of sphericity, is large (332.6), and the associated significance level (0.0) is small, so it was appropriate to use factor analysis. Factors with an Eigenvalue one and greater than one were considered in the analysis, and the KMO value is 0.895, characterized as “meritorious”. (Table B.48 & B.49).

6.3.11. Change in Organizational Relations Level

In general, employee involvement in several organizational groups are very limited. By motivating and creating an awareness of quality management, companies will encourage employees to commit themselves to changes. They will

take part in the practices, help shape the change and acquire the sense of ownership (Table 6.15).

About half of the employees take part in a suggestion system and survey feedback, which are the most often used means of employee involvement in organizations. However, a very low percentage of employees (less than 25%) are involved in programs or groups, such as mini-business units (profit centers), self-managing work-teams and also union-management quality of work life (QWL) committees. Involvement in programs or groups such as job enrichment/redesign, quality circles, employee participation groups, project-teams, politics and strategy groups, are also low (less than half of the employees).

Table 6.15 Number of Employees Involved in Organizational Groups

Number of Employees Involved (%)	Avg.
Survey feedback	3,40
Suggestion system	3,26
Project teams/solution groups	2,79
Quality circles	2,48
Employee participation groups	2,40

(Scale: 1: 0%- None 2: 0-25%-Almost None 3: 25-50% About Half 4: 50-75% Most..)

In Factor Analysis, three factors representing ten interrelated variables, were extracted to define the employee involvement level in organizations. Bartlett's test of sphericity, is large (204.8), and the associated significance level (0.0) is small, so it was appropriate to use factor analysis. Factors with an Eigenvalue of one and greater than one were considered in the analysis, and the KMO value is 0.842, characterized as "meritorious". Almost 65.6% of the total variance is attributable to the first three factors. (Table B.50 & B.51).

The three factors can be interpreted as follows:

- Factor I, consists of suggestion systems, survey feedback, job enrichment or redesign, quality circles and employee participation groups.
- Factor II, consists of project teams, profit centers, self-managing work-teams and union-management quality of work life committees.

- Factor III, consists of politics and strategy groups.

Large companies, more than small ones, are encouraging employees to take part in most programs or groups. Most of the companies use several employee involvement programs or approaches to improve organizational performance such as education/training programs, strategy or policy generating groups, surveys, suggestion systems and so on (Table 6.16).

Table 6.16 Performance of Organizational Groups

Performance of Organizational Groups	Avg.
Education/Training	3,63
Strategy/Politics generating groups	2,85
Employee participation groups	2,77
Survey feedback	2,75
Suggestion system	2,67

(Scale: 1: Very Unsuccessful 2: Unsuccessful 3: Undecided 4: Successful 5:Very Successful)

Only education/training programs are considered to be successful. The other programs or applications, such as suggestion systems, surveys, job enrichment/redesign programs, quality circles, employee participation groups and strategy or policy generating groups are not considered very successful. In fact, companies should adapt these programs to meet their needs. Furthermore, union-management quality of work life committees, profit centers and self-managing work-teams are viewed as very unsuccessful by companies. Since employee involvement is not large, ownership and commitment to these programs or applications is small, therefore the success factors are very limited.

In Factor Analysis, only one factor representing all variables, is extracted to measure the success of employee involvement programs in organizations. Bartlett's test of sphericity, is large (230.9), and the associated significance level (0.0) is small, so it was appropriate to use factor analysis. Factors with an Eigenvalue of one and greater than one were considered in the analysis, and the KMO value is 0.896, characterized as "meritorious". (Table B.52 & B.53).

6.3.12. Results in Internal Business Conditions

The most significant changes in organizations are in the fields of communication and work-life. New communication networks and a new emphasis on communication have enormous implications on organizational change. Since information flows more freely across organizational layers, cross-functional cooperation improves. Collaboration is no longer constrained by departmental boundaries. This is also because of improved organizational processes and procedures (Table 6.17).

Table 6.17 Results of Q.M. Practices in Internal Business Conditions

Performance of Organizational Groups	Avg.
Increased information flow throughout the corporate	3,40
Improved communication channels	3,35
Improved quality of work life	3,25
Improved cross-functional cooperation	3,23
Improved organizational processes and procedures	3,00

(Scale: 0: N/A 1: Little/No 2: Some 3: Moderate 4: Great 5: Very Great Extent)

The smallest changes in organizations happened to be in performance-based reward system, layering management level, implementation of technology, collaboration with suppliers and employee empowerment.

In Factor Analysis, only one factor representing all variables is extracted to define the results in internal business conditions. For all variables included, the Alpha value in Reliability Test is 0.9543, which is an acceptable level for factor analysis. Bartlett's test of sphericity, is large (722.8), and the associated significance level (0.0) is small, so it appears appropriate to use factor analysis. KMO value is 0.920, characterized as "marvelous". (Table B.54).

Factors with an Eigenvalue one and greater than one were considered in this analysis. Almost 66.6% of the total variance is attributable to the first factor. The remaining twelve factors together account for only 33.4% of the variance. A model with one factor can be used to represent relationships among sets of thirteen interrelated variables in order to identify internal business conditions in quality management practices. (Table B.55)

6.3.13. What was Achieved in Performance Measures?

Progress through the application of quality management philosophies were measured by some performance measures in order to evaluate the outcomes and results. In general, companies achieved moderate success in performance measures such as responsiveness to customer needs, productivity and quality of work life. Better employee relations and improved customer satisfaction are achieved through quality management practices (Table 6.18).

Table 6.18 Performance Measures for Corporations

Performance Measures	Avg.
Increased customer satisfaction	3,39
Productivity	3,16
Quality of work life improved	3,15
Increased Competitiveness	2,97
Profitability increased	2,77

(Scale: 0: N/A 1: Total Failure 2: Failure 3: Neutral 4: Successful 5: Very Successful)

In Factor Analysis, only one factor representing all variables can be extracted to explain the achievements in performance measures. Bartlett's test of sphericity, is large (311.9), and the associated significance level (0.0) is small, so it appears appropriate to use factor analysis. The KMO value is 0.887, which is characterized as "meritorious". (Table B.56 & B.57).

Factors with an Eigenvalue of one and greater than one were considered in the analysis. Almost 64.8% of the total variance is attributable to the first factor. A model with one factor can be used to represent relationships among sets of eight interrelated variables in order to identify the performance measures.

6.3.14. Difficulties (Barriers) in Quality Management Practices

As seen in Table 6.19, sources of difficulties in the area of coping with the resistance of employee or management to change are respectively:

1. Lack of full involvement by staff
2. Time taken away from other tasks
3. Lack of team skills

4. Insufficient education/training
5. Resistance caused by possible loss of power or position
6. Resistance caused by fear and skepticism about the quality management approaches
7. Short term performance pressures
8. Insufficient reward system, motivation and innovation programs

Table 6.19 Difficulties (Barriers) in Quality Management Practices

Difficulties (Barriers) in Quality Management Practices	Avg.
Lack of staff involvement	3,16
Time taken away from other tasks	3,10
Lack of team skills	2,86
Resistance caused by loss of power, position	2,68
Insufficient education/training	2,68
Short-term performance pressures	2,58

(Scale: 0: N/A 1: Little/No 2: Some 3: Moderate 4: Great 5: Very Great Extent)

In Factor Analysis, four factors representing the twenty-three interrelated variables, were extracted to identify the difficulties (barriers) in quality management practices. The Alpha value for all twenty-three variables included in Reliability Test, is 0.9475, which is an acceptable level for Factor analysis. (Table B.58)

Bartlett's test of sphericity, is large (962.3), and the associated significance level (0.0) is small, so it appears that it was appropriate to use the factor analysis. KMO value is also large enough (0.847), characterized as "meritorious", to consider the use of factor analysis. Factors with an Eigenvalue of one and greater than one were considered in the analysis. Almost 66.6% of the total variance is attributable to the first four factors. A model with four factors may be adequate to represent the data. (Table B.59).

As seen in Table B.60, four factors can be used to represent relationships among sets of twenty-three interrelated variables in order to identify the critical success factors in quality management practices. From the Rotated Component Matrix, the four factors can be interpreted as follows:

- Factor I, consists of communication, commitment and employee involvement programs/systems. If there is a lack of open communication channel and no emphasis on company-wide information share, people in the organization start to be skeptical and resistant caused by fear. In addition, possible loss of power or position by job enrichment or redesign, will cause unpleasant working conditions for the employees, and turn into resistance to organizational change. Strong leadership and commitment from the management can help overcome the resistance to change. Full employee involvement can be achieved by applying some programs or systems, such as education/training, teamwork and cross-functional work, reward system, motivation and innovation programs.
- Factor II, consists of strategy, performance and resource usage. Strong visible commitment to long-term strategies by management will help companies overcome the barriers (difficulties), for instance short-term performance pressures and misuse of resources, mostly financial, to conduct the quality management practices. Moreover, companies will survive in turbulent business environments.
- Factor III, consists of time and objectives. Without knowing where to go and what to do, companies will not achieve any progress in quality management practices. Rather than following the trends unconsciously, companies should focus on their visions, missions, clear objectives and realistic expectations. This will also help the practices be more progressive, and prevent the complaints of "time taken away from other tasks".
- Factor IV, consists of a "champion" for the practice and old reward systems.

6.3.15. Success Factors in Quality Management Practices

Readiness to change depends on the strength of the corporate culture. However, there are some factors that strongly affect the degree of success in quality management practices.

As seen in Table 6.20, the factors are as follows:

- Management commitment
- Cross-functional cooperation
- Open communication channels

- Change in organizational culture
- Employee empowerment
- Reward systems, motivation and innovation programs
- Resources to conduct the quality management practices
- Technical abilities in-house

Table 6.20 Success Factors in Q.M. Practices for Turkish Corporations

Success Factors in Quality Management Practices	Avg.
Management Commitment	4,68
Cross-Functional Cooperation	4,32
Open Communication Channels	4,31
Change in Organizational Culture	4,29
Employee Empowerment	4,09

(Scale: 0: N/A 1: Strongly Disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree)

Amazingly, third-party consultation is not considered as one of the factors that affect strongly. Only 40-45% of the corporations ask for help from a consultant. Most of them prefer to use their own technical abilities in-house.

Factor Analysis is used, since a model with less factors may be adequate to represent the data. For all variables included, the Alpha value in Reliability Test is 0.8778, which is an acceptable level for factor analysis. (Table B.61).

Bartlett's test of sphericity, is large (283.6), and the associated significance level (0.0) is small, so it appears that it was appropriate to use the factor analysis. KMO value is also large enough (0.856), characterized as "meritorious", to consider the use of factor analysis. (Table B.62).

Factors with an Eigenvalue one and greater than one were considered in this analysis. Almost 67.8% of the total variance is attributable to the first two factors. The remaining seven factors together account for only 32.2% of the variance. A model with two factors may be adequate to represent the data.

As seen on the analysis and the scree plot, two factors can be used to represent relationships among sets of nine interrelated variables in order to identify the critical success factors in quality management practices. From the Rotated Component Matrix, the two factors can be interpreted as follows:

Factor I:

- Strong leadership and commitment to quality management practices are two significant factors for corporations.
- Open communication channels can help overcome the resistance to change in organizational culture.
- Employee empowerment coupled with reward systems, motivation and innovation programs will put people into a new role in the organization.
- Resources, especially financial ones, are important to conduct quality management practices.

Factor II:

- With the help of communication channels, job enrichment and redesign efforts will foster cross-functional cooperation in organizations.
- Technical abilities in-house will also improve with programs that impose new roles, responsibilities and relationships on the employee.
- Third-party consultation will be helpful for change management.

6.3.16. Overall Performance Appraisal

As seen in Figure 6.3, almost half of the respondents believe that they met over 60% of their goals in their quality management practices. That is a good sign for increasing interest in quality management. However, 1/3 of the respondents believe that they did not meet most of their goals; less than 60% of the respondents. In addition, 10% of the respondents feel that they had a negative experience and met less than 40% of their goals. Companies disappointed by difficulties might tend to lower their interest in the quality movement.

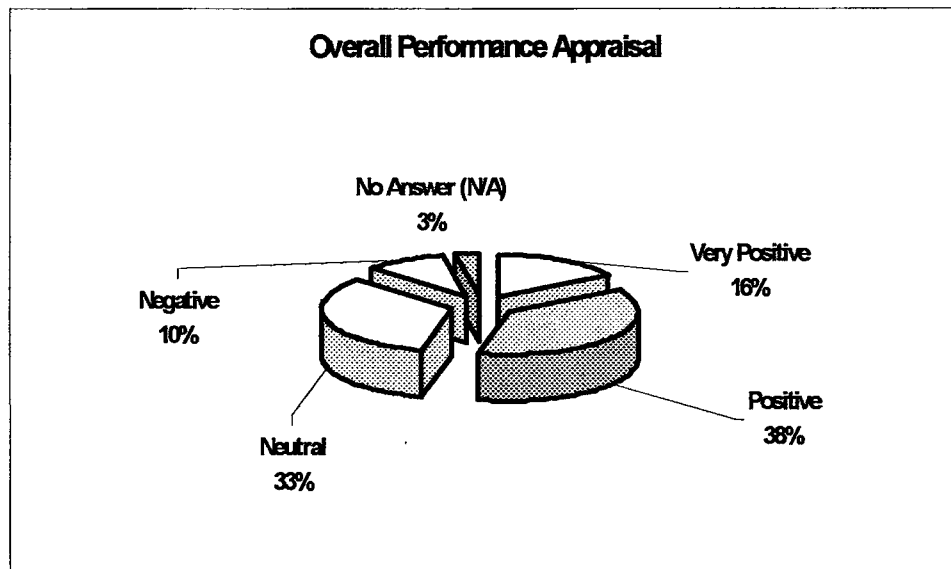


Figure 6.3 Overall Performance Appraisal in Meeting Corporate Goals

The performance appraisal for each industrial group is tabulated in Appendix B. The first entry in the table is the number of cases (frequency), labeled as Count. The column percentage, is the percentage of all cases in a column that occur in a cell. Almost half of the respondents believe that they met over 60% of their goals in their quality management practices. According to the size of the company (total number of employees) and total sales parameters, the results are almost same. Statistically, there's no significant differences for each of the parameters at the $t < 0.05$ level. (Table B.63, B.64 & B.65).

6.4. A General Overview of Quality Management Practices in Turkey

In the new millenium, increased global competition, deregulation in world trade, changing societal values, organizations and customers, and the tremendous advance in Information Technology have all led us to a search for ways to survive in this chaotic business environment. Turkey is part of that chaotic business world.

Turkey has adopted global economic norms since 1980s. As a result of globalization efforts, more and more companies are interested in new management approaches, and began to address quality in their strategic planning processes in order to catch up with their global partners and/or competitors. Some have already started to practice it and some intend to do it as soon as possible. As Bicer and Gungor (1994) observed in their study, one of the top three reasons implementing

TQM in Turkish companies is domestic and/or foreign competition (49.1%). Turkish companies are indeed subject to domestic and foreign competition.

Since the late 1980s, the quality movement has been rising in Turkey. Especially as ISO 9000+/14000+ certifications, which are internationally harmonized sets of quality standards, have become one of the most used quality management practices in the early 1990s. The driving force for ISO 9000+ was mainly the rules of exporting enforced by the European Union.

Many experts in quality have different views on quality certification. Some argue that aiming for the ISO standards is a way of focusing the business and management towards better quality, efficiency and therefore customer satisfaction. By contrast, some experts argue that companies are focusing on rules and procedures, and creating new dysfunctional and expensive bureaucratic forms, thereby generating new frustrations (Hermel, 1997; Kavrakoglu, 1992). In fact, a 1994 European survey revealed that companies see in certification certain bureaucratic and mechanistic characteristics; furthermore, the certificate neglects modern management techniques and human aspects (Ford, 1994).

ISO standards are just operational improvement techniques; they are quality management philosophies. Many companies are spending large sums of money and considerable management effort in pursuit of ISO standards along the road towards total quality. As observed in this study, one of the most used quality management practices in Turkey is ISO 9000+/14000+, which became very popular since 1990s. The second most utilized practice in Turkey is TQM, then comes SPC, QC and CI approaches or tools. The least used one among Turkish corporations is Reengineering. (Figure 6.4).

Turkish corporations are in transition; moving from quality management techniques/tools into quality management philosophies, such as TQM, BPR and etc., but this transition period takes a little bit longer time. Although TQM is preferred by both service and production sector companies, radical approaches, such as BPR, are preferred mostly by companies in service sector. This is because of the dynamic and fierce competitive nature of business environment in the service sector. Economic and political instability in the country also put pressure on companies to focus on short-term strategies, and adopt incremental improvement approaches rather than radical approaches.

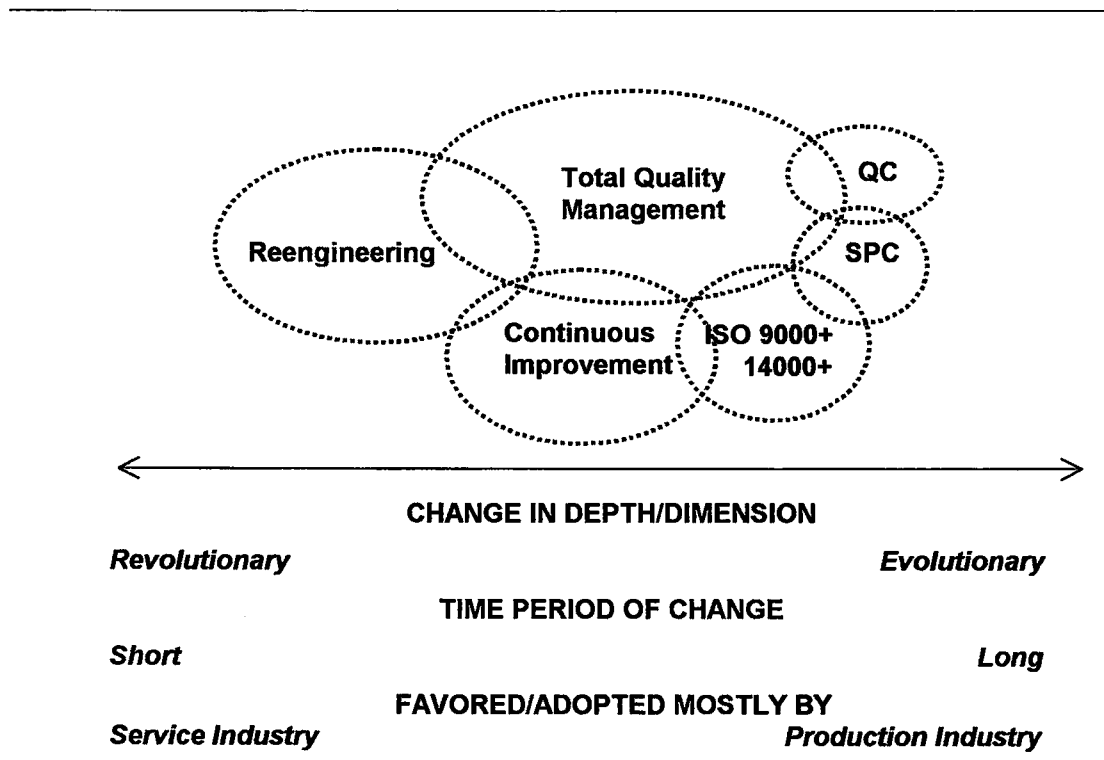


Figure 6.4 Quality Management Approaches in Turkey

According to the total number of employees, large companies favor ISO 9000+/14000+, SPC or QC more than small companies, but the difference is not that significant.

Companies in Turkey place greater emphasis on leadership as the driving role model for the quality movements. In fact, support by top management is the main facilitator in organizations for quality management practices. However, communication is considerably weak, and power distance is still large. Employee involvement, empowerment, and company-wide decision making are still weak. The political, economic and socio-cultural factors also influence the power distance and the decentralization in decision-making.

In Turkey, short-term strategies are favored because of the political and economic difficulties in the country. Despite a high awareness of business strategy, there are weaknesses in communicating all strategies throughout the organization. In addition, fear and skepticism caused by weak communication channels make it hard to take radical and long-term steps.

Change in organizations and organizational relations are at a moderate level, yet changes are not enduring and in-depth. Turkish corporations do not favor

radical organizational changes over a short period of time. Upward and downward communication is improving, yet not at a level that will construct a long-lasting and in-depth organizational culture. In addition, the usage of information systems and organization/process improvement methods are relatively low compared to developed countries. Most corporations in Turkey try to improve their processes without giving up their traditional managerial paradigms.

In Turkey, employee empowerment is still inadequate, as are new employee involvement programs and performance appraisal/reward systems. Companies try to improve employee satisfaction and quality of work-life. However, except for training/education programs, contemporary HR programs such as team building, job enrichment/redesign, performance appraisal/reward systems, motivation and innovation programs are not widely used or considered.

Improving customer satisfaction and customer-relations processes is one of the main goals of quality management. However, customer and supplier relations are still not at a sufficient level, and are often considered weak in developing strategic alliances.

In general, Turkish companies achieved a moderate level success in performance measures such as responsiveness to customer needs, productivity and quality of work-life. The most significant organizational changes are in the communication field and in work-life. On the other hand, the areas of least changes in organizations are in performance-based reward systems, implementation of technology, collaboration with suppliers and employee empowerment.

6.5. The Future of Quality Management in Turkey

Quality management practices in Turkey have been launched after the 1980s, with the liberalization and globalization efforts. So far, many companies have implemented their own programs, and some of them even obtained good results. For example, Brisa, Beksa and Beko were the winners of EFQM (Business) Excellence Award and Netas was the winner of EFQM Prize in the late 1990s.

Although interest in quality management approaches has risen in the early 1990s, quality management awareness is still not on a wide scale. During the economic and political crisis in 1994 and 1998, most companies shrunk and some of them abandon their quality management activities. Despite the political

and economic difficulties, organizations and universities in Turkey work hard to increase quality awareness nationwide, and promote role model corporations in excellence in any sector.

Turkey, at the crossroads of eastern and western cultures, has to modernize its political, socio-cultural and economic infrastructure in order to catch up with the modern world. Advancement in technology and social life forced Turkish companies to turn into new management approaches and organizational structures for out-of-box thinking, innovation and creativity. However, companies should focus more on long term strategies and challenge new business dynamics through vision, leadership, technology and effective use of human resources. By following new management paradigms, Turkey will become one of the top ten economies in the world in the coming future.

Turkey is on the right track to catch up with the modern world. Especially, the European Union membership will be a major boost not only for economic but also for social life. However, it will not be easy to make a smooth transition in an emerging economy with several socio-economic and political difficulties. Yet, those who are eager to be a modern society and a developed country coupled with a spirit of entrepreneurship will boost Turkey to take quantum leaps in development. By so doing, the quality of life would be improved and companies would be more competitive in international business.

In the next chapter, quality management efforts in Turkey will be compared to the ones in major countries in the world. As before, six main criteria harmonized from EFQM, MBNQA and DP will be used to benchmark differences in quality management efforts. After a thorough SWOT analysis, recommendations for the future of quality management efforts in Turkey will be listed.

VII. BENCHMARKING QUALITY MANAGEMENT APPROACHES AND PERCEPTIONS AROUND THE WORLD AND IN TURKEY

As mentioned in previous chapters, each country has its own unique way of applying the philosophies of quality management based on their own cultural and socio-economic values. For example, Japanese are good at Quality Circles (QC) and Continuous Improvement (CI). Started in 1962 in Japan, QC has been exported world-wide. In fact, QC has been vigorously marketed in the West as a means of improving quality. However, success in the West has not been so extensive as in Japan, and many companies have attempted to minimize or even cover up the Japanese origins, apparently to avoid cultural rejection on antagonism to Japanese workaholics' grounds.

It is questionable whether or not Quality Management techniques and approaches can be transferred successfully to any country in the world. Therefore, the applicability of quality management philosophies in any organization depends not only on the organizational culture but also the business environment or the culture of the area they are in. In fact, the socio-cultural factors reveal the ways in which quality management can succeed and fail in different countries.

In this chapter, quality management efforts in Turkey will be compared to the ones in major countries in the world. In order to make a comparative assessment, studies done in this field and in the world competitiveness have been examined. Some of them were in quality management efforts for countries like Brazil, Singapore, Korea, the EU (including Italy, Britain), the US and Turkey (Macedo-Soares et.al. 1996, Gosh et.al. 1997, Finn et.al. 1994, Easton 1993, Ruggieri et.al. 1998, Bicer et.al. 1994, Yoo 1998). Some others were for comparative assessment of quality management efforts in selected countries (Harrington 1996, Hermel 1997, Hannam 1993, Zairi 1996, Imai 1986, Bohoris 1995, Laszlo 1996). Studies done for cultural differences were also reviewed (Hofstede 1983, Zeithz et.al 1997, Rugman et.al. 1995, Lincoln 1989, Ronen et.al. 1985). Additionally, the world competitiveness rankings would be used to minimize the subjectivity in this analysis.

As seen in Table 7.1, competitiveness rankings in selected countries provided comparative data on the eight principal factors of international competitiveness. The US ranked first in several areas, Japan was still strong but had a few weak areas, and Germany fell off in late 1990s compared to its earlier dominant position. The current competitive status of Turkey lagged that of the US, Japan and Germany in all areas, and greater economic strides would be needed to catch up with the US, Japan and Germany. However, it would be a reasonable target for Turkey to catch up with Italy in the coming future.

Table 7.1 Competitiveness Rankings in Selected Countries in 1996

Countries	F 1	F 2	F 3	F 4	F 5	F 6	F 7	F 8
United States	1	2	7	1	1	10	1	15
Japan	5	14	21	2	26	2	2	4
Germany	19	9	19	8	12	20	3	12
Italy	28	21	45	27	29	26	24	25
Turkey	36	27	29	28	28	34	41	42
Brazil	35	46	18	34	38	36	45	37

F1: Domestic Economic Strength

F2: Internationalization

F3: Government

F4: Finance

F5: Infrastructure

F6: Management

F7: Science & Technology

F8: People

Adapted from MESS (1997), p. 145

Despite the differences, it would be difficult to make an overall assessment of the similarities and differences among over 200 countries in the world. Therefore, countries could be clustered into more or less homogeneous groups based on intercorrelations of standard scores obtained for each country from scales measuring different factors or indicators.

Hofstede (1983) has done clustering through the use of cultural dimensions: power distance, uncertainty avoidance, individualism and masculinity. Ronen & Shenkar (1985) have done clustering through an analysis of work values and attitudes among countries. They found that there were eight different country clusters and four countries that did not fit into any of the clusters. These clusters are

Anglo (US, Canada, UK), Germanic (Germany, Switzerland), Nordic, Near Eastern (Turkey, Greece), Arab, Far Eastern (Singapore, Taiwan, Hong Kong), Latin American (Argentina), Latin European (France, Italy, Spain) and Independent (Japan, Brazil, Israel, India).

In this analysis, geographical clusters would be used for selected countries, representing the general characteristics of similar countries. Figures are for illustration purpose only, and not necessarily representing the actual situation. Yet, many studies above mentioned are used to minimize the subjectivity in this analysis. As before, six main criteria harmonized from EFQM, MBNQA and DP will be used to benchmark differences in quality management efforts. These are Leadership/Management, Organizations/Processes, Employees, Strategy & Policy, Customers/Suppliers and Business Results.

7.1. Leadership/ Management

Leadership is important for successful organizational transformation in quality management. Leaders/managers should lead and commit to the change management process, and communicate the need for change to assure buy-in. In fact, they should support powerful members, employee involvement and company-wide decision making by providing appropriate resources and assistance.

In the US and Canada, leadership is recognized as the key driver in quality management efforts. Leaders integrate the company's quality values and customer focus into day to day management, and play the key role in quality management efforts. In Europe, however, managers/leaders act as role models in driving organizations towards quality programs.

Generally , managers in Asian countries have more power over employees, and the decision-making process than their western counterparts. Social ranking determines the amount of respect given and social relationships are greatly influenced by the power of obligation. In Brazil, as well as most of the South American countries, managers play the autocratic role in quality management efforts, and have more power over the employees and decisions.

As seen in Figure 7.1, Turkey, in general, has a moderate-level autocratic management style, yet communication is considerably weak and power distance is still large compared to the industrial nations.

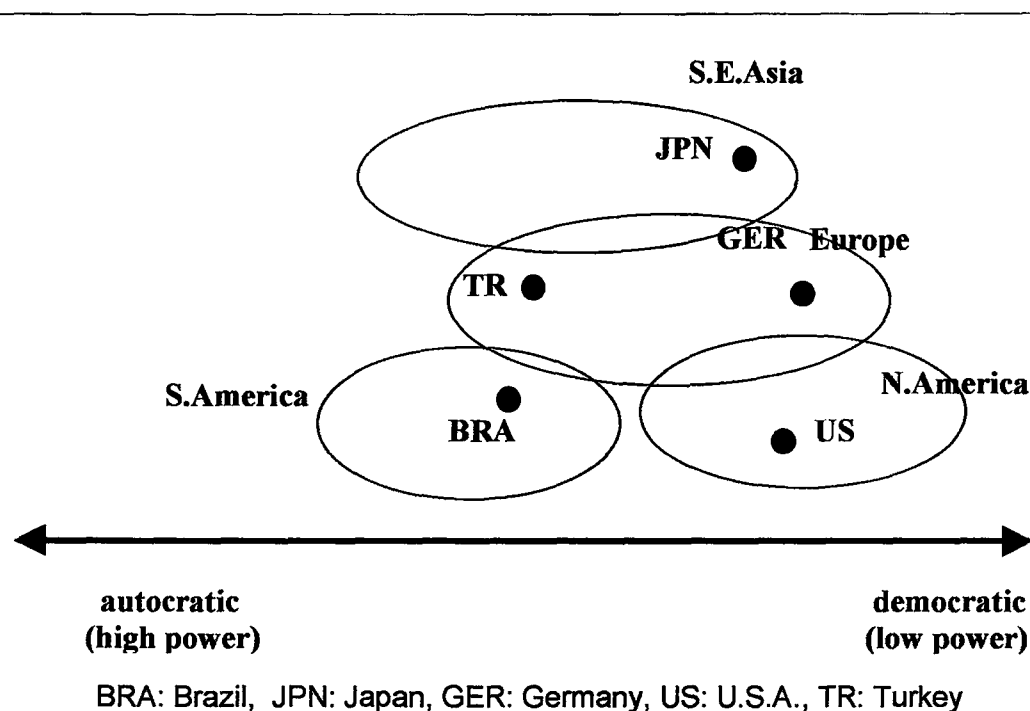


Figure 7.1. Leadership/Management in Selected Countries

Companies in Turkey place greater emphasis on leadership as the driving role model for the quality movement. In fact, support by top management is the main facilitator in organizations for quality management practices. However, managers are not consciously aware of the strategic importance of leadership like managers in the US, Canada and Japan. Their role model in driving organizations towards quality programs is not as long-term or strongly committed as the ones in most European countries or Japan. It would be better to actively involve leaders in the change efforts and by leading them.

Some cultural traits, as in South American and Asian countries, influence the power distance and the decentralization in decision-making. That is, management is mainly based on hierarchical authority and centralized decision-making, and mostly create a climate for change just by giving directions. The political and economic difficulties in Turkey also affect management adopting quality management practices. Uncertainty in the long-run forces managers to focus more on quick fixes rather than on organizational culture, and that hurts quality management efforts in the long-run. However, entrepreneurship and openness to new things are high compared to the most W. European countries and Japan (IMD, 1996), which helps the rapid growth of the economy and increase in purchasing power.

7.2. Policy and Strategy

Strategies and policies should be formulated from a long-term perspective, and regularly improved and communicated throughout the organization.

In North America, companies focus on long-term strategies based on relevant and comprehensive information. In Europe, strategy formulation is still done in a traditional way, though the effectiveness and relevancy of strategies and policies are regularly reviewed and improved. In general, they prefer smoother transition strategies in balance with social and economic facts.

Japanese companies generally committed to long-term strategies and future plans. Like the Western countries, Asian countries achieved to develop global strategies for economic growth. They put a strong and enduring emphasis on the quality management. In Brazil, however, companies do not have long-term strategies, though there is an awareness of strategic planning.

In Turkey, short-term strategies are favored because of the business environment. Moreover, there are weaknesses in communicating all strategies throughout the organization. (Figure 7.2)

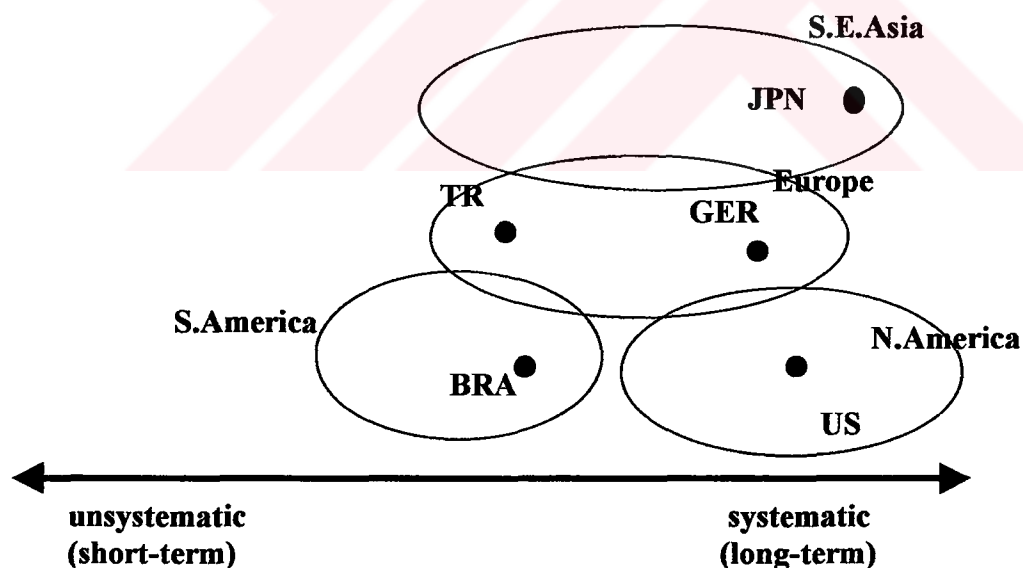


Figure 7.2. Strategy & Policy in Selected Countries

Turkish corporations have more difficulties in crafting long-term strategies than their competitors in major countries. Since the business and the political

environment of the country is very turbulent, Turkish companies are not as strongly committed to long-term strategies and future plans as the ones in North America, Japan and Europe. Focusing more on the 'what' of things rather than the 'how' of things (as US companies do) or the 'why' of things (like the ones in Japan and Europe), may be the cause of problems in organizational transformation.

Short term performance pressures also make it hard to take more radical steps to transform organizations in depth. Countries in South America, Turkey and, recently, countries in South-East Asia are suffering from this economic and political unrest, which causes businesses to take short-term actions. In addition, there are weaknesses in communicating all strategies throughout the organization.

7.3. Organizations/Processes

Organizational culture should be fostered to respond to the changes in organizational needs. In fact, organizations should be restructured and process management should be employed in organizations.

North American and European companies and some Asian ones are reshaping their organizations to challenge global needs. In North America, the focus is on process management as well as organizational culture. In Europe, companies focus more on quality culture than just on quality tools or process management.

Asian countries tend to focus more on quality tools or process management in adopting quality management programs. New product development and introduction to the market is apparently fast in Asian countries. These countries achieved competitiveness through the use of information and technology for market demands. Yet they also value social harmony and long-term commitment. In Brazil most companies improve their processes without giving up their traditional functional managerial paradigm.

In Turkey, changes in organizational culture and organizations are at a moderate level; not really long lasting and in depth. (Figure 7.3). Change in organizations and organizational relations are at a moderate level, but slow compared to most US, European and Japanese companies. In general, Turkish corporations do not favor radical organizational changes over a short period of time, and only six out of ten have adopted quality management practices in all functions/units. As in Brazil, most of corporations in Turkey try to improve their processes without giving up their traditional managerial paradigms.

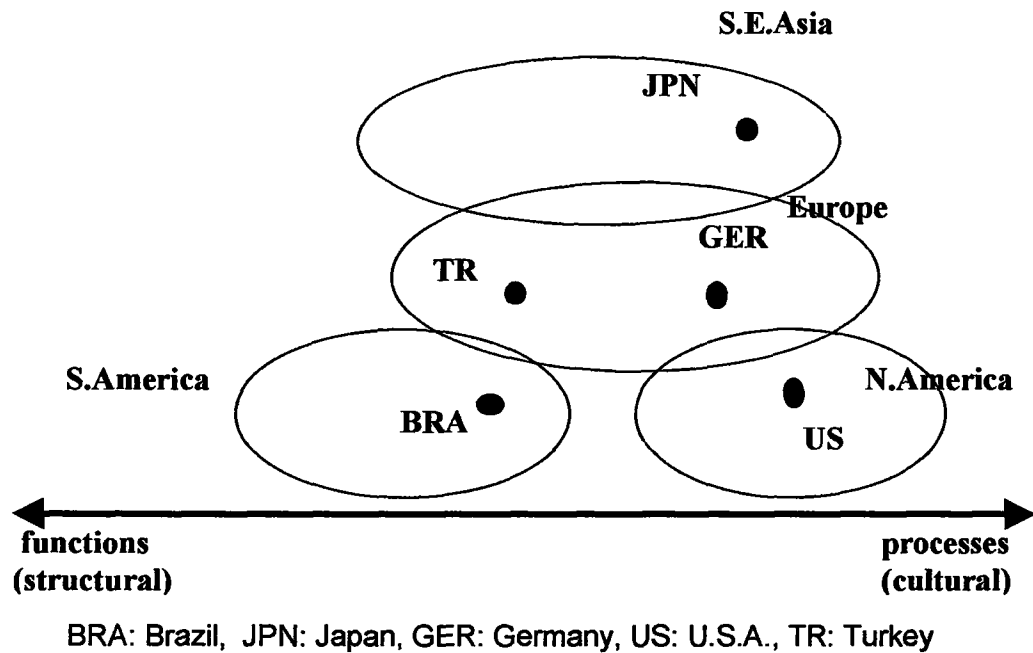


Figure 7.3. Organizations/Processes in Selected Countries

Most Turkish corporations do not practice process management approaches widely, since process management is still not well understood and practiced. Furthermore, the emphasis is not on business processes as it is in US or on process simplification as in Japan. SPC and quality circles techniques/tools are the ones most used in most organizations, but not as common as in Japan, US or some western European countries.

Most company activities are guided by written rules and procedures, but are not enforced strictly. That is in accordance with Hofstede's study, which provides some flexibility in getting things done ingeniously, but also some concerns over weak work ethics.

The usage of information systems and organization/process improvement methods are relatively poor compared to some developed countries. In fact, technologic collaboration between companies in Turkey is considerably weak, yet it is improving with big companies and joint-ventures.

7.4. Employees

Employee empowerment is an important factor in quality management efforts. Any successful organizational transformation must take into account the

employees' needs, and foster commitment and ownership at all level. Therefore, the new leadership should support employee involvement and empowerment.

Most North American companies stress employee satisfaction, and try to achieve this by implementing employee development programs and fostering teamwork. European companies also focus on human resources and how people are involved, empowered and recognized within the organization.

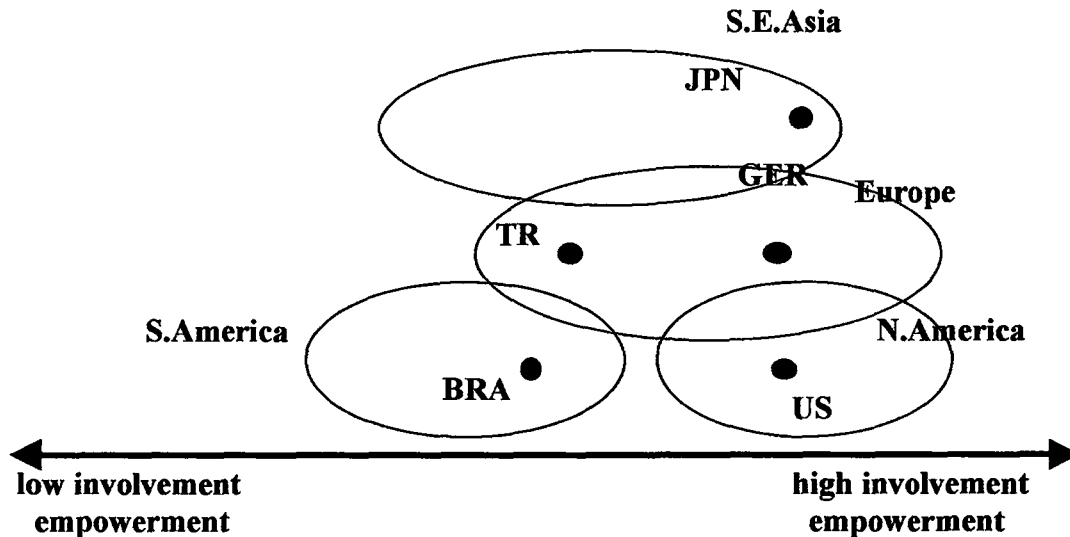
In Asia, companies apply quality concepts into their human resource management and offer education and training programs for their employees. In general, they have less individualism and large power distance, while collectivism, teamwork and authority are highly regarded social values. Strong emphasis is given to harmony, orderliness and the respect of others.

Companies in South America, to some extent, are making some participative management efforts, establishing multi-functional teams for quality-related activities, yet it is considered insufficient for employees.

In Turkey, employee empowerment is still not adequate, nor are new employee involvement programs and performance appraisal/reward systems. There are some gaps between the intent and the behavior of managers in leading the human resources. Most companies fail to undertake training/education programs without carefully assessing their organizational needs.

Generally, the objective of corporations is to improve employee satisfaction and quality of employee work-life. However, there are some weaknesses in realizing the importance of human power in business by incorporating companies' quality and operational performance objectives into their employee development plans. For instance, the number of employees exposed to new quality management related education or training programs is still not at a high level. Except for training/education programs, work groups or work related organizational groups, such as job enrichment/redesign program and strategy/policy generating groups are not very popular. (Figure 7.4)

Human Development Factor, which covers indicators such as life expectancy, literacy, education level, quality of life and purchasing power is considerably low in Turkey (%79) compared to Japan (%95), the US (%94) and Germany (%92) (IMD, 1996).



BRA: Brazil, JPN: Japan, GER: Germany, US: U.S.A., TR: Turkey

Figure 7.4. Employees in Selected Countries

In general, companies are willing to provide information about operating results, but are reluctant to share information about new technologies, and information on competitors' relative performance. Benchmarking is still the least used method, as it is difficult and expensive to get or is considered impracticable.

7.5. Customers/Suppliers

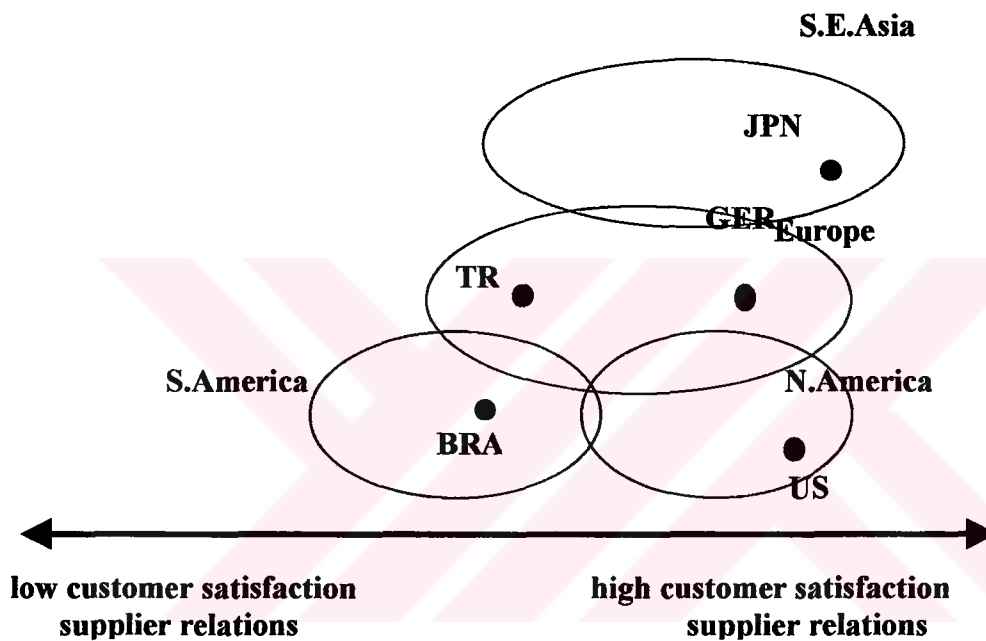
In general, customers and suppliers are the main focus of quality management programs, yet they are not involved in the programs in real life. For North American companies, customer and supplier management and satisfaction are very significant. They build, maintain and enhance their relationships with customers and suppliers. In fact, they evaluate their commitment to their customers and suppliers by measuring customer satisfaction and dissatisfaction relative to competitors. In Europe, customer and supplier relationships are as important as in North America or Japan, and are managed and maintained by leadership.

Asian countries have a significant business advantage in customer satisfaction emphasis, competitor comparisons (benchmarking) and incorporating customer expectations into new product designs in strategic planning process. Customer service is used as a strategic weapon to best the competition in the Western and Asian countries.

Supplier relation is also an important part of Asian economic life. Collaboration between companies is high, and provides a competitive edge when doing business elsewhere in the world.

Companies in South America are still considered weak in improving their customer and supplier relations in their quality management efforts.

Generally, customer satisfaction is one of the most important objectives of corporations in Turkey. However, very few firms are integrating customer-related information into their quality management efforts. (Figure 7.5)



BRA: Brazil, JPN: Japan, GER: Germany, US: U.S.A., TR: Turkey

Figure 7.5. Customers & Suppliers in Selected Countries

Compared to some western countries and Japan, customer relations and supplier relations are kept weak in order to develop strategic alliances. In addition, corporations are not making competitor comparisons (benchmarking) in order to catch up with intensive competition in the global market.

7.6. Business Results

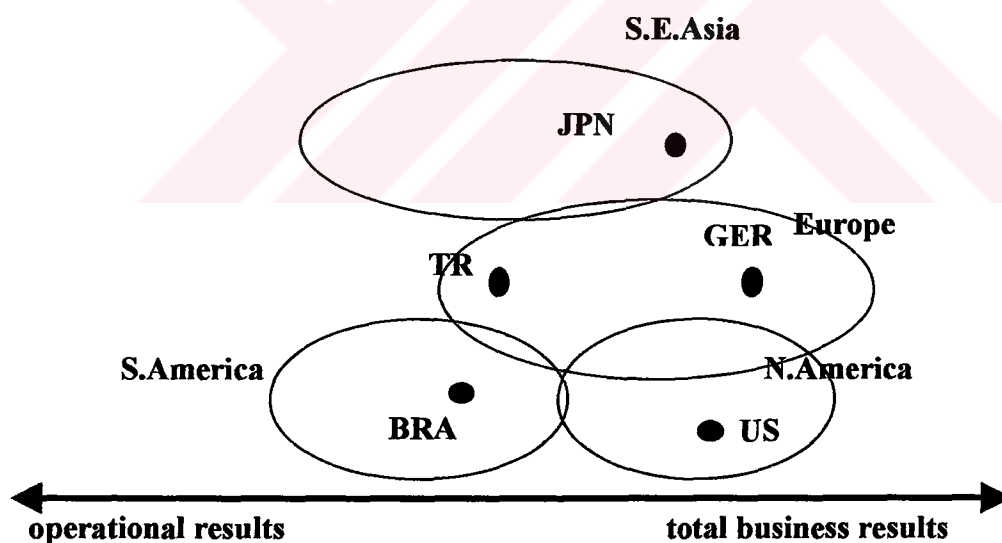
Business results are achieved through leadership by driving the enablers or systems. The focus is mainly on customer satisfaction, operational results, competitive comparisons and the impact on society to measure progress and

success. Depending on the country, focus, weightiness and importance of the measurable results will be variable.

US companies evaluate the results from quality and operation point of views in contrast to Canadian ones, which look into results in each area. European companies evaluate the total business results, and they put emphasis on the impact of organization on society in satisfying the needs and the expectations of the local, national and international community at large.

In Asia, companies largely focus on quality and operational results by comparing their actual performance with their targets. In most firms in Brazil, a priority measure is the implementation of integrated performance metric systems that include customer satisfaction among the company's key global performance indicators.

In Turkey, not only operational and financial results but also managerial results, which are measurable and comparable, should be taken into account in order to evaluate total business results. (Figure 7.6)



BRA: Brazil, JPN: Japan, GER: Germany, US: U.S.A., TR: Turkey

Figure 7.6. Business Results in Selected Countries

The most significant organizational changes are in the communication field and in work-life. On the other hand, the area of least change in organizations is in

performance-based reward systems, implementation of technology, collaboration with suppliers and employee empowerment.

Key financial and operational measures are used to evaluate business results. Companies have made some progress in performance measures such as responsiveness to customer needs, productivity, quality of work-life, better employee relations in addition to improved customer satisfaction.

7.7. Lessons for Turkish Corporates in Quality Management Practices

Turkey, at the crossroads of eastern and western cultures, has the mixed characteristics of both emerging countries and developed countries. In some sense, it is similar to South American countries like Brazil, Argentina, and some Arab countries in terms of traditional management approaches, autocracy, limited employee empowerment, weakened work ethics, and communication channels. On the other hand, it is similar to some Mediterranean countries like France, Spain, Italy, Greece and some South American countries, like Brazil and Argentina in terms of using technology, new quality management techniques, flexibility, etc.

Turkish companies should evaluate their strengths and weaknesses as well as opportunities and threats in global markets. By so doing, they will be able to determine what strategies they should use, and how they would implement these strategies. As seen in Table 7.2, strengths and opportunities for Turkey as well as weaknesses and threats in quality management practices/approaches were analyzed.

Turkey, in general, has a moderate-level autocratic management style. Top management is the main facilitator in almost all organizations for quality management efforts, yet communication is considerably weak, and power distance is still large. Managers have a tendency to see quality management concepts as a temporary fashion, and stay cool toward such approaches as employee involvement, empowerment, company-wide decision making, and so on.

Managers act as a role model, though they fail to determine the needs of quality management practices. Therefore, their contribution to the efforts are considered very limited in handling organizational difficulties.

Table 7.2. SWOT Analysis of Turkey in Quality Management Practices/Approaches

Criteria	Strengths / Opportunities	Weaknesses/ Threats
Leadership Management	• Key facilitator in organizations • Act as role model • Strongly committed to transformation efforts, if one believes • Entrepreneur, take risk, handle economic & political instability	• Not being actively/visibly involved with running the business to spend time with people • Focus more on quick fixes • Not giving up traditional managerial paradigms, autocracy • Communicating less with people to assure buy-in
Strategy Policy	• Focus on the 'what' of things • Awareness of strategy and business environment • Entrepreneur, take risk, handle economic & political instability	• Short-term strategies • Less focus on 'why' or 'how' of things • Lack of long-term planning • Weakness in communicating throughout the organization
Organizations Processes	• Focus on continuous improvement	• Less emphasis on change in organizational culture • Less emphasis on process & process management • Less openness
Employee	• Focus on education & training • Intend to improve employee satisfaction & quality of employee work-life	• Weak employee empowerment • Traditional performance appraisal & reward systems • Weak employee involvement programs, communication channels
Customers Suppliers	• Customer satisfaction is the most important objective • Awareness of customer satisfaction	• Weak customer & supplier relations • Less incorporated customer satisfaction objectives into strategic business plans
Business Results	• Better employee & customer satisfaction • Improved productivity & responsiveness • Improved employee work-life	• Old performance-based reward systems • Weak employee empowerment • Weak collaboration with customers & suppliers

The main goals of quality management practices in Turkish companies are to improve quality of product or service and customer satisfaction. By so doing, corporations assume they will increase their competitiveness and improve productivity as well as employee satisfaction.

Because of this business environment of short-run performance pressures and unclear objectives or expectations, short-term strategies are favored. Though there is an awareness of business strategy, weakness in communicating throughout the organization and not focusing on the 'why' of things are the main barriers in successful organizational transformation. In addition, fear and skepticism caused by weak communication channels and resistance make it hard to take radical steps.

One of the fields that companies in Turkey experience change is at the organizational level, and yet changes are not enduring and deep, which might threaten organizational transformation efforts. Compared to organizations in developed countries, companies in Turkey are moving slower into organizational restructuring.

Upward and downward communication is improving, yet not at a level to construct a long-lasting and in-depth organizational culture. In addition, the usage of information systems and organization/process improvement methods are relatively low compared to developed countries.

The most significant changes in Turkish companies are in education and training, as well as in teamwork and employee involvement. In fact, more and more employees are being exposed to new quality management-related education and training programs and employee participation groups.

Companies try to improve employee satisfaction and quality of employee work-life, but fail to undertake human resources programs without carefully assessing their organizational needs such as reward systems, performance appraisal/reward systems, motivation and innovation programs. Information sharing, team building and other methods are not widely used or considered useless.

To improve customer satisfaction as well as customer-relation processes is one of the main goals in quality management. However, very few firms in Turkey are integrating customer-related information into their quality management efforts compared to the western countries and Japan. Customer and supplier relations are

still not at a sufficient level, and are often considered weak in developing strategic alliances.

In general, companies achieved moderate level success in performance measures such as responsiveness to customer needs, productivity and quality of work-life. The focus should not only be on operational and financial areas but also on managerial results, which are measurable and comparable, in order to evaluate the total business results.

The next step after a SWOT analysis should be to determine what lessons might be applicable to Turkish companies in general. In general, companies that adopted quality management practices experienced an overall improvement in corporate performance. However, there are some points that need to be overviewed to achieve a successful organizational transformation. Lessons that might be applicable to Turkish companies in general fall into six categories; management/leadership, organizations/processes, employees, strategy and policy, customers/suppliers and business results.

- **Management should strongly commit to quality management practices by leading the change management process**
- Managers are generally committed to quality management practices, but they should demonstrate their commitment by being visibly involved with the practice and by spending time with the people.
- Managers themselves should believe in change efforts and understand how change can be made. Change does not happen simply by altering a company's organizational structure, developing a mission statement or training all employees. They should be persistent and decisive in leading change management efforts.
- Managers should frequently communicate with the people who have an interest in the organization in order to assure buy-in, and communicate the compelling need for change.
- Managers should receive more training and education to ensure that they have the knowledge as well as the breadth of perspective and authority.

- Managers should be more participative in leading change efforts. They should avoid creating an autocratic and inflexible working environment; more flexible and team-oriented working conditions should be provided for out-of-box thinking, innovation and creativity. In other words, they should be more willing to empower people and facilitate teamwork.
- Managers should focus on long-term changes rather than quick fixes in order to nurture the quality culture. They should focus on quality culture more than just approaching quality tools.
- **Organizations and processes should be restructured**
- In order to implement organizational change successfully, organizational transformation should be achieved by Turkish corporations. New organizational values should be fostered within organizations.
- Walls between departments and people should come down. In the information age, more flexible, team oriented, coordinative and communication-based working environment should be created.
- Organizational structures should be more flat to achieve openness in communication channels, and create collaboration between people in organizations. A more widespread use of integrated information systems will help achieve this.
- Strong work ethics should be constructed in organizations.
- Instead of placing a great deal of importance on wealth and recognition, more emphasis should be given to human relations, living and work environment.
- Corporations should move into process management to change work units from traditional organization structures to process-based organization structures. This will also help change jobs from simple tasks to multi-dimensional work, therefore eliminating non-value-adding works and inefficiency.
- **People power should be used to the full extent**
- People should be put into a new role in the organization. Empowered people would take responsibilities, and commit to the change management process. In

other words, managers should be more willing to empower people, especially in decision-making.

- Employees should be informed about the change management process, the vision of the future and their responsibilities in it. Other than routine business plans/goals based on functional or personal goals, employees should be well informed on competitors' relative performance (benchmarking) and new technologies/information systems.
- Any change management effort should take into account the personal needs of the employees it will affect. In order to assure buy-in, managers should encourage employees at all levels to actively take part in the change management process.
- Modern employee involvement programs, such as out-of-box thinking, reward systems, motivation and innovation programs and teamwork should be adopted to foster commitment and ownership at all levels. Modern performance appraisal and reward systems such as skills and knowledge-based pay systems are useful for quality management by encouraging multi-functionalism and continuous learning.
- Employees should be encouraged to receive adequate training/education in order to gain sufficient knowledge. Skills, gaps and needs should be identified to develop and conduct training workshops.
- Managers should overcome the resistance to change caused by fear, skepticism, possible loss of power or position, job enrichment and redesign. A strong and open communication strategy can help minimize resistance and anxiety. This will be achieved by increasing the awareness (consciousness) of the quality movement.
- Modern performance appraisal and reward systems like skills and knowledge-based pay systems, are useful for quality management approaches in that they encourage multi-functionalism, continuous learning and improvement, should be used.

- **Long-term strategies and policies should be crafted**
- Managers should create a vision to help manage the change effort and develop strategies for achieving that vision. Moreover, they should use every means possible to communicate the new vision and strategies.
- Managers should make sure that the company responds to important industry movements and not superficial change. Unclear objectives and strategies coupled with unrealistic expectations will doom the change movement.
- Change management is a long-term commitment on a rocky road. Managers should be aware of short-term performance pressures, and resist to all these pressures. They should not let the change effort be one of the transitory fads.
- **Customers and suppliers should be involved in the change management**
- Turkish corporations should allow customers and suppliers be involved in the change management process to gain valuable insights and suggestions.
- Corporations should ensure that the products/services they serve match the needs of the customers/suppliers by conducting a comprehensive review of customer/supplier needs and market trends.
- The customers' perception of the organization's products, services and customer relationships should be increasing continuously.
- **Resources should be used effectively for better business results**
- Turkish companies should manage resources more effectively and efficiently in order to achieve better financial or operational results.
- Technical abilities in-house should be analyzed in order to assess whether the change management process is necessary, and can be achieved in light of the technical and organizational characteristics of the company.
- Technology, especially information technology, should be fully used to recognize new opportunities. Employees should be well informed on new technologies.

There have been very successful results which have been crowned by international awards (e.g. EFQM Excellence Award). However, quality management awareness is still not on a wide scale, and a limited number of companies, mainly large ones, are engaging in quality management approaches. Turkish companies should evaluate their strengths and weaknesses as well as opportunities and threats in order to strengthen their competitive position in global markets.

The main objective of the list was to propose recommendations for the future of quality management efforts in Turkey. By so doing, models constructed with universal theories and global parameters as well as local socio-cultural parameters, could be developed. Organizations might have the most efficient approaches in the world, on paper or in a model, and still not have a world-class operation. Therefore, socio-cultural parameters should be reconsidered in modelling.

Companies should have their own implementation programs to apply quality management principles. A general characteristics of these programs should include the following five steps:

1. Planning/Formulation Step:

Organizations should have a systematic plan in which the mission, vision and values are defined and customer-driven strategies, policies, goals and objectives are set. Planning is a leadership-driven effort, and establishing a strong quality management focus requires substantial time and effort from the leadership. Therefore, leaders should strongly commit to the planning/formulation efforts and communicate these by creating a cooperative environment that supports continuous improvement and energizing people.

Well-defined strategies and policies are essential to meet the organization's mission requirements, the customers' needs, human resource and development requirements, expected developments in technology and changes in global markets. Achieving this focus requires buy-in at all levels, which can only happen when the people are incorporated into the strategic planning process. Goals that support the company vision and align the objectives should be set and communicated.

2. Designing/Redesigning Step:

The leadership team should analyze how the work is performed. By questioning everything, the team will ask why the work is performed, and whether it

is in alignment with the mission, vision, values, strategies and goals of the organization. In fact, the team should strive for continuous improvement, challenge the concept of business as usual, and understand customers' needs and requirements. Then alternative approaches could be generated to determine whether to reengineer or improve the business. It is important that communication be two-way to ensure understanding and buy-in within the organization.

3. Analysis/Assessment Step:

The leadership team should select between alternatives and identify the impact of the new design on the organization. Selection between the various options will be based on potential benefits of each alternative. The team may develop scenarios or TO-BE state descriptions for each alternative.

4. Implementation Step:

Success of any quality management effort depends on the ability to properly implement the new design. To achieve this, managers and the leadership team should establish buy-in at all levels, communicate with the employees and stakeholders openly, and encourage the people to join the implementation phase. Properly trained and empowered employees will take the responsibility and accountability, and continually improve the organization.

5. Review Step:

The leadership team should evaluate the overall planning and implementation steps, and compare the progress to the original plan. Regularly, plans and actions should be reviewed to assess progress on the program, and communicate results throughout the organization. Management can use realistic measurements to understand and improve the business activities. Data-driven decisions help identify smarter, more productive ways to accomplish the mission.

These are very generic characteristics of implementation plans. On the other hand, companies should develop their own detailed programs that meet organizational needs and realities. Since most quality management programs don't work, it is essential to understand how change can be made. One of many misassumptions is that employee behavior is changed by altering a company's system. However, a business culture change does not come as a result of a change

in the system. It comes as a result of incremental change in the way people feel and behave.

Proper management of the transition of people through the process of change is critical to the success of the new system. Leaders should recognize that, and be alert for unanticipated consequences. Thus they should encourage employees to take part in the change management process actively. This helps people understand the change and take responsibility in the process.

At the beginning of quality management programs, reactions to change might be very discouraging. Anticipation of change brings out negative reactions in many people, and people's imagination and company gossip often go wild. Once the program has been launched, reactions including anger, anxiety and confusion comes out. Once the people have accepted the change as real, they begin to rationalize their roles in the new situation and take part in it. Organizations whose culture is more supportive and whose senior managers are more actively involved in programs have significantly higher success in quality management efforts.

In this chapter, quality management efforts around the world and in Turkey were benchmarked. After a thorough SWOT analysis, recommendations for the future of quality management efforts in Turkey were listed. Furthermore, a generic guideline was given for implementation programs.

In summary, Turkey is on the right track to catch up with the modern world by following new management paradigms. Because of its huge market, Turkey still attracts foreign investors. In addition, the government has launched economic liberalization and reforms, which particularly motivates international companies. By so doing, the quality of life would be improved and companies would be more competitive in international business.

VIII. CONCLUSION

In this dissertation, quality management efforts and trends in the world were examined thorough a literature review. Next, quality management efforts in Turkey were analyzed, and Turkey's position in quality management in comparison to major countries of the world was evaluated according to six predefined criteria. Finally, recommendations which might be applicable to Turkish companies were listed. The goal of this chapter is to highlight these topics with a general summary of the research, a look at the limitations and contributions of the study, and recommendations for future studies.

Management perception has changed, and organizations have begun to look for new approaches to challenge the new chaotic environment. Managers should focus on leadership, empowerment, teamwork and organizational strategy in addition to classical tasks of management such as planning, organizing, and control. That is, the way business is done should be changed and managers should be proactive in the new economic systems. They should keep pace with changes in paradigms and pursue continuous improvement efforts rather than just implementing the new methods and techniques; understanding and developing a new set of cultural beliefs to sustain the new paradigms is becoming more important.

Quality Management has evolved throughout history. The American Quality Gurus (Deming, Juran and Feigenbaum) who took the message of quality to the Japanese were responsible for making possible the miraculous turn-around of Japanese industry and for putting Japan on the road to Quality Leadership. The Japanese adopted, developed and adapted the methodologies that the Americans brought in, and by the late 1950s had begun to develop clearly distinctive approaches suitable for their own culture. The Japanese Gurus (Ishikawa, Taguchi, Shingo) emphasised mass education, the use of simple tools and teamwork and had a background in an educational role.

Much of the increased awareness of the importance of quality in the West in recent years has been associated with a new wave of gurus (Crosby, Peters, Porter) who have publicized some of the quality issues through the 1970s and 1980s. As many experts agree, quality management concepts have evolved from a narrow view toward a broader view, focusing on market and consumer needs. Nowadays, the primary concern for companies is the strategic importance of quality management. Some of the forces and trends in the global market, such as increasing economic liberalization in the world, challenges from domestic or foreign competitors, pressures from consumer advocates or governments, encouraged professionals and academicians to realize the strategic importance of quality management, and competitive opportunities as well as global threats.

Many tools and methods as well as theories are used in different quality management approaches. However, TQM and BPR are the newest and the most practiced approaches in Quality Management since the 1980s. Both approaches share a number of common themes such as a focus on customers and processes, organizational cultures, etc. Yet, there are some major differences between the two, such as the level (depth) and the type of change. Some experts, however, combined these two approaches to keep the performance of the company at a higher level, and benefit from the advantages of both approaches. No matter what quality management approach is taken, the compatibility of the current program with universal quality management philosophies and theories will determine the success of the program.

Studies done around the world have shown that each country has its own unique way of applying quality management philosophies/approaches based on their own cultural, socio-economic and work ethics. Although tools, methods and approaches related to quality management are global, the way of implementing these means is based more on the organizational culture and the cultural parameters of the country. Therefore, the fundamentals of quality management concepts and methods should be thoroughly understood and absorbed to sustain the new quality management philosophies/approaches successfully.

The purpose of this study was to examine quality management approaches to date, analyze quality management efforts around the world and in Turkey benchmark these efforts according to six predefined criteria, and propose recommendations for the future of quality management efforts.

A comprehensive survey was conducted to analyze quality management efforts in Turkey. From this study, the factors listed below were analyzed:

- Evaluation of Turkey's position in quality management in comparison to major countries of the world.
- Understanding how deeply quality management efforts are accepted and adopted by Turkish companies.
- Examination of how cultural parameters affect success and failure factors.

After a comprehensive analysis, recommendations which might be applicable to Turkish companies for the future were listed.

From the survey, it was seen that Turkish companies started to gain a competitive edge by realizing the strategic importance of quality management. However, not all organizations that undertake quality management efforts achieve their intended results. About fifty-four percent of the companies positive performance in terms of meeting corporate goals. Better employee and customer satisfaction was achieved through improved employee work-life. Productivity and responsiveness to the market improved thorough continuous improvement. Most importantly, managers realized the importance of quality management and started to facilitate it within the organization.

There are, however, difficulties in some managerial and organizational areas. First of all, traditional managerial paradigms have not been completely discarded. Managers still consider quality management concepts as a temporary fashion, and do not generally support employee involvement or empowerment. Secondly, performance appraisal and reward systems, which are vital to the success of quality programs as well as employee morale, are still not comprehensively modernized. Thirdly, focus on quick fixes rather than long term planning and organizational culture caused some major problems and resistances, such as poor communication throughout the organization, weakness in employee buy-in and empowerment within organizations. As a result, most companies have difficulty in meeting their corporate goals, since they fail to assess their individual organizational needs carefully.

It was shown that Turkish corporations prefer evolutionary approaches, such as TQM, ISO 9000+/14000+, Continuous Improvement and SPC over revolutionary ones like Reengineering. However, companies in the service sector focus more on business processes, and make radical changes over a short period of time, which also revealed the sectoral preference.

Support by top management was the key factor in almost all organizations for quality management practices, even though there is a lack of strong leadership skills and interest in it. Emphasis on education and training also helped organizations to have progress in quality management efforts. However, training/education programs are regarded as a means to attain quality certifications, such as ISO 9000+. This approach resulted in failure in the long-run, since focus is not on continuous improvement. The main problems are less emphasis on change in organizational culture, on process and process management and openness within the organization.

Considering only sixty-one percent of the companies adopted quality management practices in all functions or units, and about half of the corporations (fourty-six percent) practiced in all processes within organization, interesting results are observed. This is an indicator, which shows that quality management approaches (e.g. TQM, BPR) are not implemented in a holistic way.

Companies that adopted quality management practices experienced changes in the area of education and training, and in teamwork, employee empowerment and customer relations. Thus, changes in communication and work-life improved the quality of work-life, customer satisfaction as well as productivity within the organization. Unfortunately, fewer changes in performance appraisal/reward systems, organizational levels, implementation of technology, and collaboration with suppliers and employee empowerment affect the success and the benefits attained from quality management efforts.

As a result, Turkish companies should focus on quality management philosophies/approaches more consciously, and adopt them in depth. In addition, cultural parameters that affect success and failure factors in change management should be reconsidered in applying these philosophies/approaches. By so doing, companies will apply the best approaches to fit their organization.

Turkey, in general, has a moderate-level autocratic management style. Managers' role model in driving organizations toward quality programs is not as long-term or committed as the ones in most European countries or Japan. Managers have a tendency to see quality management concepts as a temporary trend, and stay cool toward such approaches as employee involvement, empowerment and company-wide decision making. Some cultural traits, as in South American and Asian countries, influence power distance and decentralization in decision-making.

Turkish corporations have more difficulties in crafting long-term strategies than their competitors in major countries. They are not as strongly committed to long-term strategies and future plans as the ones in North America, Japan and Europe. Short-term strategies are favored because of the business environment and short-term performance pressures. Moreover, there are weaknesses in communicating all strategies throughout the organization.

Change in organizations and organizational relations are at a moderate level, but slow compared to most US, European and Japanese companies. In general, Turkish corporations do not favor radical organizational changes. As in Brazil, most corporations in Turkey try to improve their processes without giving up their traditional managerial paradigms. Upward and downward communication is improving, yet not at a level that will construct a long-lasting and in-depth organizational culture. In addition, the usage of information systems and organization/process improvement methods are relatively low compared to developed countries.

Compared to developed countries, employee empowerment in Turkey is still inadequate, as are new employee involvement programs and performance appraisal/reward systems. Companies try to improve employee satisfaction and quality of employee work-life, but fail to undertake human resources programs without carefully assessing their organizational needs.

Improving customer satisfaction and customer-relations processes is one of the main goals of quality management. However, very few firms in Turkey are integrating customer-related information into their quality management efforts compared to the western countries and Japan. Customer and supplier relations compared to the industrial nations are still not at a sufficient level, and are often considered weak in developing strategic alliances.

In general, companies achieved a moderate level success in performance measures such as responsiveness to customer needs, productivity and quality of work-life. The most significant organizational changes are in the communication field and in work-life. On the other hand, the area of least change in organizations is in performance-based reward systems, implementation of technology, collaboration with suppliers and employee empowerment.

Turkey, at the crossroads of eastern and western cultures, has the mixed characteristics of both emerging countries and developed countries. In some sense, it is similar to South American countries like Brazil in terms of traditional management approaches, autocracy, limited employee empowerment, weakened work ethics, and communication channels. On the other hand, it is similar to some Mediterranean countries like Italy in terms of using technology, new quality management techniques, flexibility, etc.

There have been very successful results which have been crowned by international awards (EFQM Excellence Award). However, quality management awareness is still not on a wide scale, and a limited number of companies, mainly large ones, are engaging in quality management approaches. Turkish companies should evaluate their strengths and weaknesses as well as opportunities and threats in order to strengthen their competitive position in global markets. By so doing, they will be able to determine what strategies they should use, and how they would implement these strategies. This will also help to improve Turkey's position in quality management in comparison to major countries of the world.

Recommendations which might be applicable to Turkish companies were listed above. The main issue in this list was that cultural change, which does not come only as a result of a change in the system should be reconsidered. Organizations might have the most efficient approaches in the world, on paper or in a model, and still not have a world-class operation. If the human factor is left out, the chance of success is very low.

The recommendation list is as follows:

- **Leadership/Management:** Management should strongly commit to the quality management approaches by leading, not following, the change management process. Leadership involvement sets the pace for quality management implementations by establishing the vision, strategies and policies. Leaders

should communicate these by creating a cooperative environment that supports trust, risk taking, initiative, reward, continuous improvement and energizing employees. Leadership involvement is absolutely necessary to ensure successful implementation of quality management.

- **Strategies & Policies:** Corporations should develop long-term strategies. Well-defined strategies and policies are essential to meet the organization's mission requirements, the customers' needs, human resource and development requirements, expected developments in technology and changes in global markets. Achieving this focus requires buy-in at all levels, which can only happen when the people are incorporated into the strategic planning process. Goals that support the company vision and align the objectives should be set and communicated. Then progress should be measured and performance should be rewarded.
- **Organizations & Processes:** Organizations and processes should be restructured and organizational culture should be fostered. Organizations should strive for continuous improvement, challenge the concept of business as usual and understand customers' needs and requirements. One way of doing business better is focusing on process management, a disciplined approach allowing people to work smarter and better. This helps to foster organizational culture and create a working environment enriched by empowerment, risk-taking and entrepreneurship.
- **Employees:** People power should be fully through employee empowerment. Empowerment is about giving people the tools, training and guidance they need to do their jobs. A leader who learns to use empowerment will find his/her roles enhanced, not weakened, because once a leader empowers an individual, he/she must accept the responsibility and accountability that comes with empowerment. The goal is to create an environment in which properly trained subordinates can continually improve the organization, take risks and initiate.
- **Customers & Suppliers:** Customers and suppliers should be involved in change management efforts. Successful organizations consistently meet or exceed customers' needs and mission requirements. Customer and supplier relations should be strengthened to develop strategic alliances.

- **Business Results:** Resources should be used effectively for better business results. Organizations need proof that the processes and programs they implemented actually improved quality and overall mission performance. Management can use realistic measurements to understand when, where and how to improve the business activities. Data-driven decisions help identify smarter, more productive ways to accomplish the mission.

The objective of this list was to propose recommendations for the future of quality management efforts in Turkey. By so doing, models constructed with universal theories and global parameters as well as local socio-cultural parameters could be developed to fit organizations. Companies should have their own implementation programs to apply quality management principles. A general characteristics of these programs should include the following five steps:

1. **Planning/Formulation Step:** Organizations should have a systematic plan in which the mission, vision and values are defined and customer-driven strategies, policies, goals and objectives are set. Planning is a leadership-driven cooperative effort between the leadership team and the organization. Establishing a strong quality management focus requires substantial time and effort from the leadership team as they plan, formulate, design, analyze, implement and review their vision, mission and plans.
2. **Designing/Redesigning Step:** The leadership team should analyze how the work is performed. By questioning everything, the team will ask why the work is performed and whether it is in alignment with the mission, vision, values, strategies and goals of the organization. Then the team can generate alternative approaches to determine whether to reengineer or improve business. It is important that communication be two-way to ensure understanding and buy-in within the organization.
3. **Analysis/Assessment Step:** The leadership team should select between alternatives and identify the impact of the new design on the organization. They should analyze the relationships between the integration of process design, technology, and human resource practices and performance outcomes. Selection between the various options will be based on potential benefits of each alternative. The team may develop scenarios or TO-BE state descriptions for each alternative.

4. Implementation Step: Success of any quality management effort depends on the ability to properly implement the new design. To achieve this, managers and the leadership team should establish buy-in at all levels, communicate with the employees and stakeholders openly, and encourage the people to join the implementation phase.
5. Review Step: The leadership team should evaluate the overall planning and implementation steps. They should compare the progress to the original plan to determine if they meet customer requirements and organizational goals. This assessment is a base for future improvement and gap analysis. Benchmarking with external organizations can also help identify a genuine gap. Regularly, plans and actions should be reviewed to assess progress on the program, and communicate results throughout the organization.

At the beginning of quality management programs, reactions to change might be very discouraging. Anticipation of change brings out negative reactions in many people, and people's imagination and company gossip often go wild. Once the program has been launched, reactions including anger, anxiety and confusion come out, if most people view the change as a negative impact on their personal situation. Once the people have accepted the change as real and that it is definitely going to happen, they begin to rationalize their roles in the new situation. Organizations whose culture is more supportive and whose senior managers are more actively involved in programs have significantly higher success in quality management efforts.

In short, business culture change does not come as a result of a change in the system. It comes as a result of incremental change in the way people feel and behave. Proper management of the transition of people through the process of change is critical to the success of the new system. Leaders should recognize that, be alert for unanticipated consequences, create the climate that is conducive to the change being attempted and enable and energize the people in the organization.

The main objective of this study was to examine quality management approaches to date, analyze quality management efforts around the world and in Turkey, benchmark these efforts according to six pre-defined criteria and propose recommendations for the future of quality management efforts in Turkey.

There has been, however, a limited number of publications related to this topic. Therefore, it has been difficult to figure out Turkey's position in quality management efforts and analyze the strengths and weaknesses as well as threats and opportunities in the global market.

One of the major contributions of this study was a comprehensive survey conducted on sixty-one Turkish companies from different industry groups. Thus the generic profile of quality management efforts in Turkey can be predicted.

Secondly, quality management efforts were analyzed and evaluated using statistical tests. Not only achievements and under-achievements were examined, but also how these are achieved or not achieved by adopting quality management practices.

Thirdly, quality management efforts in Turkey were compared with ones in major countries around the world. Though theories and tools are based on global values, the means of implementing quality management practices differs from country to country based on its unique socio-economic and cultural values. It is helpful to understand differences and similarities to find ways to proliferate quality management efforts toward global integration.

This study has a major contribution in defining Turkey's position in quality management efforts in global markets. As most contemporary management gurus and experts suggest benchmarking will help to understand Turkey's position a thorough SWOT analysis. Furthermore, it will give insights and a list of recommendations for future studies.

Finally, the trends and key forces shaping the future of business as well as success and failure factors were explored in order to understand the future of quality movements around the world and in Turkey.

Standardized mail surveys may suffer from response bias, domain restriction and lack of respondent awareness. However, they are cost-effective, reliable and useful for between-group comparisons. Furthermore, benchmarking generally requires quantitative estimates, which standardized surveys readily supply, and quantitative survey results may seem more valid to outside agencies in justifying quality management programs.

The validity of this survey might suffer from the limited sample size. And yet, the number of companies practicing quality management efforts are small and the survey reached as many companies as possible.

Another limitation of the study might be the heavy portion of production (manufacturing) sector organizations in the sample. Traditionally, their organizational culture and the market they are in is different from the service sector industry. In service sectors, competition and interaction with customers are much heavier and competitive than manufacturing sectors.

Despite these difficulties and limitations, this study is an exploratory one, helping evaluate Turkey's position in quality management efforts in comparison to major countries of the world. Also, cultural parameters that affect the acceptance and adoption level of quality management efforts by Turkish companies were examined. However, further studies should be done as follows:

A further study should be done to determine organizational parameters, such as organizational flexibility, openness and earning curve that have effects on change management. This will help to explore the hidden parts of organizational dynamics in adopting new change management philosophies, the cultural formula for success or failure, applicability of programs and techniques in different cultures and organizations.

A further study should be done to examine trends in quality management, especially with the advance in information technology and the future of global markets. Nowadays, internet technology is shaping traditional businesses and customer focus, forcing new ways of thinking and doing business. Both organizations and societies are affected by this change. But the highest performing organizations are not those with the highest technology, but those in which technology is coupled effectively with human resources and strategies. Therefore, it is important for organizations to determine how to develop an adaptive culture to create the future rather than follow it.

Throughout the study, the evolution of quality management was examined, and quality management efforts around the world and in Turkey were benchmarked. It has been seen that the rules of business in the new millennium will not be the same any more. Companies should be more customer-driven rather than top-driven, focus more on long term strategies and challenge new business dynamics

through vision, leadership, technology and employee empowerment. Furthermore, companies should strive for new opportunities and big breakthroughs.

The combination of strategic planning and quality management approaches based on modern information technology will be a powerful combination to enhance organizational competitiveness in the new millennium. To attain the highest benefits, these efforts must be integrated and managed in the best interest of customers and the organizations. In fact, the highest performing organizations are not those with the highest technology, but those in which technology is coupled effectively with human resources and strategies.

In order to improve the prospect of successful quality management implementation, factors such as leadership (management), organizational culture and processes, strategies and policies, employee relations as well as customer and supplier relations, should be thoroughly investigated, and methods for managing them must be developed. Progressive human resource practices will significantly boost the success of quality management.

No matter what management approach is implemented, the compatibility of the current organizational culture with the new management philosophies will determine the success of the program and the smoothness of the organizational transformation. People who accepted change as the only constant concept to date, will be more ready for change. And organizations with compatible culture are more ready for smoother transition in change efforts than others.

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APPENDIX A.

QUESTIONNAIRE

1. *What is the title or position of the individual completing the majority of questionnaire?*

- ☐ Chief Executive Officer, Chief Operating Officer, or President.
- ☐ Vice President for Human Resources.
- ☐ Corporate Manager for Operations (or equivalent title).
- ☐ Director or Manager of Quality.
- ☐ Others (.....)

2. *What type of organization is your corporation categorized?*

- | | |
|---|--|
| ☐ Public Utility | ☐ Educational Institute |
| ☐ Manufacturing | ☐ Non-Profit Organization |
| ☐ Banking/Insurance | ☐ Retail |
| ☐ Health Care/Hospital | ☐ Others (.....) |

3. *About how many people are currently employed (full time) by your corporation?*

- | | | |
|------------------------------|---------|----------|
| 1. Non-managerial employees. | (.....) | (.....%) |
| 2. Supervisors/Managers. | (.....) | (.....%) |
| TOTAL | (.....) | (.....%) |

4. *What is the total sales in the last years.*

Total Sales,Net (1994) = ...Millions
Total Sales,Net (1995) = ...Millions
Total Sales,Net (1996) = ...Millions

5. *On average, to what extent is your corporation's business environment characterized by the following conditions:*

	LNE	SE	ME	GE	VGE	NBTJ
1. Subject to heavy competition.	1	2	3	4	5	0
2. Rapidly growing market.	1	2	3	4	5	0
3. Declining market.	1	2	3	4	5	0
4. Intense quality competition.	1	2	3	4	5	0
5. Intense speed to market competition.	1	2	3	4	5	0
6. Intense cost competition.	1	2	3	4	5	0
7. Shorter product life cycles.	1	2	3	4	5	0
8. Rapid change in the industry/competitors.	1	2	3	4	5	0
9. Regulatory changes	1	2	3	4	5	0
10. Others (.....)	1	2	3	4	5	0

LNE: LITTLE OR NO EXTENT

SE: SOME EXTENT

ME: MODERATE EXTENT

GE: GREAT EXTENT

VGE: VERY GREAT EXTENT

NBTJ: N/A OR NO BASIS TO JUDGE

In this section questions about your preference in quality management techniques reasons, facilitators, target goals, changes, and contributions are asked.

- 6.A. *Which QM technique did you put into practice? When did it start and end?*

- ☐ Business Process Reengineering (19.... - 19....)
- ☐ Total Quality Management (19.... - 19....)
- ☐ Continuous Improvement (19.... - 19....)
- ☐ ISO 9000 + (19.... - 19....)
- ☐ SPC /QCC (19.... - 19....)
- ☐ Others (.....) (19... - 19....)

- 6.B. *Why did you choose this QM technique over others?*

- ☐ 1. Managerial decision.
- ☐ 2. Third-party (consultant) decision.
- ☐ 3. Self-managing team's suggestion.
- ☐ 4. A result of regulation change in the industry.
- ☐ 5. Others (.....)

- 6.C. *Does your organization have a special department or project group for implementing the QM practice?*

- ☐ Yes ☐ No

6.D. Does your organization have a special budget (fund) for implementing the QM practice? (If yes, what's the percentage of the total budget?)

☐ Yes (.....%)

☐ No

7. Indicate **functions/units** OR **processes** in your organization where you practiced QM techniques.

☐ Accounting/Finance

☐ Manufacturing

☐ Marketing/Sales

☐ Logistics

☐ MIS

☐ Others (.....)

☐ Production process

☐ Purchasing process

☐ Customer service process

☐ Order management process

☐ New product development process

☐ Others (.....)

8. To what extent is/was each of the following conditions currently a **facilitator** of Quality Management efforts in **your corporation**?

	LNE	SE	ME	GE	VGE	NBTJ
1. Support by top management.	1	2	3	4	5	0
2. Support by middle management.	1	2	3	4	5	0
3. Third-party consultation.	1	2	3	4	5	0
4. Availability of resources (mostly financial) to conduct the QM techniques.	1	2	3	4	5	0
5. Reward system, motivation, and innovation programs.	1	2	3	4	5	0
6. Open communication channels.	1	2	3	4	5	0
7. A business crisis or threat.	1	2	3	4	5	0
8. Self-managing working teams.	1	2	3	4	5	0
9. Regulation in the standards, market, industry enforced by law.	1	2	3	4	5	0
10. Competitive pressures	1	2	3	4	5	0
11. Significant market opportunity	1	2	3	4	5	0
12. Dramatic loss of market share	1	2	3	4	5	0
13. Management changes	1	2	3	4	5	0
14. Merger/acquisition	1	2	3	4	5	0
15. Poor customer satisfaction	1	2	3	4	5	0
16. Intense need to cut costs	1	2	3	4	5	0
17. Disappointment of IT	1	2	3	4	5	0
18. Unmatched organizational structure	1	2	3	4	5	0

9. To what extent is/was each of the following statements currently a **target goal/mission** of quality management efforts **in your corporation**.

	LNE	SE	ME	GE	VGE	NBTJ
1. Improve productivity.	1	2	3	4	5	0
2. Increase profitability.	1	2	3	4	5	0
3. Reduce cycle time	1	2	3	4	5	0
4. Improve quality of product or service.	1	2	3	4	5	0
5. Improve customer service/satisfaction.	1	2	3	4	5	0
6. Increase competitiveness.	1	2	3	4	5	0
7. Increase quality of employee work life.	1	2	3	4	5	0
8. Cutting costs.	1	2	3	4	5	0
9. Eliminating non-value adding processes.	1	2	3	4	5	0
10. Focus on money-making processes.	1	2	3	4	5	0
11. Integrate supply chains.	1	2	3	4	5	0
12. Increase sales	1	2	3	4	5	0
13. Improve margins	1	2	3	4	5	0
14. Increase market share	1	2	3	4	5	0
15. Reduce headcounter	1	2	3	4	5	0
16. Reduce product development time	1	2	3	4	5	0
17. Improve employee satisfaction	1	2	3	4	5	0
18. Others (.....)	1	2	3	4	5	0

10. To what extent is each of the followings **changed** to support the Quality Management efforts **in your corporation**?

Level of change	None	Little	Some	Quite a bit	Very much	NBTJ
1. Organizational Structure (organizational layers, cross-functional boundaries.)	1	2	3	4	5	0
2. Communication methods/channels	1	2	3	4	5	0
3. Training/Education	1	2	3	4	5	0
4. Performance Measurements	1	2	3	4	5	0
5. Reward Systems	1	2	3	4	5	0
6. Employee Empowerment (new roles/responsibilities, job enrichment)	1	2	3	4	5	0
7. Management Style	1	2	3	4	5	0
8. Customer relations/process	1	2	3	4	5	0
9. Partnership with suppliers	1	2	3	4	5	0
10. Information technology	1	2	3	4	5	0
11. Suggestion systems	1	2	3	4	5	0
12. Teamwork	1	2	3	4	5	0
13. Others (.....)	1	2	3	4	5	0

11.A. To what extent has each of the following elements **contributed** to the Quality Management efforts in your corporation?

Managerial	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Top management has realistic expectations of the results of QM practice.	1	2	3	4	5
2. Top management has sufficient knowledge about the QM practice.	1	2	3	4	5
3. Top management communicates with the project team frequently.	1	2	3	4	5
4. Top management communicates with the employee frequently and in a timely manner.	1	2	3	4	5
5. Top management has received adequate training and education about QM practice.	1	2	3	4	5
6. Overall, top management strongly committed to the QM and its implementation	1	2	3	4	5

11.B.

Organizational	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The interaction among people is cooperative and in a team-work manner. (cross-functional)	1	2	3	4	5
2. Subordinates can influence the goals, methods and activities of their unit.	1	2	3	4	5
3. Only superiors can influence the goals, methods and activities of their unit.	1	2	3	4	5
4. All staff involve in decision making	1	2	3	4	5
5. Subordinates are always involved in decisions related to their work.	1	2	3	4	5
6. Decision makers are completely aware of problems.	1	2	3	4	5
7. Technical and professional knowledge is fully used in decision making.	1	2	3	4	5
8. Superiors facilitate upward communication rather than downward communication.	1	2	3	4	5
9. Superiors seek subordinates' ideas and opinions and make constructive use of them.	1	2	3	4	5
10. Most company activities are guided by written rules and procedures, and are strictly enforced.	1	2	3	4	5

In this section questions about your corporation's information sharing, training, reward systems, innovations/programs, and their evaluation are asked.

12. About **how many corporation employees** are routinely provided with the following types of **information**?

	None (0 %)	Almost None (25%<)	About Half (25-50%)	Most (50-5%)	Almost All (>75%)
1. Information about the corporation's overall operating results	1	2	3	4	5
2. Information about their unit's operating results.	1	2	3	4	5
3. Advance information on new technologies that may affect them.	1	2	3	4	5
4. Information on business plans/goals.	1	2	3	4	5
5. Information on competitors' relative performance	1	2	3	4	5

13. About **how many corporation employees** have received, within the past 3/5 years, **systematic, formal training** on the following types of **skills**?

	None (0 %)	Almost None (25%<)	About Half (25-50%)	Most (50-5%)	Almost All (>75%)
1. Group decision-making/problem-solving skills	1	2	3	4	5
2. Leadership skills	1	2	3	4	5
3. Skills in understanding the business.	1	2	3	4	5
4. Quality/statistical analysis skills	1	2	3	4	5
5. Team building skills	1	2	3	4	5
6. Job skills training.	1	2	3	4	5
7. Cross training.	1	2	3	4	5
8. Others (.....)	1	2	3	4	5

14. About **how many of your corporation's employees** are currently involved in each of the following **innovations or programs**?

	None (0 %)	Almost None (25%<)	About Half (25-50%)	Most (50-5%)	Almost All (>75%)
1. Suggestion system	1	2	3	4	5
2. Survey feedback	1	2	3	4	5
3. Job enrichment or redesign (job involvement)	1	2	3	4	5
4. Quality circles (improvement teams)	1	2	3	4	5
5. Employee participation groups (non QC)	1	2	3	4	5
6. Union-management quality of work life (QWL) committees	1	2	3	4	5
7. Mini-business units (business involvement)	1	2	3	4	5
8. Self-managing work teams	1	2	3	4	5
9. Politics and Strategic groups	1	2	3	4	5
10. Others (.....)	1	2	3	4	5

15. How **successful or unsuccessful**, do you think, is each of the following **programs or applications** in improving **your organization's** performance?
(Don't answer for any practice you do not have in your organization)

	Very Unsucc.	Unsucc.	Undecided	Suc.	Very Succ.
1. Suggestion system	1	2	3	4	5
2. Survey feedback	1	2	3	4	5
3. Job enrichment or redesign (job involvement)	1	2	3	4	5
4. Quality circles (improvement teams)	1	2	3	4	5
5. Employee participation groups (other than quality circles)	1	2	3	4	5
6. Union-management quality of work life (QWL) committees	1	2	3	4	5
7. Mini-business units (business involvement)	1	2	3	4	5
8. Self-managing work teams	1	2	3	4	5
9. Training/Education	1	2	3	4	5
10. Politics and Strategic groups	1	2	3	4	5
11. Others (.....)	1	2	3	4	5

In this section the results of the practice in internal business conditions, performance measures, drawbacks, and lessons are asked.

16. Overall, to what extent, if at all, have QM efforts **resulted** in each of the following **internal business conditions**?

	LNE	SE	ME	GE	VGE	NBTJ
1. Improved implementation of technology.	1	2	3	4	5	0
2. Eliminated layers of management.	1	2	3	4	5	0
3. Moved decision-making authority to lower organizational level.	1	2	3	4	5	0
4. Moved performance-based rewards to lower organizational level.	1	2	3	4	5	0
5. Broadened skill development at lower organizational levels.	1	2	3	4	5	0
6. Increased information flow throughout the corporation.	1	2	3	4	5	0
7. Increased speed of decision-making.	1	2	3	4	5	0
8. Improved organizational processes and procedures.	1	2	3	4	5	0
9. Improved implementation of decisions at the front-line.	1	2	3	4	5	0
10. Improved cross-functional cooperation	1	2	3	4	5	0
11. Improved collaboration with suppliers	1	2	3	4	5	0
12. Improved quality of work life	1	2	3	4	5	0
13. Improved communication channels	1	2	3	4	5	0

17. To what extent, if at all, did your organization **achieve** in each of the **performance measures** (if measurable) through the QM practice?

	Total Failure	Failure	Neutral	Suc.	Very Succ.
1. Product lead time (cycle time)	1	2	3	4	5
2. Process cost reduction	1	2	3	4	5
3. Responsiveness to customer needs (customer satisfaction increased)	1	2	3	4	5
4. Quality of work life (better employee relations)	1	2	3	4	5
5. Competitiveness (market share increased)	1	2	3	4	5
6. Profitability	1	2	3	4	5
7. Order-processing time	1	2	3	4	5
8. Productivity	1	2	3	4	5

18. *To what extent is/was each of the following conditions a barrier to quality management efforts in your corporation?*

	LNE	SE	ME	GE	VGE	NBTJ
1. Lack of top management commitment.	1	2	3	4	5	0
2. Lack of middle management support.	1	2	3	4	5	0
3. Lack of a “champion” for the practice.	1	2	3	4	5	0
4. Lack of cross-functional coordination.	1	2	3	4	5	0
5. Lack of long-term strategy.	1	2	3	4	5	0
6. Lack of resources (mostly financial) to conduct the QM techniques.	1	2	3	4	5	0
7. Unclear objectives, unrealistic expectations.	1	2	3	4	5	0
8. Short-term performance pressures.	1	2	3	4	5	0
9. Worsened business conditions.	1	2	3	4	5	0
10. Technical abilities to conduct the QM techniques.	1	2	3	4	5	0
11. Resistance of stakeholders	1	2	3	4	5	0
12. Lack of reward system, motivation, and innovation programs	1	2	3	4	5	0
13. Lack of open communication channels.	1	2	3	4	5	0
14. Resistance caused by fear and skepticism about the QM techniques.	1	2	3	4	5	0
15. Resistance caused by possible loss of power or position.	1	2	3	4	5	0
16. Resistance caused by job enrichment or redesign	1	2	3	4	5	0
17. Resistance of organizational change.	1	2	3	4	5	0
18. Time taken away from other tasks.	1	2	3	4	5	0
19. Lack of team skills	1	2	3	4	5	0
20. Lack of staff involvement fully	1	2	3	4	5	0
21. Old reward system	1	2	3	4	5	0
22. Lack of education/training	1	2	3	4	5	0

19. To what extent, if at all, do you **think/believe** each of the following elements are **critical factors** in QM techniques?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Executive sponsorships.	1	2	3	4	5
2. Resources to conduct the QM techniques.	1	2	3	4	5
3. Open communication channels (openness).	1	2	3	4	5
4. Change in organizational culture.	1	2	3	4	5
5. Employee empowerment.	1	2	3	4	5
6. Third-party consultation.	1	2	3	4	5
7. Technical abilities in-house	1	2	3	4	5
8. Reward, motivation, innovation programs.	1	2	3	4	5
9. Cross-functional cooperation	1	2	3	4	5

20. Did you ask for help from a consultant (third-party)? If yes, how helpful was it?

- ☐ No
☐ Yes.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Help to change organizational culture	1	2	3	4	5
2. Foster communication channels.	1	2	3	4	5
3. Championed for the practice.	1	2	3	4	5
4. Ability to conduct the QM practice.	1	2	3	4	5
5. Put objectives, vision.	1	2	3	4	5
6. Ease up organizational resistance.	1	2	3	4	5
7. Foster cross-functional cooperation.	1	2	3	4	5

21. Overall how positive has **your experience** been with your QM efforts in terms of meeting **your goals**?

- ☐ 1. Very Negative.(met below 20% of goals)
☐ 2. Negative. (met 20%-40% of goals)
☐ 3. Neutral.(met 40%-60% of goals)
☐ 4. Positive. (met 60%-80% of goals)
☐ 5. Very Positive.(met over 80% of goals)

Glossary:

Suggestion system: a program that elicits individual employee suggestions on improving work.

Survey feedback: use of employee attitude survey results, not simply as an employee opinion poll but rather as part of a larger problem-solving process in which survey data are used to encourage, structure, and measure the effectiveness of employee participation.

Job enrichment or redesign: Design of work that is intended to increase worker performance and job satisfaction by increasing skill variety, autonomy, significance and identity of the task, and performance feedback.

Quality circles: structured employee participation groups in which groups of volunteers from a particular work area meet regularly to identify and suggest improvements to work-related problems.

Union-management QWL: joint union-management committees, usually existing at multiple organizational levels, alongside the established union and management relationships and collective bargaining committees.

Mini-business units: relatively small, self-contained organizational units that produce their own product or service and operate in a decentralized, partly autonomous fashion as a small business.

Self-managing work teams: autonomous work groups, self-regulating work teams. The work group is responsible for a whole product or service and makes decisions about work methods.

Employee satisfaction: measured by periodic company surveys of employee attitudes toward their work.

Order-processing time: measures the amount of time required to respond to a customer's request or order.

Productivity can be measured by sales per employee, if not measured by output/input.

Product lead time(cycle time): defined as the period of time in years from design of a new product or service until it is available to the customer.

Customer satisfaction can be surveyed by the consumers' overall perceptions about a product or service, by the number of complaints, and by customer retention.

Better employee relations: increase in job satisfaction, improvement in attendance, decrease in employee turnover.

APPENDIX B.

Statistical means and standard deviations were computed. Several statistical analysis, such as reliability analysis, factor analysis and cluster analysis were also conducted to establish the questionnaire's reliability and validity by using SPSS 6.0. T-Test is also used for significance.

In this study, the principal components factor extraction method is used for Factor Analysis. By default, factors with Eigenvalues greater than 1 (the cut-off value for factor extraction) are extracted. For rotation matrix, the most commonly used Varimax Method (an orthogonal rotation) is used in order to minimize the number of variables that have high loadings on a factor. This should enhance the interpretability of the factors. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is computed for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients.

Agglomerative Hierarchical Cluster Analysis, which is a commonly used method for forming clusters, is used in this study. In Agglomerative Hierarchical Clustering, clusters are formed by grouping cases into bigger and bigger clusters until all cases are members of a single cluster.

Table B.1 Agglomeration Schedule (Question 5)

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	45	48	1,000	0	0	3
2	31	41	1,000	0	0	25
3	11	45	2,000	0	1	11
4	28	30	2,000	0	0	18
5	15	42	4,000	0	0	9
6	2	21	4,000	0	0	21
7	22	61	6,000	0	0	14
8	6	32	6,000	0	0	21
9	16	16	6,000	5	0	28
10	56	58	7,000	0	0	28
11	11	25	7,000	3	0	19
12	8	60	8,000	0	0	24
13	27	36	8,000	0	0	28
14	12	22	8,000	0	7	28
15	8	18	8,000	0	0	38
16	28	34	9,000	4	0	32
17	20	51	10,000	0	0	47
18	28	29	10,000	0	0	42
19	11	24	10,000	11	0	37
20	39	47	11,000	0	0	39
21	2	5	11,000	8	8	34
22	38	40	12,000	0	0	58
23	3	37	12,000	0	0	49
24	6	7	12,000	12	0	32
25	31	57	13,000	2	0	45
26	12	58	13,000	14	10	38
27	14	49	13,000	0	0	38
28	15	27	13,000	9	13	40
29	4	10	14,000	0	0	51
30	13	50	16,000	0	0	41
31	23	43	18,000	0	0	38
32	8	28	18,000	24	16	37
33	9	69	19,000	0	0	48
34	1	2	19,000	0	21	42
35	35	44	20,000	0	0	41
36	8	23	20,000	15	31	46
37	6	11	20,000	32	18	48
38	12	14	22,000	26	27	52
39	39	52	23,000	20	0	47
40	15	54	25,000	28	0	46
41	13	35	26,000	30	35	53
42	1	28	27,000	34	18	50
43	17	19	28,000	0	0	53
44	33	55	29,000	0	0	51
45	31	53	33,000	25	0	59
46	8	15	33,000	36	40	55
47	20	39	34,000	17	39	52
48	8	9	38,000	37	33	49
49	3	6	37,000	23	48	56
50	1	48	46,000	42	0	54
51	4	33	47,000	29	44	57
52	12	20	47,000	38	47	55
53	13	17	49,000	41	43	54
54	1	13	58,000	50	53	58
55	8	12	61,000	46	52	57
56	3	38	64,000	49	22	58
57	4	8	98,000	51	55	59
58	1	3	105,000	54	58	60
59	4	31	135,000	57	45	60
60	1	4	214,000	58	59	0

Dendrogram using Complete Linkage

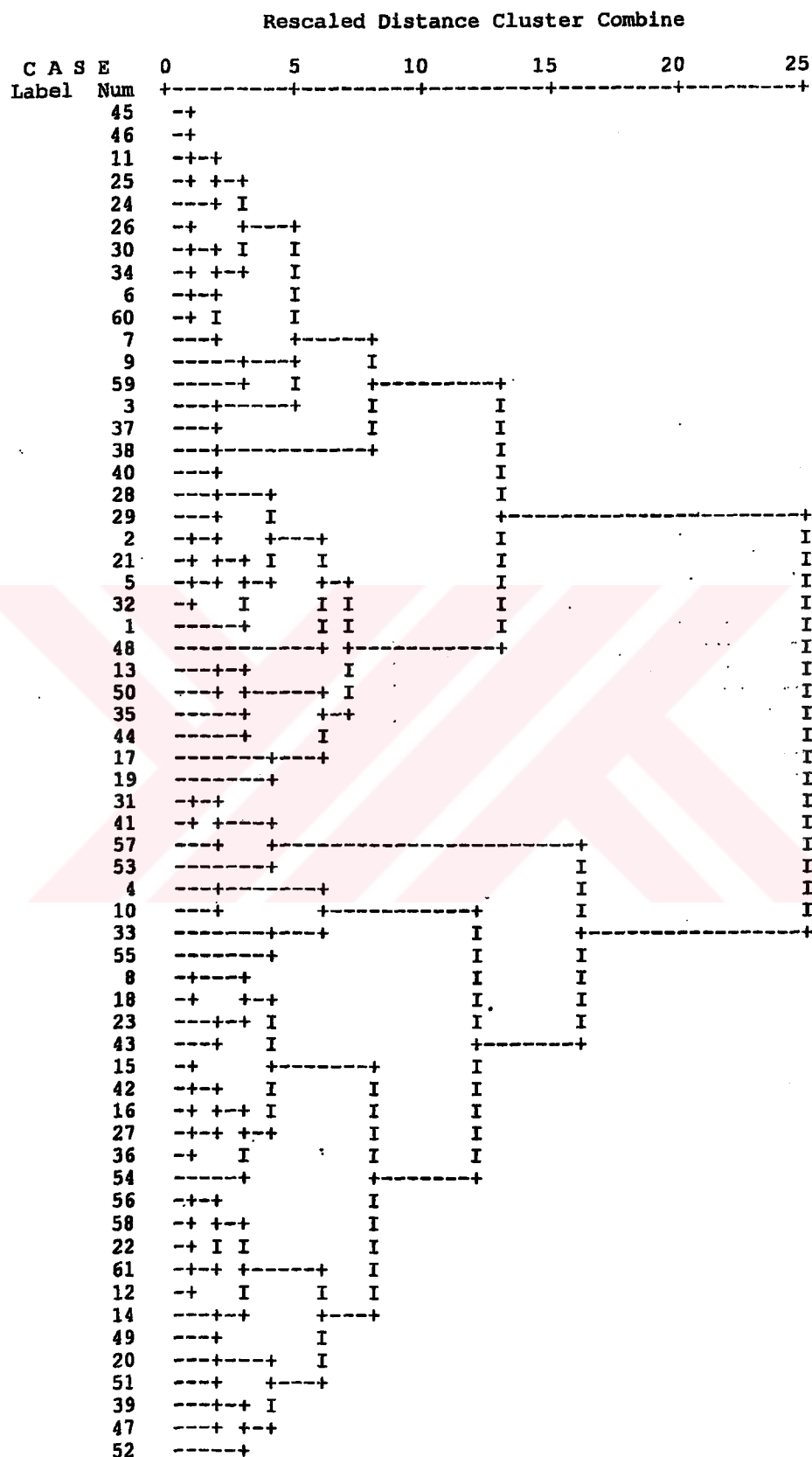


Figure B.1 Dendrogram (Question 5)

Table B.2 T-Test (Question 5)

Group Statistics

Complete Linkage		N	Mean	Std. Deviation	Std. Error Mean
K9	1	31	4,3548	,7978	,1433
	2	30	3,9000	1,2134	,2215
K10	1	31	3,4194	1,3607	,2444
	2	30	2,9000	1,4227	,2598
K11	1	31	3,2258	1,2030	,2161
	2	30	2,3333	1,4464	,2641
K12	1	31	1,7419	1,1823	,2123
	2	30	,4333	,5683	,1038
K13	1	31	1,8710	1,1472	,2060
	2	30	,3333	,4795	8,754E-02
K14	1	31	3,7742	1,2572	,2258
	2	30	3,1333	1,6965	,3097
K15	1	31	4,0645	1,3400	,2407
	2	30	2,8667	1,9070	,3482
K16	1	31	4,1290	1,0565	,1897
	2	30	3,4000	1,7927	,3273
K17	1	31	3,1935	1,5366	,2760
	2	30	,9667	1,0981	,2005
K18	1	31	3,5806	1,0255	,1842
	2	30	1,9333	1,6595	,3030
K19	1	31	2,8387	1,1859	,2130
	2	30	,9667	1,0662	,1947

Table B.3 Independent Samples Test (Question 5)

	Levene's Test for Equality of Variances		t-test for Equality of Means					t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	Lower	Upper
K9	Equal variances assumed	2,276	,137	1,735	59	,088	,4548	,2821	-8,98E-02	,9783
	Equal variances not assumed			1,724	48,899	,081	,4548	,2838	-7,61E-02	,9848
K10	Equal variances assumed	,035	,851	1,457	59	,160	,5184	,3684	-,1938	1,2325
	Equal variances not assumed			1,458	58,645	,151	,5194	,3687	-,1844	1,2331
K11	Equal variances assumed	2,014	,161	2,624	59	,011	,8825	,3402	,2118	1,5731
	Equal variances not assumed			2,618	56,385	,011	,8825	,3412	,2081	1,5759
K12	Equal variances assumed	13,482	,001	5,480	59	,000	1,3088	,2388	,8307	1,7865
	Equal variances not assumed			5,537	43,472	,000	1,3088	,2383	,8321	1,7851
K13	Equal variances assumed	21,188	,000	6,788	59	,000	1,5376	,2285	1,0844	1,9809
	Equal variances not assumed			6,888	40,444	,000	1,5376	,2239	1,0853	1,9899
K14	Equal variances assumed	2,654	,109	1,880	59	,088	,6409	,3815	-,1224	1,4042
	Equal variances not assumed			1,872	53,428	,100	,6409	,3833	-,1278	1,4085
K15	Equal variances assumed	7,150	,010	2,846	59	,008	1,1978	,4208	,3657	2,0400
	Equal variances not assumed			2,830	51,884	,007	1,1878	,4233	,3485	2,0472
K16	Equal variances assumed	8,723	,005	1,943	59	,057	,7280	,3753	-2,19E-02	1,4800
	Equal variances not assumed			1,927	46,673	,060	,7280	,3783	-3,22E-02	1,4803
K17	Equal variances assumed	2,334	,132	6,493	59	,000	2,2269	,3430	1,5408	2,9132
	Equal variances not assumed			6,528	54,355	,000	2,2269	,3411	1,5431	2,9107
K18	Equal variances assumed	6,282	,016	4,881	59	,000	1,6473	,3519	,9431	2,3515
	Equal variances not assumed			4,845	48,050	,000	1,6473	,3546	,9344	2,3602
K19	Equal variances assumed	,272	,604	6,476	59	,000	1,8720	,2881	1,2838	2,4505
	Equal variances not assumed			6,488	58,888	,000	1,8720	,2886	1,2848	2,4486

Table B.4 Group Statistics for CALGROUP (Question 5)

Group Statistics

	CALGROUP	N	Mean	Std. Deviation	Std. Error Mean
K9	1	30	3,9667	1,1592	,2116
	2	29	4,3448	,8140	,1512
K10	1	30	3,2000	1,4716	,2687
	2	29	3,0345	1,3491	,2505
K11	1	30	2,8000	1,5625	,2853
	2	29	2,8276	1,2268	,2278
K12	1	30	1,3667	1,2452	,2273
	2	29	,8276	1,0025	,1862
K13	1	30	1,2667	1,1725	,2141
	2	29	,9655	1,2096	,2246
K14	1	30	3,2000	1,5403	,2812
	2	29	3,7241	1,4613	,2714
K15	1	30	3,3667	1,7711	,3234
	2	29	3,5517	1,7645	,3277
K16	1	30	3,4333	1,4547	,2656
	2	29	4,0345	1,5232	,2829
K17	1	30	2,2667	1,7991	,3285
	2	29	1,9655	1,7420	,3235
K18	1	30	2,7000	1,6006	,2922
	2	29	2,9655	1,5920	,2956
K19	1	30	2,0333	1,5862	,2896
	2	29	1,8276	1,3905	,2582

Table B.5 Independent Samples Test (Question 5)

	Levene's Test for Equality of Variances		t-test for Equality of Means				t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
K9 Equal variances assumed Equal variances not assumed	.617	.436	-1.446	57	.154	-.3782 ^a	.2616	-.9020	.1467
K10 Equal variances assumed Equal variances not assumed	.061	.822	-1.454	52,083	.152	-.3782	.2601	-.9000	.1437
K11 Equal variances assumed Equal variances not assumed	2.658	.115	.480	57	.634	.1656	.3679	-.5712	.9022
K12 Equal variances assumed Equal variances not assumed	1.918	.172	.451	58,845	.654	.1655	.3674	-.5701	.9012
K13 Equal variances assumed Equal variances not assumed	.690	.446	-1.828	57	.073	-2.7586E-02	.3666	-.7616	.7084
K14 Equal variances assumed Equal variances not assumed	.578	.450	1.835	54,729	.072	-2.7586E-02	.3651	-.7593	.7041
K15 Equal variances assumed Equal variances not assumed	.100	.754	1.835	55,216	.072	.5391	.2849	-5.15E-02	1.1296
K16 Equal variances assumed Equal variances not assumed	.727	.398	1.835	57	.073	.5391	.2838	-4.97E-02	1.1279
K17 Equal variances assumed Equal variances not assumed	.006	.947	-1.551	57	.127	-.6011	.3877	-1.3775	.1752
K18 Equal variances assumed Equal variances not assumed	.011	.918	-1.549	58,833	.127	-.6011	.3880	-1.3782	.1759
K19 Equal variances assumed Equal variances not assumed	.725	.398	.653	57	.516	.3011	.4613	-.6225	1.2248
			.653	57,000	.516	.3011	.4610	-.6220	1.2243
			-.639	57	.526	-.2655	.4157	-1.0980	.5670
			-.639	58,862	.526	-.2655	.4157	-1.0979	.5669
			.529	57	.599	.2057	.3889	-.5730	.9845
			.530	56,472	.598	.2057	.3880	-.5714	.9829

Table B.6 Group Statistics for CIROBUY (Question 5)

	CIROBUY	N	Mean	Std. Deviation	Std. Error Mean
K9	1	22	4,0000	,8729	,1861
	2	22	4,5000	,7400	,1578
K10	1	22	3,2273	1,2699	,2707
	2	22	3,0909	1,5402	,3284
K11	1	22	2,9091	1,3420	,2861
	2	22	2,7727	1,2318	,2626
K12	1	22	,9091	,6838	,1458
	2	22	,8636	1,0821	,2307
K13	1	22	1,0909	1,0193	,2173
	2	22	1,0000	1,3093	,2791
K14	1	22	3,3182	1,4272	,3043
	2	22	3,5909	1,4690	,3132
K15	1	22	3,0909	1,8749	,3997
	2	22	3,7273	1,4535	,3099
K16	1	22	3,6364	1,5289	,3260
	2	22	3,7727	1,6015	,3414
K17	1	22	2,5455	1,7922	,3821
	2	22	1,7727	1,6599	,3539
K18	1	22	2,9091	1,4111	,3009
	2	22	2,8636	1,5825	,3374
K19	1	22	1,7727	1,3778	,2937
	2	22	1,9091	1,4111	,3009

Table B.7 Independent Samples Test (Question 5)

	Levene's Test for Equality of Variances		t-test for Equality of Means				t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
K9									
Equal variances assumed	,549	,463	-2,049	42	,047	-,5000	,2440	Lower	-7,84E-03
Equal variances not assumed			-2,049	40,805	,047	-,5000	,2440	Upper	-7,25E-03
K10									
Equal variances assumed	3,402	,072	,320	42	,750	,1384	,4256		,9852
Equal variances not assumed			,320	40,527	,750	,1364	,4256		,9862
K11									
Equal variances assumed	,075	,786	,351	42	,727	,1384	,3884		,9201
Equal variances not assumed			,351	41,896	,727	,1364	,3884		,9203
K12									
Equal variances assumed	3,739	,080	,167	42	,869	4,545E-02	,2729		,5862
Equal variances not assumed			,167	35,463	,869	4,545E-02	,2729		,5882
K13									
Equal variances assumed	,735	,386	,257	42	,798	9,091E-02	,3538		,8048
Equal variances not assumed			,257	39,617	,799	9,091E-02	,3538		,8061
K14									
Equal variances assumed	,002	,964	-,625	42	,536	-,2727	,4367		,6085
Equal variances not assumed			-,625	41,865	,536	-,2727	,4367		,6085
K15									
Equal variances assumed	2,625	,113	-1,258	42	,215	-,6364	,5058		,3843
Equal variances not assumed			-1,258	39,544	,216	-,6364	,5058		,3862
K16									
Equal variances assumed	,065	,800	-,289	42	,774	-,1364	,4721		,8163
Equal variances not assumed			-,289	41,910	,774	-,1364	,4721		,8164
K17									
Equal variances assumed	,065	,800	1,484	42	,145	,7727	,5208		1,8238
Equal variances not assumed			1,484	41,755	,145	,7727	,5208		1,8240
K18									
Equal variances assumed	,270	,606	,101	42	,920	4,545E-02	,4520		,9577
Equal variances not assumed			,101	41,480	,920	4,545E-02	,4520		,9561
K19									
Equal variances assumed	,037	,849	-,324	42	,747	-,1384	,4205		,7122
Equal variances not assumed			-,324	41,976	,747	-,1364	,4205		,7122

Table B.8 Crosstabs (Question 6A)

K21 * X2 Crosstabulation

		X2					Total
		1,00	2,00	3,00	7,00	8,00	
K21 ,00	Count	30	5		1	5	41
	% within X2	78,8%	62,5%		25,0%	50,0%	67,2%
1,00	Count	8	3	1	3	5	20
	% within X2	21,1%	37,5%	100,0%	75,0%	50,0%	32,8%
Total	Count	38	8	1	4	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K24 * X2 Crosstabulation

		X2					Total
		1,00	2,00	3,00	7,00	8,00	
K24	Count	14	3		1	3	21
	% within X2	38,8%	37,5%		25,0%	30,0%	34,4%
1,00	Count	24	5	1	3	7	40
	% within X2	63,2%	62,5%	100,0%	75,0%	70,0%	65,6%
Total	Count	38	8	1	4	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K27 * X2 Crosstabulation

		X2						Total
		1,00	2,00	3,00	7,00	8,00		
K27 ,00	Count	17	6	1	3	2	28	
	% within X2	44,7%	75,0%	100,0%	75,0%	20,0%	47,5%	
1,00	Count	21	2		1	8	32	
	% within X2	55,3%	25,0%		25,0%	80,0%	62,5%	
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K30 * X2 Crosstabulation

		X2						Total
		1,00	2,00	3,00	7,00	8,00		
K30 ,00	Count	4	3		2	2	11	
	% within X2	10,5%	37,5%		50,0%	20,0%	18,0%	
1,00	Count	34	5	1	2	8	50	
	% within X2	89,5%	62,5%	100,0%	50,0%	80,0%	82,0%	
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K33 * X2 Crosstabulation

K33 ,00	Count	X2						Total
		1,00	2,00	3,00	7,00	8,00		
	% within X2	8	8		3	5	24	
1,00	Count	21,1%	100,0%		75,0%	50,0%	39,3%	
	% within X2	30		1	1	5	37	
		78,9%		100,0%	25,0%	50,0%	60,7%	
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K38 * X2 Crosstabulation

		X2						Total
		1,00	2,00	3,00	7,00	8,00		
K36 ,00	Count	15	7		4	7	33	
	% within X2	39,5%	87,5%		100,0%	70,0%	54,1%	
1,00	Count	23	1	1		3	28	
	% within X2	60,5%	12,5%	100,0%		30,0%	45,9%	
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K39 * X2 Crosstabulation

		X2					Total
		1,00	2,00	3,00	7,00	8,00	
K39 ,00	Count	28	8	1	2	8	48
	% within X2	73,7%	100,0%	100,0%	50,0%	90,0%	78,7%
1,00	Count	10			2	1	13
	% within X2	26,3%			50,0%	10,0%	21,3%
Total	Count	38	8	1	4	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.9 Crosstabs for CALGROUP (Question 6A)

K21 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K21	.00	Count	20	18
		% within CALGROUP	66,7%	66,1%
1,00	Count	10	10	20
	% within CALGROUP	33,3%	34,5%	33,9%
Total	Count	30	28	58
	% within CALGROUP	100,0%	100,0%	100,0%

K24 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K24	.00	Count	11	10
		% within CALGROUP	38,7%	34,5%
1,00	Count	18	19	38
	% within CALGROUP	63,3%	65,5%	64,4%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

K27 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K27	.00	Count	15	14
		% within CALGROUP	50,0%	48,3%
1,00	Count	15	15	30
	% within CALGROUP	50,0%	51,7%	50,8%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

K30 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K30	.00	Count	7	4
		% within CALGROUP	23,3%	13,6%
1,00	Count	23	25	48
	% within CALGROUP	76,7%	86,2%	81,4%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

K33 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K33	.00	Count	13	10
		% within CALGROUP	43,3%	34,5%
1,00	Count	17	19	38
	% within CALGROUP	56,7%	65,5%	61,0%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

K36 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K36	.00	Count	18	15
		% within CALGROUP	60,0%	51,7%
1,00	Count	12	14	26
	% within CALGROUP	40,0%	48,3%	44,1%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

K39 • CALGROUP Crosstabulation

		CALGROUP		Total
		0	2	
K39	.00	Count	25	21
		% within CALGROUP	86,7%	72,4%
1,00	Count	4	8	12
	% within CALGROUP	13,3%	27,6%	20,3%
Total	Count	30	29	59
	% within CALGROUP	100,0%	100,0%	100,0%

Table B.10 Crosstabs for CIROBUY (Question 6A)

K21 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K21 .00	Count	16	31
	% within CIROBUY	72,7%	70,5%
1,00	Count	6	13
	% within CIROBUY	27,3%	29,5%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K24 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K24 .00	Count	9	18
	% within CIROBUY	40,9%	40,9%
1,00	Count	13	28
	% within CIROBUY	59,1%	59,1%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K27 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K27 .00	Count	9	22
	% within CIROBUY	40,9%	50,0%
1,00	Count	13	22
	% within CIROBUY	59,1%	50,0%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K30 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K30 .00	Count	3	9
	% within CIROBUY	13,6%	20,5%
1,00	Count	18	35
	% within CIROBUY	86,4%	79,5%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K33 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K33 .00	Count	7	18
	% within CIROBUY	31,8%	40,9%
1,00	Count	15	28
	% within CIROBUY	68,2%	59,1%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K36 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K36 .00	Count	11	25
	% within CIROBUY	50,0%	56,8%
1,00	Count	11	18
	% within CIROBUY	60,0%	43,2%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K39 • CIROBUY Crosstabulation

	CIROBUY		
	1	2	Total
K39 .00	Count	18	34
	% within CIROBUY	72,7%	77,3%
1,00	Count	6	10
	% within CIROBUY	27,3%	22,7%
Total	Count	22	44
	% within CIROBUY	100,0%	100,0%

K21 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K21 .00	Count	19	22
	% within Complete Linkage	61,3%	73,3%
1,00	Count	12	8
	% within Complete Linkage	38,7%	26,7%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K24 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K24 .00	Count	12	9
	% within Complete Linkage	38,7%	30,0%
1,00	Count	19	21
	% within Complete Linkage	61,3%	70,0%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K27 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K27 .00	Count	13	16
	% within Complete Linkage	41,9%	53,3%
1,00	Count	18	14
	% within Complete Linkage	58,1%	46,7%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K30 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K30 .00	Count	8	3
	% within Complete Linkage	25,8%	10,0%
1,00	Count	23	27
	% within Complete Linkage	74,2%	90,0%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K33 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K33 .00	Count	14	10
	% within Complete Linkage	45,2%	33,3%
1,00	Count	17	20
	% within Complete Linkage	54,8%	66,7%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K36 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K36 .00	Count	20	13
	% within Complete Linkage	64,5%	43,3%
1,00	Count	11	17
	% within Complete Linkage	35,5%	56,7%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

K39 * Complete Linkage Crosstabulation

	Complete Linkage		Total
	1	2	
K39 .00	Count	24	48
	% within Complete Linkage	77,4%	80,0%
1,00	Count	7	6
	% within Complete Linkage	22,6%	20,0%
Total	Count	31	30
	% within Complete Linkage	100,0%	100,0%

Table B.12 Crosstabulation (Question 6C & Question 6D)

K47 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K47	1,00	Count	30	6	1	50
	% within X2	78,9%	76,0%	100,0%	80,0%	82,0%
2,00	Count	8	2		1	11
	% within X2	21,1%	25,0%		10,0%	18,0%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K47 * CALGROUP Crosstabulation

		CALGROUP			Total
		0	2	21	
K47	1,00	Count	27	21	48
	% within CALGROUP	80,0%	72,4%	81,4%	
2,00	Count	3	8	11	
	% within CALGROUP	10,0%	27,6%	18,6%	
Total	Count	30	29	69	
	% within CALGROUP	100,0%	100,0%	100,0%	

K47 * CIROBUY Crosstabulation

		CIROBUY			Total
		1	2	18	
K47	1,00	Count	19	18	37
	% within CIROBUY	88,4%	81,8%	84,1%	
2,00	Count	3	4	7	
	% within CIROBUY	13,6%	18,2%	15,9%	
Total	Count	22	22	44	
	% within CIROBUY	100,0%	100,0%	100,0%	

K48 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	7,00	
K48	1,00	Count	2		1	4
	% within X2	5,3%			25,0%	6,8%
2,00	Count	11	2	1		16
	% within X2	28,9%	25,0%	100,0%		28,2%
Total	Count	25	8	3		41
	% within X2	68,8%	75,0%			67,2%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K48 * CALGROUP Crosstabulation

		CALGROUP			Total
		0	2	3	
K48	1,00	Count	1	3	4
	% within CALGROUP	3,3%	10,3%	6,8%	
2,00	Count	7	8	15	
	% within CALGROUP	23,3%	27,6%	25,4%	
Total	Count	22	18	40	
	% within CALGROUP	73,3%	82,1%	67,9%	
Total	Count	30	29	59	
	% within CALGROUP	100,0%	100,0%	100,0%	

K48 * CIROBUY Crosstabulation

		CIROBUY			Total
		1	2	1	
K48	1,00	Count	2	3	6
	% within CIROBUY	9,1%	4,5%	6,8%	
2,00	Count	8	5	13	
	% within CIROBUY	36,4%	22,7%	28,5%	
Total	Count	12	16	28	
	% within CIROBUY	54,5%	72,7%	63,6%	
Total	Count	22	22	44	
	% within CIROBUY	100,0%	100,0%	100,0%	

Table B.13 Crosstabulation-I (Question 7)

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K60	,00	Count	32	7		3	8	50
		% within X2	84,2%	87,5%		75,0%	80,0%	82,0%
	1,00	Count	8	1	1	1	2	11
		% within X2	16,8%	12,5%	100,0%	25,0%	20,0%	18,0%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K61 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K51	,00	Count	20	7	1	2	8	38
		% within X2	62,6%	87,5%	100,0%	60,0%	60,0%	59,0%
	1,00	Count	18	1		2	4	25
		% within X2	47,4%	12,5%		50,0%	40,0%	41,0%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K62 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K52	,00	Count	28	7	1	3	8	43
		% within X2	68,4%	87,5%	100,0%	75,0%	60,0%	70,5%
	1,00	Count	12	1		1	4	18
		% within X2	31,6%	12,6%		25,0%	40,0%	28,5%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K63 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K53	,00	Count	28	7		2	6	43
		% within X2	73,7%	87,6%		50,0%	60,0%	70,5%
	1,00	Count	10	1	1	2	4	18
		% within X2	28,3%	12,5%	100,0%	50,0%	40,0%	29,8%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K64 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K64	,00	Count	38	7		4	8	55
		% within X2	94,7%	87,5%		100,0%	80,0%	80,2%
	1,00	Count	2	1	1		2	6
		% within X2	5,3%	12,5%	100,0%		20,0%	9,8%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K65 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K65	,00	Count	14	1		3	8	24
		% within X2	38,8%	12,5%		75,0%	60,0%	38,3%
	1,00	Count	24	7	1	1	4	37
		% within X2	63,2%	87,5%	100,0%	25,0%	40,0%	60,7%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

K66 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K66	,00	Count	37	8		4	7	56
		% within X2	97,4%	100,0%		100,0%	70,0%	91,8%
	1,00	Count	1		1		3	5
		% within X2	2,6%		100,0%		30,0%	8,2%
Total	Count	38	8	1	4	10	61	
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	

Table B.14 Crosstabulation-II (Question 7)

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K67	.00	Count	24	8	1	3	6	42
		% within X2	63,2%	100,0%	100,0%	75,0%	60,0%	68,8%
	1,00	Count	14			1	4	19
		% within X2	36,8%			25,0%	40,0%	31,1%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K68 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K68	.00	Count	25	8		2	6	41
		% within X2	65,8%	100,0%		50,0%	60,0%	67,2%
	1,00	Count	13		1	2	4	20
		% within X2	34,2%		100,0%	50,0%	40,0%	32,8%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K69 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K69	.00	Count	28	8		3	4	43
		% within X2	68,4%	100,0%		75,0%	40,0%	67,2%
	1,00	Count	12		1	1	6	20
		% within X2	31,6%		100,0%	25,0%	60,0%	32,8%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K80 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K80	.00	Count	28	8		3	8	47
		% within X2	78,3%	100,0%		75,0%	60,0%	75,4%
	1,00	Count	9		1	1	4	15
		% within X2	23,7%		100,0%	25,0%	40,0%	24,6%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K81 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K81	.00	Count	31	8	1	3	8	51
		% within X2	81,6%	100,0%	100,0%	75,0%	60,0%	83,6%
	1,00	Count	7			1	2	10
		% within X2	18,4%			25,0%	20,0%	16,4%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K82 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K82	.00	Count	21	2	1	3	8	35
		% within X2	55,3%	25,0%	100,0%	75,0%	60,0%	54,1%
	1,00	Count	17	8		1	4	29
		% within X2	44,7%	75,0%		25,0%	40,0%	45,9%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K83 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K83	.00	Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.15 Crosstabulation-I for CALGROUP (Question 7)

			CALGROUP		Total
			0	2	
K50	.00	Count	22	26	48
		% within CALGROUP	73,3%	89,7%	81,4%
	1,00	Count	8	3	11
		% within CALGROUP	28,7%	10,3%	18,6%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K51 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K51	.00	Count	16	18	34
		% within CALGROUP	50,0%	65,5%	57,6%
	1,00	Count	15	10	25
		% within CALGROUP	50,0%	34,5%	42,4%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K52 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K52	.00	Count	19	22	41
		% within CALGROUP	63,3%	75,8%	69,5%
	1,00	Count	11	7	18
		% within CALGROUP	38,7%	24,1%	30,5%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K53 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K53	.00	Count	18	23	41
		% within CALGROUP	60,0%	78,3%	69,5%
	1,00	Count	12	6	18
		% within CALGROUP	40,0%	20,7%	30,5%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K54 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K54	.00	Count	28	27	55
		% within CALGROUP	88,7%	83,1%	89,8%
	1,00	Count	4	2	6
		% within CALGROUP	13,3%	6,8%	10,2%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K55 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K55	.00	Count	15	9	24
		% within CALGROUP	50,0%	31,0%	40,7%
	1,00	Count	15	20	35
		% within CALGROUP	50,0%	69,0%	59,3%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K56 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K56	.00	Count	27	27	54
		% within CALGROUP	80,0%	83,1%	91,6%
	1,00	Count	3	2	5
		% within CALGROUP	10,0%	6,8%	8,4%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

Table B.16 Crosstabulation-II for CALGROUP (Question 7)

			CALGROUP		Total
			0	2	
K57	,00	Count	18	22	40
		% within CALGROUP	60,0%	75,9%	67,8%
	1,00	Count	12	7	19
		% within CALGROUP	40,0%	24,1%	32,2%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K58 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K58	.00	Count	18	21	39
		% within CALGROUP	60,0%	72,4%	68,1%
	1.00	Count	12	8	20
		% within CALGROUP	40,0%	27,6%	33,9%
Total		Count	30	29	68
		% within CALGROUP	100,0%	100,0%	100,0%

K59 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K59	,00	Count	17	22	39
		% within CALGROUP	56,7%	75,9%	68,1%
	1,00	Count	13	7	20
		% within CALGROUP	43,3%	24,1%	33,8%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K60 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K60	,00	Count	20	24	44
		% within CALGROUP	68,7%	82,6%	74,6%
	1,00	Count	10	5	16
		% within CALGROUP	33,3%	17,2%	25,4%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K61 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K61	,00	Count	24	25	49
		% within CALGROUP	80,0%	88,2%	83,1%
	1,00	Count	6	4	10
		% within CALGROUP	20,0%	13,8%	16,9%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K62 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K62	,00	Count	20	13	33
		% within CALGROUP	66,7%	44,8%	55,9%
	1,00	Count	10	16	26
		% within CALGROUP	33,3%	55,2%	44,1%
Total		Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

K63 * CALGROUP Crosstabulation

			CALGROUP		Total
			0	2	
K63	.00	Count	30	29	59
		% within CALGROUP	100.0%	100.0%	100.0%
Total		Count	30	29	59
		% within CALGROUP	100.0%	100.0%	100.0%

Table B.17 Crosstabulation-I for CIROBUY (Question 7)

			CIROBUY		Total
			1	2	
K60	.00	Count	19	18	37
		% within CIROBUY	88,4%	81,8%	84,1%
	1,00	Count	3	4	7
		% within CIROBUY	13,6%	18,2%	15,9%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K61 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K61	.00	Count	13	11	24
		% within CIROBUY	59,1%	50,0%	54,5%
	1,00	Count	9	11	20
		% within CIROBUY	40,9%	50,0%	45,5%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K62 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K62	.00	Count	15	15	30
		% within CIROBUY	68,2%	68,2%	68,2%
	1,00	Count	7	7	14
		% within CIROBUY	31,8%	31,8%	31,8%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K63 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K63	.00	Count	18	13	29
		% within CIROBUY	72,7%	59,1%	65,9%
	1,00	Count	6	9	15
		% within CIROBUY	27,3%	40,9%	34,1%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K64 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K64	.00	Count	18	21	40
		% within CIROBUY	88,4%	95,5%	90,9%
	1,00	Count	3	1	4
		% within CIROBUY	13,6%	4,5%	9,1%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K65 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K65	.00	Count	9	10	19
		% within CIROBUY	40,9%	45,5%	43,2%
	1,00	Count	13	12	25
		% within CIROBUY	59,1%	54,5%	56,8%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K66 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K66	.00	Count	20	21	41
		% within CIROBUY	90,9%	95,5%	93,2%
	1,00	Count	2	1	3
		% within CIROBUY	9,1%	4,5%	6,8%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

Table B.18 Crosstabulation-II for CIROBUY (Question 7)

K57 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K57	.00	Count	13	16	29
		% within CIROBUY	59,1%	72,7%	65,9%
	1,00	Count	9	6	15
		% within CIROBUY	40,9%	27,3%	34,1%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K58 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K58	.00	Count	15	14	29
		% within CIROBUY	68,2%	63,6%	65,9%
	1,00	Count	7	8	15
		% within CIROBUY	31,8%	36,4%	34,1%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K59 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K59	.00	Count	13	16	29
		% within CIROBUY	59,1%	72,7%	65,9%
	1,00	Count	9	6	15
		% within CIROBUY	40,9%	27,3%	34,1%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K60 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K60	.00	Count	15	17	32
		% within CIROBUY	68,2%	77,3%	72,7%
	1,00	Count	7	5	12
		% within CIROBUY	31,8%	22,7%	27,3%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K61 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K61	.00	Count	19	17	36
		% within CIROBUY	86,4%	77,3%	81,8%
	1,00	Count	3	5	8
		% within CIROBUY	13,6%	22,7%	18,2%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K62 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K62	.00	Count	13	13	26
		% within CIROBUY	59,1%	59,1%	59,1%
	1,00	Count	9	9	18
		% within CIROBUY	40,9%	40,9%	40,9%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

K63 * CIROBUY Crosstabulation

			CIROBUY		Total
			1	2	
K63	.00	Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%
Total		Count	22	22	44
		% within CIROBUY	100,0%	100,0%	100,0%

Table B.19 Reliability Analysis (Question 8)

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	K64	4,0492	,9734	61,0
2.	K65	3,6066	1,1442	61,0
3.	K66	2,2951	1,4983	61,0
4.	K67	3,0984	1,2070	61,0
5.	K68	2,6557	1,3024	61,0
6.	K69	3,4098	1,3213	61,0
7.	K70	1,5738	1,2036	61,0
8.	K71	2,1967	1,5686	61,0
9.	K72	2,0328	1,3412	61,0
10.	K73	3,2459	1,3742	61,0
11.	K74	2,8197	1,3965	61,0
12.	K75	1,2459	,9601	61,0
13.	K76	1,8033	1,4002	61,0
14.	K77	1,3443	1,6113	61,0
15.	K78	1,6885	1,0884	61,0
16.	K79	2,1311	1,3598	61,0
17.	K80	1,1803	,9400	61,0
18.	K81	1,6230	1,3059	61,0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	42,0000	94,5667	9,7245	18

RELIABILITY ANALYSIS - SCALE (ALPHA)

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
K64	37,9508	93,5142	,0056	,7318
K65	38,3934	90,3093	,1356	,7244
K66	39,7049	93,3448	-,0353	,7460
K67	38,9016	97,5902	-,1879	,7512
K68	39,3443	86,7295	,2532	,7152
K69	38,5902	83,1792	,4000	,7010
K70	40,4262	81,8153	,5191	,6911
K71	39,8033	84,0273	,2809	,7137
K72	39,9672	83,0989	,3954	,7013
K73	38,7541	84,2885	,3325	,7075
K74	39,1803	81,4503	,4430	,6960
K75	40,7541	83,4219	,5829	,6915
K76	40,1967	82,0273	,4171	,6987
K77	40,6557	84,9295	,2371	,7191
K78	40,3115	83,6514	,4887	,6959
K79	39,8689	79,0158	,5668	,6833
K80	40,8197	85,0503	,4979	,6981
K81	40,3770	85,6721	,2974	,7110

Reliability Coefficients

N of Cases = 61,0

N of Items = 18

Alpha = ,7224

Table B.20 Factor Analysis (Question 8)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K64	4,0492	,9734	61
K65	3,6086	1,1442	61
K66	2,2951	1,4983	61
K67	3,0984	1,2070	61
K68	2,6557	1,3024	61
K69	3,4098	1,3213	61
K70	1,6739	1,2038	61
K71	2,1997	1,5686	61
K72	2,0328	1,3412	61
K73	3,2459	1,3742	61
K74	2,6197	1,3965	61
K75	1,2459	,9601	61
K76	1,8033	1,4002	61
K77	1,3443	1,6113	61
K78	1,6886	1,0884	61
K79	2,1311	1,3598	61
K80	1,1803	,9400	61
K81	1,6230	1,3059	61

KMO and Bartlett's Test

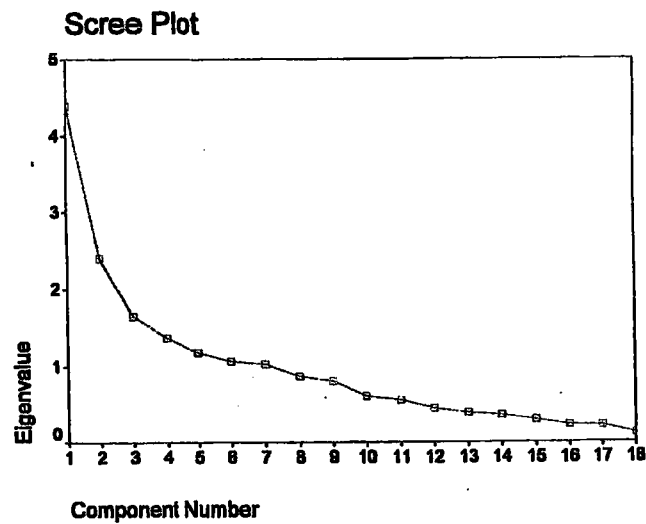
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,697
Bartlett's Test of Sphericity	Approx. Chi-Square df Sig.	377,769 163 ,000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,385	24,414	24,414	2,318	12,878	12,878
2	2,396	13,310	37,725	2,255	12,627	25,405
3	1,848	9,183	46,878	2,185	12,185	37,600
4	1,372	7,620	54,498	2,103	11,684	49,284
5	1,182	6,585	61,083	1,577	8,781	58,045
6	1,071	5,948	67,011	1,348	7,491	65,535
7	1,030	5,723	72,735	1,286	7,189	72,735
8	,873	4,848	77,583			
9	,806	4,480	82,063			
10	,609	3,382	85,445			
11	,557	3,085	88,540			
12	,450	2,489	91,039			
13	,390	2,169	93,208			
14	,358	1,987	95,185			
15	,288	1,555	96,650			
16	,230	1,279	98,128			
17	,220	1,220	99,349			
18	,117	,651	100,000			

Extraction Method: Principal Component Analysis.

Table B.21 Scree Plot and Component Matrix (Question 8)



Component Matrix^a

a. 7 components extracted.

Rotated Component Matrix^a

	Component						
	1	2	3	4	5	6	7
K78	,854	1,562E-02	5,985E-02	,209	-4,521E-02	5,688E-02	-4,232E-02
K75	,670	,218	,322	-4,351E-02	,150	9,277E-02	6,580E-02
K81	,638	,178	1,798E-02	-,515	,287	-1,239E-02	-,114
K77	-9,243E-02	,795	-9,074E-02	-8,407E-02	9,388E-02	,191	,148
K78	,338	,660	,347	-1,356E-02	-,169	-,211	,166
K79	,313	,660	,381	,241	-,109	,104	-8,481E-02
K80	,424	,573	-6,822E-03	-,178	,258	,139	-4,251E-02
K74	-1,983E-02	,219	,839	9,788E-03	,212	4,302E-02	-,171
K73	,178	-8,414E-02	,829	3,584E-03	-6,958E-02	8,787E-02	7,544E-02
K72	,334	7,819E-02	,482	-,108	8,703E-02	,365	3,872E-02
K84	7,029E-02	-,297	-3,888E-02	,780	7,057E-02	4,031E-03	,116
K85	-3,541E-03	,175	-4,250E-02	,840	-2,773E-02	3,182E-02	-,411
K69	2,819E-02	,137	,216	,614	,488	-8,743E-02	-,225
K71	,141	-4,748E-02	,120	5,808E-03	,822	4,058E-02	-3,315E-02
K68	4,880E-03	,163	-,153	,517	,596	-,153	,234
K67	-2,718E-02	-7,919E-02	-9,278E-02	4,058E-02	7,114E-02	-,889	-2,383E-02
K70	,401	,300	,312	,124	,141	,508	-,180
K66	-4,103E-02	,154	-3,388E-02	-4,894E-02	-6,471E-03	-8,458E-03	,927

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Component Transformation Matrix

Component	1	2	3	4	5	6	7
1	,681	,521	,519	,013	,204	,252	-,067
2	-,052	-,120	,030	,889	,403	-,123	-,223
3	,034	,570	-,650	,018	,332	-,281	,428
4	,523	-,489	-,248	-,332	,509	-,150	-,186
5	-,207	-,237	,685	-,102	,331	-,291	,614
6	,493	-,078	,044	,219	-,550	-,617	,135
7	,287	-,286	-,212	,275	-,126	,595	,577

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table B.22 Reliability Analysis (Question 9)

***** Method 1 (space saver) will be used for this analysis *****
 R E L I A B I L I T Y A N A L Y S I S - S C A L E (A L P H A)

		Mean	Std Dev	Cases
1.	K83	4,4098	,7389	61,0
2.	K84	3,8197	1,1904	61,0
3.	K85	3,3279	1,4913	61,0
4.	K86	4,6885	,5336	61,0
5.	K87	4,6230	,7992	61,0
6.	K88	4,1311	1,2312	61,0
7.	K89	3,9672	1,1686	61,0
8.	K90	3,4754	1,3857	61,0
9.	K91	3,1475	1,3764	61,0
10.	K92	2,8197	1,3602	61,0
11.	K93	2,9016	1,4799	61,0
12.	K94	3,5902	1,3950	61,0
13.	K95	3,1639	1,5830	61,0
14.	K96	3,8689	1,3720	61,0
15.	K97	2,0656	1,3400	61,0
16.	K98	2,6885	1,7180	61,0
17.	K99	4,0492	1,2836	61,0

Statistics for	Mean	Variance	Std Dev	N of
SCALE	60,7377	176,1301	13,2714	Variables 17

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
K83	56,3279	170,2574	,2763	,8911
K84	56,9180	162,4432	,4044	,8883
K85	57,4098	151,5792	,6080	,8812
K86	56,0492	169,0809	,4875	,8882
K87	56,1148	168,9699	,3138	,8903
K88	56,6066	159,8760	,4734	,8861
K89	56,7705	161,1131	,4602	,8865
K90	57,2623	147,6301	,7893	,8741
K91	57,5902	148,9792	,7517	,8756
K92	57,9180	151,2098	,6896	,8781
K93	57,8361	155,5393	,4985	,8857
K94	57,1475	152,1945	,6389	,8800
K95	57,5738	152,3486	,5444	,8841
K96	56,8689	150,6158	,7017	,8776
K97	58,6721	166,0240	,2407	,8946
K98	58,0492	147,9142	,6046	,8819
K99	56,6885	154,7514	,6179	,8811

Reliability Coefficients

N of Cases = 61,0

Alpha = ,8901

N of Items = 17

Table B.23 Factor Analysis (Question 9)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K83	4,4098	,7389	61
K84	3,8197	1,1904	61
K85	3,3279	1,4913	61
K86	4,6885	,5336	61
K87	4,6230	,7992	61
K88	4,1311	1,2312	61
K89	3,9672	1,1688	61
K90	3,4754	1,3857	61
K91	3,1475	1,3764	61
K92	2,8197	1,3602	61
K93	2,9016	1,4799	61
K94	3,5902	1,3950	61
K95	3,1639	1,5830	61
K96	3,8689	1,3720	61
K97	2,0666	1,3400	61
K98	2,6885	1,7180	61
K99	4,0492	1,2836	61

KMO and Bartlett's Test

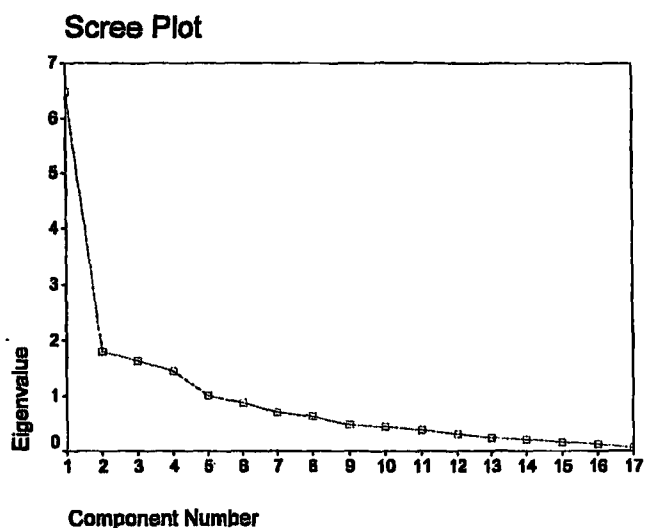
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			,710
Bartlett's Test of Sphericity	Approx. Chi-Square		596,164
	df		136
	Sig.		,000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6,490	38,174	38,174	3,191	18,769	18,769
2	1,810	10,644	48,818	2,784	16,379	35,148
3	1,642	9,658	58,476	2,684	15,789	50,937
4	1,455	8,561	67,037	1,981	11,651	62,588
5	1,008	5,931	72,968	1,765	10,380	72,968
6	,880	5,176	78,144			
7	,705	4,148	82,290			
8	,626	3,685	85,975			
9	,477	2,803	88,779			
10	,438	2,577	91,358			
11	,381	2,241	93,597			
12	,302	1,776	95,372			
13	,242	1,425	96,797			
14	,208	1,222	98,019			
15	,169	,936	98,955			
16	,121	,712	99,667			
17	5,657E-02	,333	100,000			

Extraction Method: Principal Component Analysis.

Table B.24 Scree Plot and Component Matrix (Question 9)



Component Matrix^a

a. 5 components extracted.

Rotated Component Matrix^a

	Component				
	1	2	3	4	5
K89	,898	9,281E-02	-,122	2,387E-02	,171
K99	,873	-2,106E-02	,185	,208	,164
K91	,676	,389	,253	,316	-4,893E-02
K92	,614	,339	,346	,167	2,440E-02
K87	,193	,826	-,251	-1,168E-02	,117
K88	3,651E-02	,807	9,078E-02	,246	7,490E-02
K96	,270	,765	,403	,155	-5,952E-03
K97	2,353E-03	-,267	,774	,153	-,102
K95	,204	,190	,740	2,982E-02	,147
K90	,507	,154	,599	,196	,399
K94	2,493E-02	,625	,570	,308	,152
K93	,135	,287	,389	,310	,200
K86	6,118E-02	,192	3,492E-02	,777	,332
K98	,381	,121	,228	,739	-3,786E-02
K85	,431	,162	,316	,505	-3,503E-02
K83	9,873E-02	-1,021E-02	-9,310E-02	,257	,853
K84	,131	,175	,291	-5,343E-02	,776

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3	4	5
1	,572	,468	,485	,419	,253
2	-,144	,802	-,574	-,078	,029
3	-,735	,303	,593	,072	-,107
4	-,270	-,146	-,098	,072	,944
5	-,188	-,161	-,306	,899	-,162

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table B.25 Reliability Analysis (Question 10)

***** Method 1 (space saver) will be used for this analysis *****
 RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	K101	3,2459	1,1924	61,0
2.	K102	3,4262	1,1613	61,0
3.	K103	3,7213	1,2797	61,0
4.	K104	3,2295	1,3465	61,0
5.	K105	2,8852	1,5395	61,0
6.	K106	3,3115	1,4553	61,0
7.	K107	3,1311	1,5218	61,0
8.	K108	3,1803	1,4319	61,0
9.	K109	2,6066	1,4175	61,0
10.	K110	2,8525	1,4701	61,0
11.	K111	3,0492	1,6065	61,0
12.	K112	3,4262	1,6069	61,0

Statistics for	Mean	Variance	Std Dev	N of Variables
SCALE	38,0656	182,3623	13,5042	12

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Alpha if Item Deleted
K101	34,8197	163,1169	,5852	,9450
K102	34,6393	159,6011	,7297	,9411
K103	34,3443	157,6962	,7165	,9412
K104	34,8361	152,1060	,8564	,9366
K105	35,1803	153,0836	,7064	,9416
K106	34,7541	150,2219	,8416	,9368
K107	34,9344	148,8290	,8408	,9367
K108	34,8852	153,4366	,7576	,9397
K109	35,4590	157,5525	,6407	,9436
K110	35,2131	153,5705	,7309	,9406
K111	35,0164	151,3497	,7193	,9414
K112	34,6393	147,4678	,8280	,9372

Reliability Coefficients

N of Cases = 61,0

N of Items = 12

Alpha = ,9449

Table B.26 Factor Analysis (Question 10)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K101	3,2459	1,1924	61
K102	3,4262	1,1613	61
K103	3,7213	1,2797	61
K104	3,2285	1,3465	61
K105	2,8852	1,5395	61
K106	3,3115	1,4563	61
K107	3,1311	1,5218	61
K108	3,1803	1,4319	61
K109	2,8068	1,4175	61
K110	2,8526	1,4701	61
K111	3,0492	1,6065	61
K112	3,4262	1,6069	61

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,910
Bartlett's Test of Sphericity	Approx. Chi-Square	559,834
	df	66
	Sig.	,000

Total Variance Explained

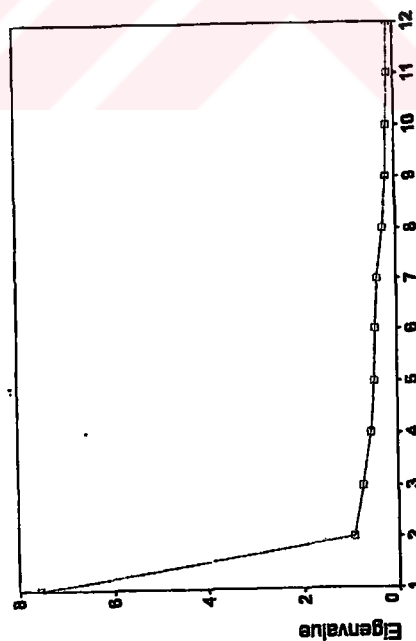
Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7,549	62,911	62,911
2	,926	7,714	70,625
3	,728	6,046	76,671
4	,684	4,702	81,373
5	,477	3,976	85,349
6	,455	3,789	89,137
7	,396	3,299	92,437
8	,281	2,343	94,780
9	,188	1,565	96,345
10	,178	1,488	97,832
11	,133	1,109	98,941
12	,127	1,059	100,000

Extraction Method: Principal Component Analysis.

Table B.27 Scree Plot and Component Matrix (Question 10)

X2	K101	K102	K103	K104	K105	K106	K107	K108	K109	K110	K111	K112
Mean	3,4211	3,6789	3,9474	3,3947	2,8421	3,6000	3,2895	3,4474	3,0528	3,1053	3,1878	3,5283
N	38	38	38	38	38	38	38	38	38	38	38	38
Mean	2,5000	3,2500	2,3750	2,2500	2,5000	2,1250	2,3750	2,3750	1,2500	2,0000	2,5000	2,8750
N	8	8	8	8	8	8	8	8	8	8	8	8
Mean	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000
N	1	1	1	1	1	1	1	1	1	1	1	1
Mean	3,5000	3,2500	3,7500	3,7500	3,0000	3,7500	3,2500	3,0000	2,5000	2,7500	2,7500	3,7500
N	4	4	4	4	4	4	4	4	4	4	4	4
Mean	3,4000	3,4000	4,3000	3,5000	3,5000	3,7000	3,4000	3,2000	2,3000	2,9000	3,5000	3,7000
N	10	10	10	10	10	10	10	10	10	10	10	10
Mean	3,2459	3,4262	3,7213	3,2285	2,8852	3,3115	3,1311	3,1803	2,6056	2,8525	3,0482	3,4262
N	61	61	61	61	61	61	61	61	61	61	61	61

Scree Plot



Component Number

Component Matrix^a

a. 1 components extracted.

	Complete Linkage	N	Mean	Std. Deviation	Std. Error Mean
K101	1	31	3,3548	1,2530	,2250
	2	30	3,1333	1,1388	,2075
K102	1	31	3,4839	1,0605	,1805
	2	30	3,3857	1,2726	,2323
K103	1	31	3,7742	1,2835	,2305
	2	30	3,6567	1,2954	,2365
K104	1	31	3,2803	1,2660	,2328
	2	30	3,1687	1,4182	,2585
K105	1	31	3,0000	1,4378	,2582
	2	30	2,7667	1,6543	,3020
K106	1	31	3,4516	1,2807	,2284
	2	30	3,1667	1,6418	,2987
K107	1	31	3,2268	1,4074	,2628
	2	30	3,0333	1,6501	,3013
K108	1	31	3,2903	1,3464	,2418
	2	30	3,0567	1,5298	,2783
K109	1	31	2,6774	1,3010	,2337
	2	30	2,5333	1,5477	,2826
K110	1	31	3,0968	1,3504	,2425
	2	30	2,8000	1,5689	,2851
K111	1	31	2,9355	1,6520	,2967
	2	30	3,1667	1,5775	,2880
K112	1	31	3,8774	1,4684	,2639
	2	30	3,1667	1,7237	,3147

Table B.28 Independent Samples Test (Question 10)

	Levene's Test for Equality of Variances		t-test for Equality of Means				t-test for Equality of Means			t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	Lower	Upper	
K101 Equal variances assumed Equal variances not assumed	,672	,354	,722	59	,473	,2215	,3066	-,3820	,8350	-,3820	,8350	
K102 Equal variances assumed Equal variances not assumed	1,028	,315	,724	58,760	,472	,2215	,3061	-,3911	,8341	-,3911	,8341	
K103 Equal variances assumed Equal variances not assumed	,020	,888	,391	59	,697	,1172	,2995	-,4822	,7166	-,4822	,7166	
K104 Equal variances assumed Equal variances not assumed	,318	,575	,366	58,437	,698	,1172	,3004	-,4846	,7180	-,4846	,7180	
K105 Equal variances assumed Equal variances not assumed	1,860	,178	,688	59	,746	,1075	,3302	-,6632	,7883	-,6632	,7883	
K106 Equal variances assumed Equal variances not assumed	2,303	,134	,762	58,903	,746	,1075	,3303	-,6634	,7884	-,6634	,7884	
K107 Equal variances assumed Equal variances not assumed	,823	,368	,491	59	,625	,1925	,3864	-,6689	1,0266	-,6689	1,0266	
K108 Equal variances assumed Equal variances not assumed	,126	,724	,607	57,295	,626	,1925	,3974	-,6623	1,0289	-,6623	1,0289	
K109 Equal variances assumed Equal variances not assumed	,972	,328	,605	59	,448	,2849	,3740	-,4635	1,0334	-,4635	1,0334	
K110 Equal variances assumed Equal variances not assumed	2,548	,116	1,328	54,412	,451	,2849	,3766	-,4681	1,0379	-,4681	1,0379	
K111 Equal variances assumed Equal variances not assumed	,002	,981	1,325	59	,625	,1925	,3822	-,6624	,9773	-,6624	,9773	
K112 Equal variances assumed Equal variances not assumed	2,082	,163	1,247	58,928	,626	,1925	,3933	-,6660	,9800	-,6660	,9800	
			1,328	59	,548	,2237	,3667	-,5140	,9613	-,5140	,9613	
			1,325	57,827	,547	,2237	,3694	-,5160	,9633	-,5160	,9633	
			1,325	59	,685	,1441	,3656	-,5676	,8767	-,5676	,8767	
			1,325	58,625	,686	,1441	,3667	-,5693	,8784	-,5693	,8784	
			1,328	59	,189	,4888	,3741	-,2519	1,2454	-,2519	1,2454	
			1,325	57,137	,191	,4888	,3751	-,2542	1,2478	-,2542	1,2478	
			1,325	59	,578	-,2312	,4136	-,1,0692	,5988	-,1,0692	,5988	
			1,325	58,980	,578	-,2312	,4135	-,1,0586	,5962	-,1,0586	,5962	
			1,247	59	,217	,5108	,4086	-,3089	1,3304	-,3089	1,3304	
			1,244	56,919	,218	,5108	,4107	-,3117	1,3332	-,3117	1,3332	

Table B.29 Group Statistics for CALGROUP (Question 10)

Group Statistics

	CALGROUP	N	Mean	Std. Deviation	Std. Error Mean
K101	0	30	3,0000	1,2034	,2197
	2	29	3,5517	1,1522	,2140
K102	0	30	3,2000	1,2972	,2368
	2	29	3,5862	,9826	,1825
K103	0	30	3,7333	1,5071	,2752
	2	29	3,6897	1,0387	,1929
K104	0	30	2,9333	1,4126	,2579
	2	29	3,5172	1,2136	,2254
K105	0	30	2,5667	1,6955	,3096
	2	29	3,1379	1,3555	,2517
K106	0	30	3,2000	1,4716	,2687
	2	29	3,3793	1,4739	,2737
K107	0	30	2,9333	1,4606	,2667
	2	29	3,2759	1,6013	,2973
K108	0	30	3,0667	1,5071	,2752
	2	29	3,2414	1,3798	,2562
K109	0	30	2,3000	1,2905	,2356
	2	29	2,8966	1,4478	,2688
K110	0	30	2,5000	1,4563	,2659
	2	29	3,1379	1,4571	,2706
K111	0	30	2,5667	1,6121	,2943
	2	29	3,4138	1,4764	,2742
K112	0	30	3,1000	1,5391	,2810
	2	29	3,6552	1,6535	,3070

Table B.30 Independent Samples Test for CALGROUP (Question 10)

	Levene's Test for Equality of Variances		t-test for Equality of Means				t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
K101 Equal variances assumed	.046	.833	-1,788	57	.078	-.6617	.3068	-1,1663	8,286E-02
Equal variances not assumed			-1,789	56,985	.077	-.6617	.3067	-1,1668	6,240E-02
K102 Equal variances assumed	1,679	.214	-1,288	57	.204	-.3862	.3004	-.9877	.2153
Equal variances not assumed			-1,282	53,855	.202	-.3862	.2880	-.9856	.2132
K103 Equal variances assumed	2,773	.101	.128	57	.898	4,368E-02	.3381	-.6333	.7207
Equal variances not assumed			.130	51,588	.887	4,368E-02	.3360	-.6307	.7181
K104 Equal variances assumed	.164	.686	-1,700	57	.094	-.6839	.3434	-1,2715	.1037
Equal variances not assumed			-1,705	56,237	.094	-.6839	.3425	-1,2689	.1021
K105 Equal variances assumed	4,084	.048	-1,426	57	.159	-.5713	.4005	-1,3732	.2307
Equal variances not assumed			-1,432	55,068	.158	-.5713	.3880	-1,3708	.2283
K106 Equal variances assumed	.038	.844	-.468	57	.642	-.1783	.3535	-.9473	.5887
Equal variances not assumed			-.468	56,926	.642	-.1783	.3535	-.9473	.5887
K107 Equal variances assumed	.595	.444	-.859	57	.394	-.3425	.3888	-1,1411	.4550
Equal variances not assumed			-.858	56,109	.395	-.3425	.3894	-1,1426	.4575
K108 Equal variances assumed	.694	.418	-.484	57	.644	-.1747	.3786	-.9287	.5783
Equal variances not assumed			-.485	56,837	.644	-.1747	.3780	-.9278	.5782
K109 Equal variances assumed	.168	.683	-1,672	57	.100	-.5866	.3568	-1,3110	.1179
Equal variances not assumed			-1,669	56,767	.101	-.5866	.3576	-1,3127	.1186
K110 Equal variances assumed	.373	.544	-1,682	57	.098	-.6379	.3783	-1,3976	.1217
Equal variances not assumed			-1,682	56,930	.098	-.6379	.3783	-1,3978	.1217
K111 Equal variances assumed	.902	.346	-2,103	57	.040	-.8471	.4028	-1,6538	-4,04E-02
Equal variances not assumed			-2,106	56,838	.040	-.8471	.4022	-1,6528	-4,16E-02
K112 Equal variances assumed	.673	.415	-1,335	57	.187	-.6652	.4167	-1,3878	.2773
Equal variances not assumed			-1,334	56,367	.188	-.6652	.4162	-1,3888	.2786

Table B.31 Group Statistics for CIROBUY (Question 10)

	CIROBUY	N	Mean	Std. Deviation	Std. Error Mean
K101	1	22	3,3182	1,2492	,2663
	2	22	3,1818	,9069	,1934
K102	1	22	3,3636	1,1358	,2422
	2	22	3,5455	,9117	,1944
K103	1	22	4,1364	1,1253	,2399
	2	22	3,7273	,7673	,1636
K104	1	22	3,1818	1,1396	,2430
	2	22	3,4545	1,0568	,2253
K105	1	22	3,3182	1,6442	,3505
	2	22	2,8182	1,2587	,2684
K106	1	22	3,6818	1,2492	,2663
	2	22	3,3636	1,3644	,2909
K107	1	22	3,5000	1,3363	,2849
	2	22	3,3182	1,4272	,3043
K108	1	22	3,6364	1,2168	,2594
	2	22	3,1818	1,2960	,2763
K109	1	22	2,8182	1,3675	,2916
	2	22	2,5455	1,2622	,2691
K110	1	22	2,9545	1,3620	,2904
	2	22	2,9091	1,4111	,3009
K111	1	22	3,1818	1,5927	,3396
	2	22	2,8636	1,3903	,2964
K112	1	22	3,5455	1,5346	,3272
	2	22	3,4545	1,5653	,3337

Table B.32 Independent Samples Test for CIROBUY (Question 10)

	Levene's Test for Equality of Variances		t-test for Equality of Means					t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
K101	Equal variances assumed	3,688	,065	,414	42	,681	,1384	,3281	-.5278	,8006
	Equal variances not assumed			,414	38,324	,681	,1384	,3281	-.5297	,8026
K102	Equal variances assumed	,161	,681	-.688	42	,681	-,1818	,3106	-.8086	,4448
	Equal variances not assumed			-.688	40,122	,681	-,1818	,3105	-.8093	,4457
K103	Equal variances assumed	,178	,676	1,409	42	,165	,4091	,2804	-,1769	,8861
	Equal variances not assumed			1,409	37,057	,167	,4091	,2804	-,1782	,8874
K104	Equal variances assumed	,027	,871	-.823	42	,415	-,2727	,3314	-.9414	,3890
	Equal variances not assumed			-.823	41,763	,415	-,2727	,3314	-.9416	,3891
K105	Equal variances assumed	1,957	,169	1,133	42	,264	,5000	,4416	-.3809	1,3909
	Equal variances not assumed			1,133	39,322	,264	,5000	,4415	-.3927	1,3827
K106	Equal variances assumed	,004	,947	,807	42	,424	,3182	,3944	-.4777	1,1141
	Equal variances not assumed			,807	41,678	,424	,3182	,3944	-.4779	1,1143
K107	Equal variances assumed	,013	,911	,436	42	,665	,1818	,4188	-.6684	1,0230
	Equal variances not assumed			,438	41,820	,665	,1818	,4188	-.6695	1,0231
K108	Equal variances assumed	,001	,974	1,189	42	,237	,4545	,3780	-,3103	1,2194
	Equal variances not assumed			1,189	41,834	,237	,4545	,3780	-,3104	1,2195
K109	Equal variances assumed	,820	,370	,687	42	,486	,2727	,3968	-.6280	1,0734
	Equal variances not assumed			,687	41,733	,486	,2727	,3968	-.6281	1,0736
K110	Equal variances assumed	,128	,724	,109	42	,914	4,545E-02	,4181	-,7984	,8893
	Equal variances not assumed			,109	41,947	,914	4,545E-02	,4181	-,7984	,8893
K111	Equal variances assumed	,312	,578	,706	42	,484	,3182	,4607	-,6915	1,2278
	Equal variances not assumed			,706	41,247	,484	,3182	,4607	-,6918	1,2283
K112	Equal variances assumed	,165	,686	,195	42	,847	9,091E-02	,4674	-.8622	1,0341
	Equal variances not assumed			,195	41,984	,847	9,091E-02	,4674	-,8623	1,0341

Table B.33 Correlations-I (Question 10)

K101	Pearson Correlation	K102	K103	K104	K105	K106	K107	K108	K109	K110	K111	K112
	1,000	,561**	,450**	,577**	,408**	,503**	,533**	,393**	,374**	,468**	,446**	,510**
		,000	,000	,000	,001	,000	,000	,002	,003	,000	,000	,000
		61	61	61	61	61	61	61	61	61	61	61
K102	Pearson Correlation	1,000	,808**	,746**	,550**	,581**	,809**	,524**	,407**	,526**	,578**	,696**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,001	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K103	Pearson Correlation	,450**	1,000	,657**	,642**	,701**	,584**	,555**	,554**	,527**	,558**	,545**
	Sig. (2-tailed)			,000	,000	,000	,000	,000	,000	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K104	Pearson Correlation	,577**	,657**	1,000	,916**	,711**	,733**	,652**	,616**	,674**	,634**	,776**
	Sig. (2-tailed)				,000	,000	,000	,000	,000	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K105	Pearson Correlation	,408**	,542**	,816**	1,000	,634**	,633**	,493**	,384**	,478**	,798**	,608**
	Sig. (2-tailed)		,000	,000		,000	,000	,000	,002	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K106	Pearson Correlation	,503**	,701**	,711**	,634**	1,000	,817**	,716**	,654**	,655**	,571**	,762**
	Sig. (2-tailed)		,000	,000	,000		,000	,000	,000	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K107	Pearson Correlation	,633**	,684**	,733**	,633**	,817**	1,000	,738**	,586**	,587**	,597**	,785**
	Sig. (2-tailed)		,000	,000	,000	,000		,000	,000	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K108	Pearson Correlation	,393**	,524**	,652**	,493**	,716**	,738**	1,000	,701**	,654**	,611**	,632**
	Sig. (2-tailed)		,000	,000	,000	,000	,000		,000	,000	,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K109	Pearson Correlation	,374**	,526**	,674**	,384**	,581**	,586**	,701**	1,000	,624**	,397**	,507**
	Sig. (2-tailed)		,000	,000	,002	,000	,000	,000		,000	,002	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K110	Pearson Correlation	,468**	,527**	,674**	,478**	,653**	,587**	,654**	,624**	1,000	,688**	,704**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,000		,000	,000
	N	61	61	61	61	61	61	61	61	61	61	61
K111	Pearson Correlation	,446**	,558**	,634**	,798**	,571**	,597**	,611**	,397**	,688**	1,000	,612**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,002	,000		,000
	N	61	61	61	61	61	61	61	61	61	61	61
K112	Pearson Correlation	,510**	,696**	,776**	,608**	,762**	,785**	,632**	,507**	,704**	,612**	1,000
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,000	,000	,000	
	N	61	61	61	61	61	61	61	61	61	61	61

**. Correlation is significant at the 0.01 level (2-tailed).

Table B.34 Correlations-II (Question 10)

Spearman's rho	K101	K102	K103	K104	K105	K106	K107	K108	K108	K110	K111	K112
K101	Correlation Coefficient Sig. (2-tailed) N	.408** .001 61	.304** .017 61	.494** .000 61	.364** .004 61	.450** .000 61	.506** .000 61	.276** .031 61	.306** .016 61	.365** .002 61	.382** .002 61	.430** .001 61
K102	Correlation Coefficient Sig. (2-tailed) N	.408** .001 61	.458** .000 61	.684** .000 61	.482** .000 61	.513** .000 61	.582** .000 61	.467** .000 61	.372** .003 61	.420** .001 61	.638** .000 61	.608** .000 61
K103	Correlation Coefficient Sig. (2-tailed) N	.304** .017 61	.458** .000 61	.449** .000 61	.463** .000 61	.570** .000 61	.422** .001 61	.342** .007 61	.425** .001 61	.336** .008 61	.488** .000 61	.376** .003 61
K104	Correlation Coefficient Sig. (2-tailed) N	.494** .000 61	.684** .000 61	.449** .000 61	.542** .000 61	.607** .000 61	.657** .000 61	.575** .000 61	.588** .000 61	.605** .000 61	.532** .000 61	.671** .000 61
K105	Correlation Coefficient Sig. (2-tailed) N	.364** .004 61	.482** .000 61	.542** .000 61	1.000 .000 61	.623** .000 61	.585** .000 61	.424** .001 61	.319** .012 61	.419** .001 61	.788** .000 61	.585** .000 61
K106	Correlation Coefficient Sig. (2-tailed) N	.450** .000 61	.513** .000 61	.607** .000 61	.628** .000 61	1.000 .000 61	.701** .000 61	.543** .000 61	.472** .000 61	.481** .000 61	.544** .000 61	.661** .000 61
K107	Correlation Coefficient Sig. (2-tailed) N	.506** .000 61	.582** .000 61	.657** .000 61	.696** .000 61	.701** .000 61	1.000 .000 61	.623** .000 61	.640** .000 61	.464** .000 61	.514** .000 61	.698** .000 61
K108	Correlation Coefficient Sig. (2-tailed) N	.276** .031 61	.467** .000 61	.342** .007 61	.424** .001 61	.543** .000 61	.623** .000 61	1.000 .000 61	.675** .000 61	.483** .000 61	.357** .005 61	.458** .000 61
K109	Correlation Coefficient Sig. (2-tailed) N	.306** .016 61	.425** .001 61	.425** .001 61	.319** .012 61	.472** .000 61	.540** .000 61	.575** .000 61	1.000 .000 61	.408** .001 61	.343** .007 61	.404** .001 61
K110	Correlation Coefficient Sig. (2-tailed) N	.385** .002 61	.420** .001 61	.336** .008 61	.419** .001 61	.481** .000 61	.464** .000 61	.483** .000 61	.408** .001 61	1.000 .000 61	.487** .000 61	.607** .000 61
K111	Correlation Coefficient Sig. (2-tailed) N	.382** .002 61	.530** .000 61	.488** .000 61	.788** .000 61	.544** .000 61	.514** .000 61	.357** .005 61	.343** .007 61	.487** .000 61	1.000 .000 61	.588** .000 61
K112	Correlation Coefficient Sig. (2-tailed) N	.430** .001 61	.608** .000 61	.376** .003 61	.685** .000 61	.661** .000 61	.888** .000 61	.458** .000 61	.404** .001 61	.607** .000 61	.588** .000 61	1.000 .000 61

** Correlation is significant at the .01 level (2-tailed).

* Correlation is significant at the .05 level (2-tailed).

		X2				Total
		1,00	2,00	3,00	8,00	
K104	Count	1	2	1		4
	% within X2	2,6%	25,0%	100,0%		6,6%
1,00	Count	2	1			3
	% within X2	6,3%	12,5%			4,8%
2,00	Count	5	1		1	7
	% within X2	13,2%	12,5%		10,0%	11,5%
3,00	Count	10	2		4	17
	% within X2	26,3%	25,0%		40,0%	27,9%
4,00	Count	13	1		3	21
	% within X2	34,2%	12,5%		75,0%	34,4%
5,00	Count	7	1		1	9
	% within X2	18,4%	12,5%		10,0%	14,8%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K105 • X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K105	Count	4	2	1		7
	% within X2	10,5%	25,0%	100,0%		11,5%
1,00	Count	2	1		2	6
	% within X2	5,3%	12,5%		20,0%	9,8%
2,00	Count	6				6
	% within X2	15,8%				9,8%
3,00	Count	14	2		2	19
	% within X2	36,8%	25,0%		20,0%	31,1%
4,00	Count	8	2		2	14
	% within X2	21,1%	25,0%		20,0%	23,0%
5,00	Count	4	1		4	9
	% within X2	10,5%	12,5%		40,0%	14,8%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K106 • X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K106	Count	2	3	1		6
	% within X2	5,3%	37,5%	100,0%		9,8%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	4			1	5
	% within X2	10,5%			10,0%	8,2%
3,00	Count	10	3		4	18
	% within X2	26,3%	37,5%		40,0%	29,5%
4,00	Count	11	2		2	18
	% within X2	28,9%	25,0%		20,0%	29,5%
5,00	Count	10			3	13
	% within X2	26,3%			30,0%	21,3%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K102 • X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K102	Count	1	1	1		3
	% within X2	2,6%	12,5%	100,0%		4,8%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	3			1	5
	% within X2	7,9%			10,0%	8,2%
3,00	Count	8	2		5	17
	% within X2	23,7%	25,0%		50,0%	27,9%
4,00	Count	18	5		3	28
	% within X2	47,4%	62,5%		30,0%	46,9%
5,00	Count	6			1	7
	% within X2	16,8%			10,0%	11,5%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K103 • X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K103	Count	1	2	1		4
	% within X2	2,6%	25,0%	100,0%		6,6%
2,00	Count	2	1			3
	% within X2	6,3%	12,5%			4,8%
3,00	Count	4	3		2	11
	% within X2	10,5%	37,5%		20,0%	18,0%
4,00	Count	21	2		3	27
	% within X2	55,3%	25,0%		30,0%	44,3%
5,00	Count	10			5	16
	% within X2	26,3%			50,0%	26,2%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K110	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	2	3	1			6
1,00		Count	6,3%	37,5%	100,0%			9,8%
		% within X2	2	1		1	2	6
2,00		Count	6,3%	12,5%		25,0%	20,0%	9,8%
		% within X2	8					8
3,00		Count	21,1%					13,1%
		% within X2	10	2		2	6	20
4,00		Count	28,3%	25,0%		50,0%	60,0%	32,8%
		% within X2	10	1		1	1	13
5,00		Count	28,3%	12,5%		25,0%	10,0%	21,3%
		% within X2	6	1			1	8
Total		Count	15,8%	12,5%			10,0%	13,1%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K111 * X2 Crosstabulation

K111	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	4	3	1	1		9
1,00		Count	10,5%	37,5%	100,0%	25,0%		14,8%
		% within X2	1				1	2
2,00		Count	2,6%				10,0%	3,3%
		% within X2	4				1	5
3,00		Count	10,5%				10,0%	8,2%
		% within X2	13	1		1	2	17
4,00		Count	34,2%	12,5%		25,0%	20,0%	27,9%
		% within X2	8	3		2	4	17
5,00		Count	21,1%	37,5%		50,0%	40,0%	27,9%
		% within X2	8	1			2	11
Total		Count	21,1%	12,5%		20,0%	20,0%	18,0%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K112 * X2 Crosstabulation

K112	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	3	3	1			7
1,00		Count	7,9%	37,5%	100,0%			11,5%
		% within X2					1	1
2,00		Count					10,0%	1,6%
		% within X2	6					6
3,00		Count	15,8%					9,8%
		% within X2	7			1	3	11
4,00		Count	18,4%			25,0%	30,0%	18,0%
		% within X2	9	2		3	3	17
5,00		Count	23,7%	25,0%		75,0%	30,0%	27,9%
		% within X2	13	3		3	3	19
Total		Count	34,2%	37,5%		30,0%	30,0%	31,1%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K107	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	2	3	1			6
1,00		Count	5,3%	37,5%	100,0%			8,8%
		% within X2	4					4
2,00		Count	10,5%					6,6%
		% within X2	3			1	2	6
3,00		Count	7,9%			25,0%	20,0%	9,8%
		% within X2	9	2		2	4	17
4,00		Count	23,7%	25,0%		60,0%	40,0%	27,9%
		% within X2	12	2			2	16
5,00		Count	31,6%	25,0%			20,0%	28,2%
		% within X2	8	1		1	2	12
Total		Count	21,1%	12,5%		25,0%	20,0%	19,7%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K108 * X2 Crosstabulation

K108	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	2	3	1			6
1,00		Count	5,3%	37,5%	100,0%			8,8%
		% within X2					2	2
2,00		Count					20,0%	3,3%
		% within X2	3			2	1	6
3,00		Count	7,9%			60,0%	10,0%	8,8%
		% within X2	13	2			2	17
4,00		Count	34,2%	25,0%		20,0%	30,0%	27,9%
		% within X2	14	2		2	3	21
5,00		Count	38,8%	25,0%		50,0%	30,0%	34,4%
		% within X2	6	1			2	9
Total		Count	15,8%	12,5%		20,0%	20,0%	14,8%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K109 * X2 Crosstabulation

K109	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	2	3	1			6
1,00		Count	5,3%	37,5%	100,0%			8,8%
		% within X2	2	2			4	8
2,00		Count	5,3%	25,0%				13,1%
		% within X2	7	1		3	2	13
3,00		Count	18,4%	12,5%		75,0%	20,0%	21,3%
		% within X2	12	2			1	15
4,00		Count	31,6%	25,0%			10,0%	24,6%
		% within X2	11			1	3	15
5,00		Count	28,8%			25,0%	30,0%	24,6%
		% within X2	4					4
Total		Count	10,5%					6,6%
		% within X2	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.37 Factor Analysis & Scree Plot (Question 11A)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K114	3,8625	1,2381	61
K115	3,7541	1,0748	61
K116	3,8088	1,2888	61
K117	3,5082	1,1920	61
K118	3,5410	1,0735	61
K119	3,3607	1,2115	61

KMO and Bartlett's Test

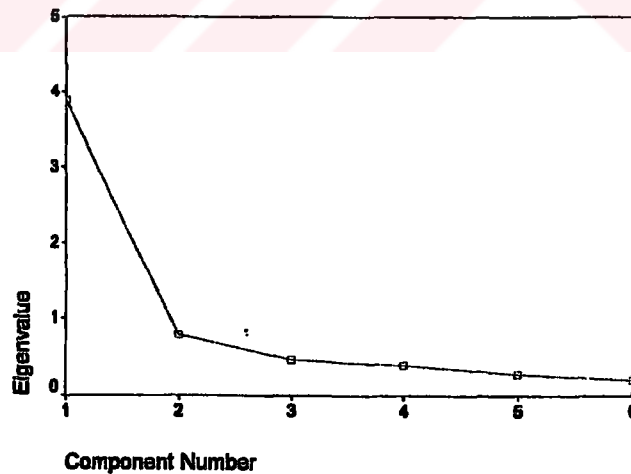
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,845
Bartlett's Test of Sphericity	Approx. Chi-Square	200,068
	df	16
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	3,888	84,803	84,803
2	,788	13,107	77,910
3	,459	7,658	85,568
4	,380	6,499	92,068
5	,277	4,613	98,679
6	,199	3,321	100,000

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

		X2				Total
		1,00	2,00	3,00	8,00	
K117	Count	1	1			2
	% within X2	2,6%	12,5%			3,3%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	4	2		1	8
	% within X2	10,5%	25,0%		10,0%	13,1%
3,00	Count	8	2	1	2	15
	% within X2	23,7%	25,0%	100,0%	20,0%	24,6%
4,00	Count	13	3	1	6	23
	% within X2	34,2%	37,5%		60,0%	37,7%
5,00	Count	10			1	12
	% within X2	26,3%			10,0%	18,7%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K118 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K118	Count	3				3
	% within X2	7,9%				4,9%
2,00	Count	3	2		1	6
	% within X2	7,9%	25,0%		25,0%	8,8%
3,00	Count	11	3	1	3	19
	% within X2	28,9%	37,5%	100,0%	75,0%	31,1%
4,00	Count	12	3		6	21
	% within X2	31,6%	37,5%		60,0%	34,4%
5,00	Count	8			3	12
	% within X2	23,7%			30,0%	19,7%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K119 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K119	Count	1	1			2
	% within X2	2,6%	12,5%			3,3%
1,00	Count	3				3
	% within X2	7,9%				4,9%
2,00	Count	2	3		1	6
	% within X2	5,3%	37,5%		25,0%	9,8%
3,00	Count	14		1	3	20
	% within X2	36,8%		100,0%	30,0%	32,8%
4,00	Count	11	3		5	20
	% within X2	28,9%	37,5%		50,0%	32,8%
5,00	Count	7	1		2	10
	% within X2	18,4%	12,5%		20,0%	16,4%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

		X2				Total
		1,00	2,00	3,00	8,00	
K114	Count	2			1	3
	% within X2	5,3%			10,0%	4,9%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	1	1		2	4
	% within X2	2,6%	12,5%		20,0%	13,1%
3,00	Count	6	1	2	8	15
	% within X2	15,8%	12,5%	60,0%	80,0%	24,6%
4,00	Count	18	3	1	3	27
	% within X2	47,4%	37,5%	100,0%	30,0%	44,3%
5,00	Count	10	3		6	19
	% within X2	26,3%	37,5%		60,0%	31,1%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K116 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K116	Count	1				1
	% within X2	2,6%				1,6%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	3	1		1	5
	% within X2	7,9%	12,5%		25,0%	8,2%
3,00	Count	10	1		1	13
	% within X2	26,3%	12,5%		10,0%	21,3%
4,00	Count	13	5	1	5	25
	% within X2	34,2%	62,5%	100,0%	50,0%	42,6%
5,00	Count	10	1		4	16
	% within X2	26,3%	12,5%		40,0%	24,6%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K118 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K118	Count	2				2
	% within X2	5,3%				3,3%
1,00	Count	3				3
	% within X2	7,9%				4,9%
2,00	Count	3	1		1	5
	% within X2	7,9%	12,5%		25,0%	8,2%
3,00	Count	6	1	1	2	12
	% within X2	15,8%	12,5%	100,0%	20,0%	19,7%
4,00	Count	13	5	1	5	24
	% within X2	34,2%	62,5%	25,0%	50,0%	39,3%
5,00	Count	11	1		3	16
	% within X2	28,9%	12,5%		30,0%	24,6%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.39 Means (Question 11A)

X2		K114	K115	K116	K117	K118	K119
1,00	Mean	3,7632	3,6579	3,5263	3,6316✓	3,5526✓	3,3684✓
	N	38	38	38	38	38	38
2,00	Mean	4,0000✓	3,7500✓	3,7500✓	2,7500✓	3,1250	2,8750
	N	8	8	8	8	8	8
3,00	Mean	4,0000✓	4,0000✓	3,0000	3,0000	3,0000	3,0000
	N	1	1	1	1	1	1
7,00	Mean	3,5000	3,2500	3,0000	3,5000✓	2,7500	3,0000
	N	4	4	4	4	4	4
8,00	Mean	4,2000✓	4,3000✓	4,1000✓	3,7000✓	4,2000✓	3,9000✓
	N	10	10	10	10	10	10
Total	Mean	3,8525	3,7541	3,6066	3,5082	3,5410	3,3607
	N	61	61	61	61	61	61

CALGROUP		K114	K115	K116	K117	K118	K119
1	Mean	3,8333	3,8000	3,7000	3,6333	3,5333	3,5000
	N	30	30	30	30	30	30
2	Mean	3,8276	3,6552	3,5172	3,3793	3,5172	3,2069
	N	29	29	29	29	29	29
Total	Mean	3,8305	3,7288	3,6102	3,5085	3,5254	3,3559
	N	59	59	59	59	59	59

CIROBUY		K114	K115	K116	K117	K118	K119
1	Mean	4,3636	3,9545	3,7727	3,9091	3,8182	3,6364
	N	22	22	22	22	22	22
2	Mean	3,4545	3,5455	3,5000	3,1818	3,3182	3,0909
	N	22	22	22	22	22	22
Total	Mean	3,9091	3,7500	3,6364	3,5455	3,5682	3,3636
	N	44	44	44	44	44	44

Table B.40 Factor Analysis (Question 11B)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K120	3,5082	1,1199	61
K121	3,3115	1,0415	61
K122	2,6393	1,3420	61
K123	2,9836	1,1618	61
K124	2,9836	1,2973	61
K125	3,2787	1,2400	61
K126	3,3279	1,2345	61
K127	3,4918	1,2332	61
K128	3,4262	1,2578	61
K129	3,2623	1,2234	61

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,849
Bartlett's Test of Sphericity	Approx. Chi-Square	429,246
	df	45
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,733	57,331	57,331	5,137	51,374	51,374
2	1,323	13,226	70,557	1,918	19,184	70,557
3	,744	7,442	77,999			
4	,654	6,537	84,536			
5	,509	5,088	89,624			
6	,309	3,090	92,713			
7	,295	2,950	95,663			
8	,179	1,787	97,449			
9	,163	1,631	99,080			
10	9,197E-02	,920	100,000			

Extraction Method: Principal Component Analysis.

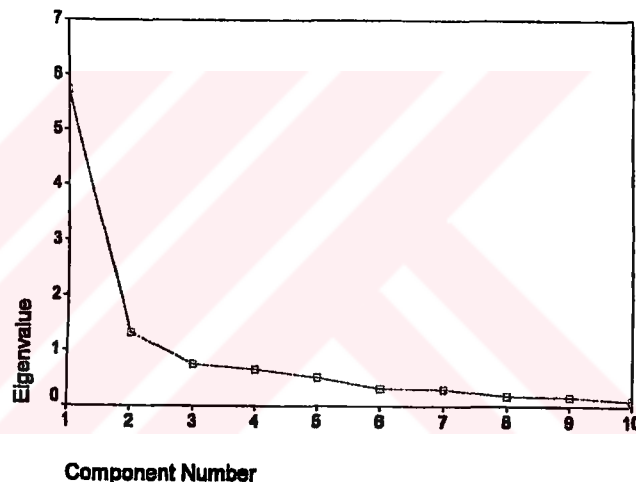
Table B.41 Scree Plot & Component Matrix (Question 11B)

Rotated Component Matrix^a

	Component	
	1	2
K121	,920	-3,691E-03
K120	,897	-2,030E-02
K128	,834	,263
K127	,809	,221
K125	,747	,438
K129	,732	6,694E-02
K126	,709	,433
K123	,605	,633
K122	-,166	,791
K124	,379	,716

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Scree Plot



Component Transformation Matrix

Component	1	2
1	,930	,388
2	-,388	,930

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Component Matrix^a

a. 2 components extracted.

Means

Report

F

X2		K120	K121	K122	K123	K124	K125	K126	K127	K128	K129
1,00	Mean	3,6318	3,3947	2,6579	3,0789	3,0528	3,3421	3,3421	3,6842	3,6318	3,3158
	N	38	38	38	38	38	38	38	38	38	38
2,00	Mean	3,3750	3,1250	2,2500	2,3750	2,6250	2,7600	2,8750	2,6000	2,3750	3,1250
	N	8	8	8	8	8	8	8	8	8	8
3,00	Mean	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000
	N	1	1	1	1	1	1	1	1	1	1
7,00	Mean	3,6000	3,6000	3,0000	3,0000	3,2500	3,7500	3,7500	3,6000	3,6000	3,2500
	N	4	4	4	4	4	4	4	4	4	4
8,00	Mean	3,6000	3,4000	3,0000	3,4000	3,2000	3,6000	3,8000	3,6000	3,8000	3,6000
	N	10	10	10	10	10	10	10	10	10	10
Total	Mean	3,6082	3,3116	2,6393	2,9836	2,9836	3,2787	3,3279	3,4918	3,4282	3,2823
	N	61	61	61	61	61	61	61	61	61	61

Table B.42 Crosstabulation-I (Question 11B)

K120 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K120	Count	1	1	1		3
	% within X2	2,6%	12,5%	100,0%		4,9%
1,00	Count	1				1
	% within X2	2,6%				1,6%
2,00	Count	2			1	3
	% within X2	5,3%			10,0%	4,9%
3,00	Count	9	1		3	15
	% within X2	23,7%	12,5%		30,0%	24,6%
4,00	Count	19	6		6	33
	% within X2	60,0%	76,0%		60,0%	64,1%
5,00	Count	6				6
	% within X2	16,8%				9,8%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K122 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K122	Count	2	2	1		5
	% within X2	5,3%	25,0%	100,0%		8,2%
1,00	Count	5			1	6
	% within X2	13,2%			10,0%	9,8%
2,00	Count	12	2		2	18
	% within X2	31,6%	25,0%		20,0%	28,5%
3,00	Count	6	2		4	12
	% within X2	15,8%	25,0%		40,0%	18,7%
4,00	Count	11	2		2	17
	% within X2	28,9%	25,0%		20,0%	27,9%
5,00	Count	2			1	3
	% within X2	5,3%			10,0%	4,9%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K121 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K121	Count		1	1		2
	% within X2		12,5%	100,0%		3,3%
1,00	Count	2				2
	% within X2	5,3%				3,3%
2,00	Count	4			2	6
	% within X2	10,5%			20,0%	9,8%
3,00	Count	11	3		2	18
	% within X2	28,9%	37,5%		20,0%	28,5%
4,00	Count	19	4		6	31
	% within X2	50,0%	50,0%		60,0%	60,8%
5,00	Count	2				2
	% within X2	5,3%				3,3%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K123 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K123	Count	1	2	1		4
	% within X2	2,6%	25,0%	100,0%		6,6%
1,00	Count	3				3
	% within X2	7,8%				4,9%
2,00	Count	4	1		1	6
	% within X2	10,5%	12,5%		10,0%	9,8%
3,00	Count	16	3		4	27
	% within X2	42,1%	37,5%		40,0%	44,3%
4,00	Count	12	2		5	19
	% within X2	31,6%	25,0%		60,0%	31,1%
5,00	Count	2				2
	% within X2	5,3%				3,3%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.43 Crosstabulation-II (Question 11B)

K124 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K124	Count	2	2	1		6
	% within X2	6,3%	25,0%	100,0%		8,2%
1,00	Count	4				4
	% within X2	10,5%				9,6%
2,00	Count	3				3
	% within X2	7,9%				9,9%
3,00	Count	12	3			15
	% within X2	31,6%	37,5%			34,4%
4,00	Count	15	3			18
	% within X2	39,5%	37,5%			38,1%
5,00	Count	2				2
	% within X2	5,3%				4,9%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K126 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K126	Count	1	1	1		3
	% within X2	2,6%	12,5%	100,0%		4,9%
1,00	Count	2				2
	% within X2	5,3%				3,3%
2,00	Count	4	2			6
	% within X2	10,5%	25,0%			11,5%
3,00	Count	13	1			14
	% within X2	34,2%	12,5%			27,9%
4,00	Count	12	4			16
	% within X2	31,6%	50,0%			39,3%
5,00	Count	6				6
	% within X2	15,8%				13,1%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K125 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K125	Count	1	1	1		3
	% within X2	2,6%	12,5%	100,0%		4,9%
1,00	Count	3				3
	% within X2	7,9%				4,9%
2,00	Count	3	1			4
	% within X2	7,9%	12,5%			9,6%
3,00	Count	11	4			15
	% within X2	28,9%	50,0%			28,9%
4,00	Count	16	2			18
	% within X2	39,5%	25,0%			39,3%
5,00	Count	6				6
	% within X2	13,2%				11,5%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

K127 * X2 Crosstabulation

		X2				Total
		1,00	2,00	3,00	8,00	
K127	Count		2	1		3
	% within X2		25,0%	100,0%		4,9%
1,00	Count	2				2
	% within X2	6,3%				3,3%
2,00	Count	2				2
	% within X2	5,3%				6,6%
3,00	Count	8	4			12
	% within X2	23,7%	50,0%			24,6%
4,00	Count	18	2			20
	% within X2	47,4%	25,0%			44,3%
5,00	Count	7				7
	% within X2	18,4%				16,4%
Total	Count	38	8	1	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.44 Crosstabulation-III (Question 11B)

K128 * X2 Crosstabulation

		X2					Total
		1,00	2,00	3,00	7,00	8,00	
K128	Count		2	1			3
	% within X2		25,0%	100,0%			4,8%
1,00	Count	3					3
	% within X2	7,8%					4,8%
2,00	Count	1	1		1		4
	% within X2	2,8%	12,5%		25,0%		8,6%
3,00	Count	11	3				15
	% within X2	28,8%	37,5%				24,6%
4,00	Count	15	2		3		27
	% within X2	39,5%	25,0%		75,0%		44,3%
5,00	Count	8				1	9
	% within X2	21,1%				10,0%	14,8%
Total	Count	38	8	1	4	10	61
	% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

report

CALGROUP	K120	K121	K122	K123	K124	K125	K126	K127	K128	K129
1	Mean	3,3333	3,1667	2,7333	3,0000	3,1333	3,3333	3,4667	3,4000	3,1333
	N	30	30	30	30	30	30	30	30	30
2	Mean	3,6207	3,4138	2,6882	2,8666	2,8621	3,2088	3,5172	3,4138	3,4483
	N	28	28	28	28	28	28	28	28	28
Total	Mean	3,4746	3,2881	2,6810	2,9482	3,0000	3,2712	3,3051	3,4068	3,2881
	N	58	58	58	58	58	58	58	58	58

Report

CROBUY	K120	K121	K122	K123	K124	K125	K126	K127	K128	K129
1	Mean	3,6000	3,4081	2,8636	2,9091	3,1364	3,4081	3,6182	3,6364	3,5809
	N	22	22	22	22	22	22	22	22	22
2	Mean	3,8091	3,6364	2,4091	3,2727	3,1364	3,6455	3,6455	3,4545	3,3182
	N	22	22	22	22	22	22	22	22	22
Total	Mean	3,7045	3,5227	2,6384	3,0809	3,1364	3,4773	3,6318	3,5455	3,4545
	N	44	44	44	44	44	44	44	44	44

Table B.45 Factor Analysis & Scree Plot (Question 12)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K130	3,3333	1,0998	60
K131	3,6500	1,0803	60
K132	3,1500	1,1619	60
K133	3,6333	1,2139	60
K134	2,8167	1,0591	60
K135	3,4500	1,2133	60

KMO and Bartlett's Test

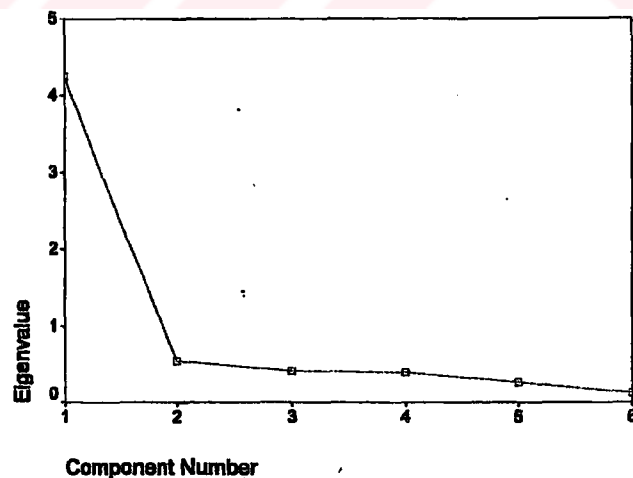
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			,853
Bartlett's Test of Sphericity	Approx. Chi-Square		244,674
	df		16
	Sig.		,000

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	4,250	70,833	70,833
2	,545	8,090	78,923
3	,414	6,896	85,819
4	,396	6,608	92,425
5	,269	4,478	97,903
6	,128	2,097	100,000

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Table B.46 Means (Question 12)

X2		K130	K131	K132	K133	K134	K135
1,00	Mean	3,3684✓	3,6316✓	3,1318	3,5000✓	2,6579	3,6216✓
	N	38	38	38	38	38	37
2,00	Mean	2,6250	3,0000	2,5000	3,1250✓	2,0000	3,1250✓
	N	8	8	8	8	8	8
3,00	Mean	2,0000	3,0000	4,0000✓	2,0000	1,0000	1,0000
	N	1	1	1	1	1	1
7,00	Mean	3,5000✓	3,5000✓	3,5000✓	3,5000✓	3,2500✓	3,2500✓
	N	4	4	4	4	4	4
8,00	Mean	3,7000✓	3,6000✓	3,4000✓	4,1000✓	2,8000	3,4000✓
	N	10	10	10	10	10	10
Total	Mean	3,3115	3,5246	3,1311	3,5246	2,6066	3,4500
	N	61	61	61	61	61	60

CALGROUP		K130	K131	K132	K133	K134	K135
1	Mean	3,2667	3,4000	3,1000	3,5333	2,6333	3,1000
	N	30	30	30	30	30	30
2	Mean	3,2759	3,5862	3,1379	3,4828	2,5517	3,7857
	N	29	29	29	29	29	28
Total	Mean	3,2712	3,4915	3,1186	3,5085	2,5932	3,4310
	N	59	59	59	59	59	58

CIROBUY		K130	K131	K132	K133	K134	K135
1	Mean	3,4091	3,5455	3,3636	3,8636	2,6818	3,4091
	N	22	22	22	22	22	22
2	Mean	3,2727	3,5000	3,1364	3,5000	2,7273	3,5909
	N	22	22	22	22	22	22
Total	Mean	3,3409	3,5227	3,2500	3,6818	2,7045	3,5000
	N	44	44	44	44	44	44

K133	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2	1	1				2
		Count	2,6%	12,5%				3,3%
	1,00	% within X2	1					1
		Count	2,6%					1,6%
	2,00	% within X2	6	1	1			8
		Count	16,6%	12,5%	100,0%			13,1%
	3,00	% within X2	8	2		2	3	16
		Count	21,1%	25,0%		60,0%	30,0%	24,6%
	4,00	% within X2	14	3		2	3	22
		Count	36,6%	37,5%		60,0%	30,0%	36,1%
	5,00	% within X2	8	1			4	13
		Count	21,1%	12,5%			40,0%	21,3%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K134 • X2 Cross-tabulation

K134	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2		12,5%				1,6%
	1,00	% within X2	6	1	1			8
		Count	16,6%	12,5%	100,0%			13,1%
	2,00	% within X2	11	3		1	3	18
		Count	28,9%	37,5%		25,0%	30,0%	29,5%
	3,00	% within X2	13	3		1	6	23
		Count	34,2%	37,5%		25,0%	60,0%	37,7%
	4,00	% within X2	6			2	1	9
		Count	16,6%			50,0%	10,0%	14,8%
	5,00	% within X2	2					2
		Count	5,3%					3,3%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K135 • X2 Cross-tabulation

K135	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2		12,5%				1,7%
	1,00	% within X2	3		1			4
		Count	8,1%		100,0%			6,7%
	2,00	% within X2	3	1			2	6
		Count	8,1%	12,5%			20,0%	10,0%
	3,00	% within X2	8	2		3	4	17
		Count	21,6%	25,0%		75,0%	40,0%	28,3%
	4,00	% within X2	14	3		1	2	20
		Count	37,8%	37,5%		25,0%	20,0%	33,3%
	5,00	% within X2	8	1			2	12
		Count	24,3%	12,5%			20,0%	20,0%
Total		Count	37	8	1	4	10	60
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K130	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2		12,5%				1,6%
	1,00	% within X2	1					1
		Count	2,6%					1,6%
	2,00	% within X2	7	2	1	1	1	12
		Count	18,4%	25,0%	100,0%	25,0%	10,0%	19,7%
	3,00	% within X2	13	3			4	20
		Count	34,2%	37,5%			40,0%	32,8%
	4,00	% within X2	11	2		3	2	18
		Count	28,8%	25,0%		75,0%	20,0%	29,5%
	5,00	% within X2	6				3	9
		Count	16,6%				30,0%	14,8%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K131 • X2 Cross-tabulation

K131	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2		12,5%				1,6%
	1,00	% within X2	2					2
		Count	6,3%					3,3%
	2,00	% within X2	3	1				4
		Count	7,9%	12,5%				6,6%
	3,00	% within X2	12	2	1	2	6	23
		Count	31,6%	25,0%	100,0%	50,0%	60,0%	37,7%
	4,00	% within X2	11	4		2	2	19
		Count	28,9%	50,0%		50,0%	20,0%	31,1%
	5,00	% within X2	10				2	12
		Count	26,3%				20,0%	18,7%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K132 • X2 Cross-tabulation

K132	.00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
		% within X2		12,5%				1,8%
	1,00	% within X2	4					4
		Count	10,6%					6,8%
	2,00	% within X2	6	3			3	12
		Count	16,8%	37,5%			30,0%	19,7%
	3,00	% within X2	13	2		3	2	20
		Count	34,2%	25,0%		75,0%	20,0%	32,8%
	4,00	% within X2	11	2	1		3	17
		Count	28,9%	25,0%	100,0%		30,0%	27,8%
	5,00	% within X2	4			1	2	7
		Count	10,5%			25,0%	20,0%	11,5%
Total		Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table B.48 Factor Analysis & Scree Plot (Question 13)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K138	3,0164	1,4317	61
K137	2,6574	1,2046	61
K138	2,7377	1,4708	61
K139	2,8852	1,2261	61
K140	2,7705	1,4070	61
K141	3,0164	1,4662	61
K142	2,5246	1,5012	61

KMO and Bartlett's Test

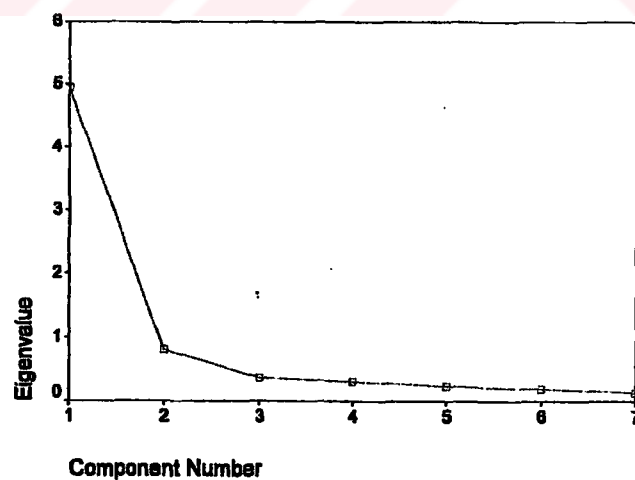
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.895
Bartlett's Test of Sphericity	Approx. Chi-Square	332,619	
	df	21	
	Sig.	.000	

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	4,948	70,679	70,679
2	,808	11,547	82,227
3	,368	5,235	87,462
4	,308	4,406	91,868
5	,238	3,398	95,264
6	,193	2,767	98,021
7	,138	1,979	100,000

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Table B.49 Means (Question 13)

X2		K136	K137	K138	K139	K140	K141	K142
1,00	Mean	3,2368	2,7368	2,7895	3,0000	2,9211	3,0789	2,4737
	N	38	38	38	38	38	38	38
2,00	Mean	2,3750	2,0000	2,3750	2,2500	2,0000	2,3750	2,2500
	N	8	8	8	8	8	8	8
3,00	Mean	1,0000	2,0000	1,0000	2,0000	1,0000	2,0000	1,0000
	N	1	1	1	1	1	1	1
7,00	Mean	2,7500	2,5000	2,2500	2,5000	2,7500	2,5000	2,0000
	N	4	4	4	4	4	4	4
8,00	Mean	3,0000	2,4000	3,2000	3,2000	3,0000	3,6000	3,3000
	N	10	10	10	10	10	10	10
Total	Mean	3,0164	2,5574	2,7377	2,8852	2,7705	3,0164	2,5246
	N	61	61	61	61	61	61	61

CALGROUP		K136	K137	K138	K139	K140	K141	K142
1	Mean	2,7000	2,3000	2,4333	2,8000	2,7333	2,9000	2,2000
	N	30	30	30	30	30	30	30
2	Mean	3,2759	2,7241	3,0000	3,1379	2,7241	3,1034	2,7586
	N	29	29	29	29	29	29	29
Total	Mean	2,9831	2,5086	2,7119	2,8644	2,7288	3,0000	2,4746
	N	59	59	59	59	59	59	59

CIROBUY		K136	K137	K138	K139	K140	K141	K142
1	Mean	3,0909	2,7273	3,0455	3,2273	3,1818	3,6818	2,9645
	N	22	22	22	22	22	22	22
2	Mean	3,0000	2,4091	2,4545	2,7273	2,4091	2,5909	1,9091
	N	22	22	22	22	22	22	22
Total	Mean	3,0455	2,5682	2,7500	2,9773	2,7955	3,1364	2,4318
	N	44	44	44	44	44	44	44

Table B.50 Factor Analysis & Scree Plot (Question 14)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K144	3,2586	1,4211	58
K145	3,3868	1,6085	58
K146	2,3783	,9702	58
K147	2,4828	1,3277	58
K148	2,3866	1,3104	58
K149	1,6034	1,0913	58
K150	2,7831	1,1357	58
K151	1,5517	1,1109	58
K152	1,9483	1,4681	58
K153	2,1897	1,1484	58

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,842
Bartlett's Test of Sphericity	Approx. Chi-Square	204,866
	df	45
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,308	43,078	43,078	2,694	26,943	26,943
2	1,213	12,129	55,209	2,657	26,575	53,518
3	1,043	10,430	65,638	1,212	12,120	65,638
4	,807	8,065	73,704			
5	,680	6,804	80,508			
6	,515	5,155	85,663			
7	,510	5,097	90,760			
8	,425	4,247	95,007			
9	,287	2,868	97,875			
10	,232	2,325	100,000			

Extraction Method: Principal Component Analysis.

Scree Plot

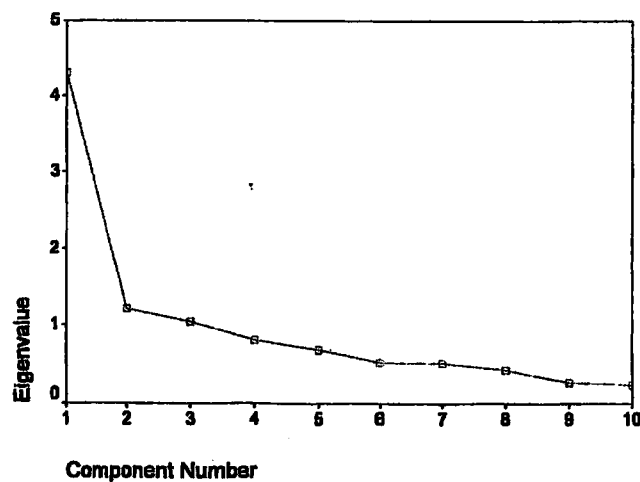
Component Matrix^a^a. 3 components extracted.

Table B.51 Component Matrix & Means (Question 14)

Rotated Component Matrix^a

	Component		
	1	2	3
K152	,836	,302	8,828E-02
K148	,802	,128	7,188E-02
K151	,633	2,832E-02	2,894E-02
K153	,630	,442	8,844E-02
K147	,505	,472	,339
K144	,164	,787	-,172
K145	-1,314E-02	,733	,387
K150	,422	,716	,288
K146	,278	,878	-,234
K149	,130	-2,437E-02	,877

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3
1	,700	,885	,203
2	,555	-,700	,450
3	-,450	,202	,870

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Report

X2		K144	K145	K146	K147	K148	K149	K150	K151	K152	K153
1,00	Mean	3,0558	3,3421	2,2105	2,8579	2,6316	1,7105	2,9211	1,4737	2,0528	2,1579
	N	36	38	38	38	38	38	38	38	38	38
2,00	Mean	4,0000	3,8750	2,5000	1,8750	1,6250	,6250	2,7500	1,5000	1,5000	2,2500
	N	8	8	8	8	8	8	8	8	8	8
3,00	Mean	1,0000	3,0000	1,0000	1,0000	1,0000	3,0000	2,0000	1,0000	1,0000	2,0000
	N	1	1	1	1	1	1	1	1	1	1
7,00	Mean	3,2500	3,7500	2,5000	3,0000	3,0000	2,2500	2,7500	1,7500	2,0000	2,7500
	N	4	4	4	4	4	4	4	4	4	4
8,00	Mean	3,8000	3,3000	2,8000	2,3000	2,5000	1,2000	2,7000	1,8887	1,8000	2,2000
	N	10	10	10	10	10	10	10	8	10	10
Total	Mean	3,2881	3,4282	2,3443	2,4818	2,4754	1,5410	2,8381	1,5187	1,8180	2,2131
	N	59	61	61	61	61	61	61	60	61	61

CALGROUP		K144	K145	K146	K147	K148	K149	K150	K151	K152	K153
1	Mean	3,1378	2,9667	2,2000	2,4667	2,4000	1,3667	2,6667	1,3448	1,7667	2,2333
	N	29	30	30	30	30	30	30	29	30	30
2	Mean	3,4286	3,8278	2,4483	2,4138	2,4628	1,6552	2,9310	1,7241	1,9665	2,1724
	N	28	29	28	29	28	29	29	28	29	28
Total	Mean	3,2807	3,3888	2,3220	2,4407	2,4407	1,5085	2,7988	1,5345	1,8844	2,2034
	N	67	69	69	69	69	69	69	69	69	69

CIROBUY		K144	K145	K146	K147	K148	K149	K150	K151	K152	K153
1	Mean	3,2857	3,2727	2,5000	2,6818	2,8091	1,3182	2,8091	1,7273	2,1384	2,3182
	N	21	22	22	22	22	22	22	22	22	22
2	Mean	3,4762	3,6000	2,2273	2,1818	2,3636	1,8182	2,8182	1,3810	1,6818	2,0809
	N	21	22	22	22	22	22	22	21	22	22
Total	Mean	3,3810	3,3884	2,3636	2,4318	2,6384	1,6682	2,8836	1,6581	1,9091	2,2045
	N	42	44	44	44	44	44	44	43	44	44

Table B.52 Factor Analysis & Scree Plot (Question 15)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K155	2,8687	1,7140	60
K156	2,7500	1,7910	60
K157	2,1833	1,7024	60
K158	2,2687	1,9733	60
K159	2,7667	1,7695	60
K160	1,2333	1,5877	60
K161	1,0167	1,5348	60
K162	1,4667	1,8270	60
K163	3,6333	1,4493	60
K164	2,8500	1,6552	60

KMO and Bartlett's Test

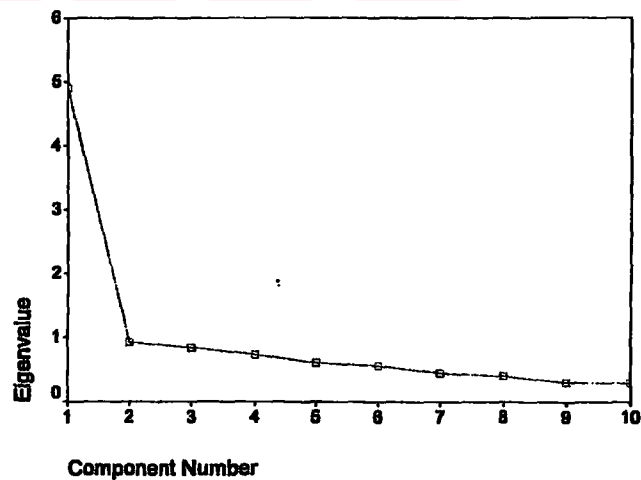
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.898
Bartlett's Test of Sphericity	Approx. Chi-Square		230,907
	df		45
	Sig.		.000

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	4,901	49,014	49,014
2	,921	9,207	58,221
3	,839	8,388	66,610
4	,729	7,291	73,901
5	,608	6,083	79,984
6	,580	5,804	85,788
7	,447	4,475	90,262
8	,401	4,006	94,268
9	,302	3,019	97,287
10	,291	2,913	100,000

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Table B.53 Means (Question 15)

Report

X2	K165	K166	K167	K168	K169	K180	K181	K182	K183	K184
1,00	Mean	2,3847	2,7632	2,2388	2,7105	1,4737	1,0000	1,8053	3,7388	2,9211
	N	38	38	38	38	38	38	38	38	38
2,00	Mean	3,3750	3,2500	2,8750	2,0000	3,7500	1,6250	1,3750	3,3750	2,3750
	N	8	8	8	7	8	8	8	8	8
3,00	Mean	,0000	3,0000	,0000	,0000	2,0000	,0000	,0000	4,0000	2,0000
	N	1	1	1	1	1	1	1	1	1
7,00	Mean	3,0000	2,5000	,0000	1,0000	2,7500	,0000	,0000	2,7500	2,6000
	N	4	4	4	4	4	4	4	4	4
8,00	Mean	3,4000	2,6000	2,6000	1,6000	1,0000	1,0000	1,8000	3,7000	2,8000
	N	10	10	10	10	10	10	10	10	10
Total	Mean	2,6685	2,7669	2,1967	2,2667	1,2131	1,0000	1,4426	3,6230	2,8033
	N	61	61	61	60	61	61	61	61	61

Report

CALGROUP	K165	K166	K167	K168	K169	K180	K181	K182	K183	K184
1	Mean	2,4000	2,2333	1,7667	2,1333	2,3000	,7667	1,7000	3,3333	2,7000
	N	30	30	30	30	30	30	30	30	30
2	Mean	2,8821	3,2759	2,4828	2,2500	3,0345	1,5517	1,3448	1,6697	3,9310
	N	29	29	29	28	29	29	29	29	29
Total	Mean	2,6271	2,7458	2,1186	2,1697	2,6610	1,1525	1,0169	1,3888	3,6271
	N	59	59	59	56	59	59	59	59	59

Report

CIROBUY	K165	K166	K167	K168	K169	K180	K181	K182	K183	K184
1	Mean	2,5909	2,5455	2,0509	2,4545	2,8384	1,4091	1,4091	3,8545	2,8545
	N	22	22	22	22	22	22	22	22	22
2	Mean	2,8638	2,8091	2,2273	2,1428	2,8538	1,0000	1,3182	3,5455	2,8809
	N	22	22	22	21	22	22	22	22	22
Total	Mean	2,7273	2,7273	2,1691	2,3023	2,7500	1,2045	1,0455	3,7500	2,7727
	N	44	44	44	43	44	44	44	44	44

Table B.54 Reliability Analysis (Question 16)

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	K166	2,6833	1,2281	60,0
2.	K167	2,4833	1,5237	60,0
3.	K168	2,8833	1,2363	60,0
4.	K169	2,2000	1,5492	60,0
5.	K170	2,9500	1,3331	60,0
6.	K171	3,4000	1,3174	60,0
7.	K172	2,9500	1,3203	60,0
8.	K173	3,0000	1,5070	60,0
9.	K174	2,6667	1,5695	60,0
10.	K175	3,2333	1,3575	60,0
11.	K176	2,7500	1,4801	60,0
12.	K177	3,2500	1,2839	60,0
13.	K178	3,3500	1,3633	60,0

Statistics for SCALE	Mean	Variance	Std Dev	N of Variables
	37,8000	212,3322	14,5716	13

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
K166	35,1167	188,0370	,6766	,9529
K167	35,3167	181,3726	,6978	,9528
K168	34,9167	181,3997	,8829	,9480
K169	35,6000	184,1424	,6134	,9553
K170	34,8500	181,1466	,8195	,9493
K171	34,4000	180,1424	,8612	,9483
K172	34,8500	180,6720	,8429	,9487
K173	34,8000	181,4169	,7056	,9525
K174	35,1333	180,8633	,6871	,9532
K175	34,5667	178,3514	,8863	,9475
K176	35,0500	183,7432	,6579	,9538
K177	34,5500	180,5229	,8742	,9480
K178	34,4500	179,1331	,8588	,9482

Reliability Coefficients

N of Cases = 60,0

N of Items = 13

Alpha = ,9543

Table B.55 Factor Analysis & Scree Plot (Question 16)

	Mean	Std. Deviation	Analysis N
K168	2,8833	1,2281	60
K167	2,4833	1,5237	60
K168	2,8833	1,2363	60
K169	2,2000	1,5492	60
K170	2,9600	1,3331	60
K171	3,4000 ✓	1,3174	60
K172	2,9600	1,3203	60
K173	3,0000 ✓	1,5070	60
K174	2,8867	1,5585	60
K175	3,2333 ✓	1,3575	60
K176	2,7500	1,4801	60
K177	3,2500 ✓	1,2839	60
K178	3,3500 ✓	1,3833	60

KMO and Bartlett's Test

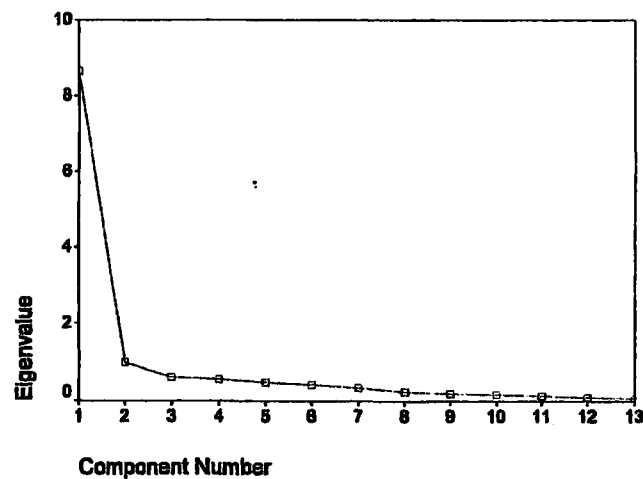
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,920
Bartlett's Test of Sphericity	Approx. Chi-Square	722,778
	df	78
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	8,655	88,574	88,574
2	,895	7,853	74,227
3	,623	4,788	79,023
4	,565	4,345	83,367
5	,484	3,725	87,092
6	,427	3,282	90,374
7	,354	2,723	93,097
8	,237	1,820	94,917
9	,189	1,454	96,371
10	,176	1,362	97,723
11	,135	1,039	98,762
12	8,471E-02	,729	99,491
13	6,818E-02	,509	100,000

Extraction Method: Principal Component Analysis.

Scree Plot

Component Matrix^a

a. 1 components extracted.

Table B.56 Factor Analysis & Scree Plot (Question 17)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K180	2,7213	1,6241	61
K181	2,6574	1,7467	61
K182	3,3934 ✓	1,3451	61
K183	3,1475 ✓	1,5688	61
K184	2,6672	1,5380	61
K185	2,7705	1,6534	61
K186	2,6738	1,7558	61
K187	3,1839 ✓	1,5511	61

KMO and Bartlett's Test

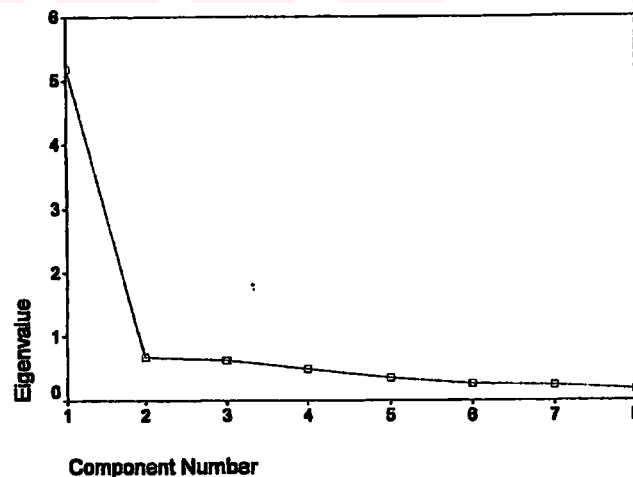
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,887 ✓
Bartlett's Test of Sphericity	Approx. Chi-Square	311,854
	df	28
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	5,184	84,788	84,788 ✓
2	,677	8,458	73,256
3	,628	7,852	81,107
4	,491	6,133	87,240
5	,352	4,389	91,639
6	,283	3,282	94,921
7	,239	2,976	97,897
8	,168	2,103	100,000

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 1 components extracted.

Rotated Component Matrix^a

a. Only one component was extracted. The solution cannot be rotated.

Table B.57 Means (Question 17)

X2	K180	K181	K182	K183	K184	K185	K186	K187
Mean	2,847	2,7632	3,6788	3,4474	3,1942	2,8474	2,8884	3,4211
N	38	38	38	38	38	38	38	38
Mean	2,5000	2,1250	2,2500	2,1250	2,2500	2,2500	1,6250	2,2500
N	8	8	8	8	8	8	8	8
Mean	,0000	,0000	,0000	,0000	,0000	,0000	,0000	,0000
N	1	1	1	1	1	1	1	1
Mean	2,5000	3,2500	3,7500	4,0000	2,5000	2,2500	2,2500	4,2500
N	4	4	4	4	4	4	4	4
Mean	2,5000	2,1000	3,8000	2,8000	3,2000	3,0000	2,8000	2,8000
N	10	10	10	10	10	10	10	10
Total	2,7213	2,6574	3,3934	3,1476	2,9672	2,7705	2,6738	3,1639
N	61	61	61	61	61	61	61	61

CALGROUP	K180	K181	K182	K183	K184	K185	K186	K187
Mean	2,4333	2,1000	3,1667	3,0000	2,6000	2,4333	2,4000	2,8667
N	30	30	30	30	30	30	30	30
Mean	3,0345	2,9310	3,6517	3,2414	3,2769	3,0345	2,6652	3,3793
N	29	29	29	29	29	29	29	29
Total	2,7288	2,5085	3,3669	3,1188	2,9322	2,7288	2,6284	3,1188
N	59	59	59	59	59	59	59	59

CIROBUY	K180	K181	K182	K183	K184	K185	K186	K187
Mean	2,8384	2,1364	3,5809	3,1618	3,0000	2,8618	3,0809	3,2273
N	22	22	22	22	22	22	22	22
Mean	3,1618	3,2727	3,6384	3,5809	3,4545	3,2273	2,4545	3,4545
N	22	22	22	22	22	22	22	22
Total	2,8091	2,7045	3,6136	3,3864	3,2273	2,8645	2,7727	3,3409
N	44	44	44	44	44	44	44	44

Table B.58 Reliability Analysis (Question 18)

RELIABILITY ANALYSIS - SCALE (ALPHA)				
		Mean	Std Dev	Cases
1.	K189	2,0833	1,4647	60,0
2.	K190	2,3333	1,2442	60,0
3.	K191	1,3500	1,2049	60,0
4.	K192	2,3167	1,2953	60,0
5.	K193	2,3500	1,6242	60,0
6.	K194	1,8333	1,2778	60,0
7.	K195	2,2167	1,2226	60,0
8.	K196	2,5833	1,3690	60,0
9.	K197	1,7500	1,1735	60,0
10.	K198	1,9667	1,1042	60,0
11.	K199	1,4000	1,1230	60,0
12.	K200	2,5500	1,5006	60,0
13.	K201	2,1167	1,3415	60,0
14.	K202	2,5667	1,4540	60,0
15.	K203	2,6833	1,3960	60,0
16.	K204	2,1167	1,1658	60,0
17.	K205	2,4667	1,3835	60,0
18.	K206	3,1000	1,3864	60,0
19.	K207	2,8667	1,4317	60,0
20.	K208	3,1667	1,7580	60,0
21.	K209	1,4167	1,4057	60,0
22.	K210	2,6833	1,4081	60,0
23.	K211	1,9000	1,4695	60,0

Statistics for	Mean	Variance	Std Dev	N of
SCALE	51,8167	457,7116	21,3942	Variables
				23

Item-total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
K189	49,7333	411,6904	,7382	,9439
K190	49,4833	420,6946	,6949	,9447
K191	50,4667	434,6599	,4299	,9477
K192	49,5000	415,5085	,7675	,9437
K193	49,4667	413,6429	,6271	,9457
K194	49,9833	420,9658	,6697	,9450
K195	49,6000	424,6169	,6272	,9455
K196	49,2333	423,5718	,5726	,9462
K197	50,0667	425,9277	,6278	,9455
K198	49,8500	425,3500	,6838	,9450
K199	50,4167	428,0777	,6106	,9457
K200	49,2667	409,3175	,7599	,9436
K201	49,7000	420,6542	,6407	,9453
K202	49,2500	412,2246	,7346	,9440
K203	49,1333	410,9989	,7908	,9433
K204	49,7000	421,8407	,7207	,9445
K205	49,3500	415,5873	,7128	,9443
K206	48,7167	423,5285	,5654	,9463
K207	48,9500	410,0822	,7861	,9433
K208	48,6500	408,3331	,6515	,9455
K209	50,4000	432,0068	,4061	,9484
K210	49,1333	420,8633	,6035	,9458
K211	49,9167	424,6879	,5096	,9471

Reliability Coefficients

N of Cases = 60,0

N of Items = 23

Alpha = ,9475

Table B.59 Factor Analysis (Question 18)

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K189	2,0833	1,4847	60
K190	2,3333	1,2442	60
K191	1,3500	1,2049	60
K192	2,3167	1,2853	60
K193	2,3500	1,8242	60
K194	1,8333	1,2778	60
K195	2,2167	1,2228	60
K196	2,5833	1,3890	60
K197	1,7500	1,1735	60
K198	1,8667	1,1042	60
K199	1,4000	1,1230	60
K200	2,5800	1,5008	60
K201	2,1167	1,3415	60
K202	2,5667	1,4540	60
K203	2,5833	1,3950	60
K204	2,1167	1,1858	60
K205	2,4667	1,3835	60
K206	3,1000	1,3884	60
K207	2,8667	1,4317	60
K208	3,1667	1,7680	60
K209	1,4167	1,4057	60
K210	2,5833	1,4081	60
K211	1,8000	1,4895	60

KMO and Bartlett's Test

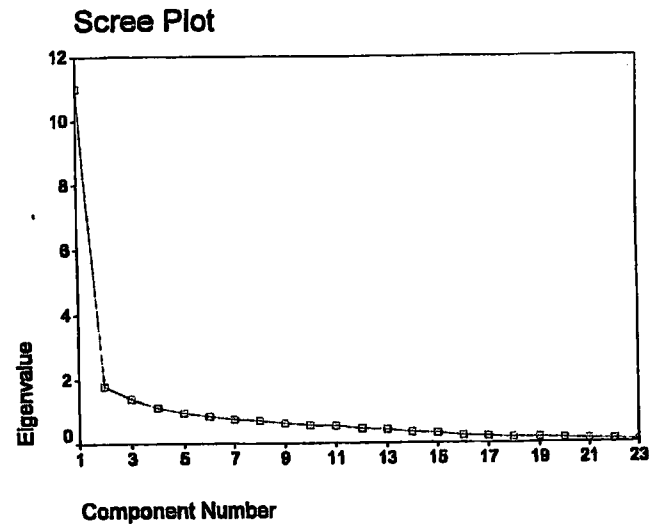
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,847
Bartlett's Test of Sphericity	Approx. Chi-Square	882,270
	df	283
	Sig.	,000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11,007	47,868	47,868	6,817	28,638	28,638
2	1,798	7,807	55,683	3,639	15,823	44,462
3	1,402	6,088	61,781	2,809	12,213	57,675
4	1,120	4,869	66,630	2,080	8,958	66,630
5	,957	4,161	70,791			
6	,848	3,687	74,478			
7	,751	3,264	77,742			
8	,711	3,093	80,838			
9	,625	2,718	83,553			
10	,557	2,422	85,975			
11	,535	2,328	88,303			
12	,463	1,971	90,274			
13	,422	1,833	92,107			
14	,334	1,451	93,558			
15	,311	1,351	94,909			
16	,230	1,001	95,909			
17	,208	,904	96,814			
18	,172	,748	97,562			
19	,168	,720	98,283			
20	,135	,588	98,871			
21	,111	,484	99,354			
22	9,217E-02	,401	99,755			
23	5,636E-02	,245	100,000			

Extraction Method: Principal Component Analysis.

Table B.60 Scree Plot & Component Matrix (Question 18)

**Component Matrix^a**

a. 4 components extracted.

Rotated Component Matrix^a

	Component			
	1	2	3	4
K203	,793	,156	,381	6,176E-02
K198	,754	,221	,103	7,966E-02
K210	,748	7,489E-02	8,028E-02	,111
K189	,737	,198	,138	,168
K207	,718	,181	,437	,101
K206	,710	,334	,161	4,551E-02
K192	,708	,403	6,760E-02	,223
K201	,674	,107	,248	,151
K202	,629	,227	,512	-3,764E-03
K204	,620	,282	,283	,189
K200	,580	,411	,182	,381
K208	,556	9,312E-02	,437	,214
K199	,543	,485	-,108	,230
K188	,514	,298	,313	,441
K197	,185	,828	,265	6,676E-02
K194	,374	,768	6,888E-02	,134
K193	,253	,751	,145	,228
K196	4,753E-02	,649	,519	,199
K211	,151	,112	,741	,282
K205	,368	,210	,715	-,152
K195	,313	,444	,481	,104
K209	6,284E-02	,177	,150	,820
K191	,234	,168	1,107E-02	,738

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 10 iterations.

Component Transformation Matrix

Component	1	2	3	4
1	,742	,472	,390	,274
2	-,591	,678	-,003	,436
3	,290	-,070	-,815	,496
4	-,128	-,558	,428	,899

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

Table B.61 Reliability Analysis & Factor Analysis (Question 19)

RELIABILITY ANALYSIS - SCALE (ALPHA)

		Mean	Std Dev	Cases
1.	K213	4,6885	,8275	61,0
2.	K214	3,7705	1,0065	61,0
3.	K215	4,3115	,9581	61,0
4.	K216	4,2951	1,0057	61,0
5.	K217	4,0984	,9610	61,0
6.	K218	2,6557	1,2501	61,0
7.	K219	3,5902	1,1162	61,0
8.	K220	3,9016	,9610	61,0
9.	K221	4,3279	1,0758	61,0

Statistics for SCALE	Mean	Variance	Std Dev	N of Variables
	35,6393	42,9678	6,5550	9

Item-total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
K213	30,9508	34,6142	,7876	,8538
K214	31,8689	33,8158	,6952	,8580
K215	31,3279	33,6574	,7549	,8535
K216	31,3443	34,1295	,6661	,8606
K217	31,5410	35,2191	,5984	,8665
K218	32,9836	36,9164	,2955	,8990
K219	32,0492	33,8142	,6092	,8659
K220	31,7377	34,5634	,6621	,8612
K221	31,3115	33,4847	,6687	,8602

Reliability Coefficients

N of Cases = 61,0

N of Items = 9

Alpha = ,8778

Factor Analysis

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
K213	4,6885	,8275	61
K214	3,7705	1,0065	61
K215	4,3115	,9581	61
K216	4,2951	1,0057	61
K217	4,0984	,9610	61
K218	2,6557	1,2501	61
K219	3,5902	1,1162	61
K220	3,9016	,9610	61
K221	4,3279	1,0758	61

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,858
Bartlett's Test of Sphericity	Approx. Chi-Square	283,622
	df	36
	Sig.	,000

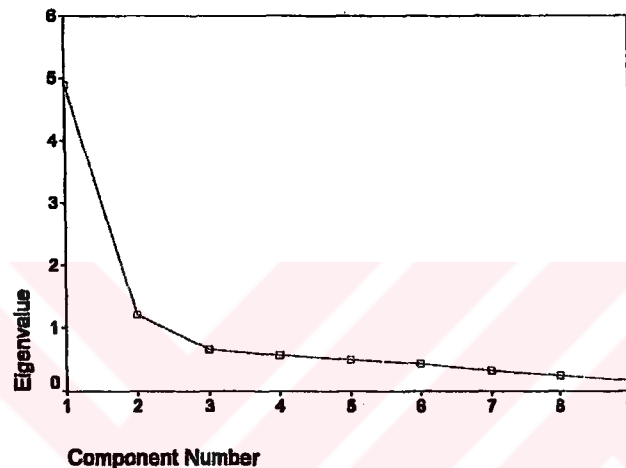
Table B.62 Scree Plot & Component Matrix (Question 19)

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,890	54,338	54,338	4,110	45,664	45,664
2	1,210	13,443	67,781	1,691	22,117	67,781
3	,661	7,346	75,128			
4	,570	6,330	81,458			
5	,499	5,543	87,001			
6	,435	4,835	91,836			
7	,323	3,585	95,421			
8	,243	2,704	98,125			
9	,169	1,875	100,000			

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix^a

a. 2 components extracted.

Rotated Component Matrix^a

	Component	
	1	2
K217	,822	-.9,231E-03
K220	,822	,105
K215	,808	,275
K213	,797	,338
K216	,769	,200
K214	,681	,408
K218	-.7,178E-02	,895
K219	,410	,684
K221	,519	,584

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	,888	,481
2	-.481	,888

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table B.63 Crosstabulation (Question 20)

K223 * X2 Crosstabulation

K223	,00	Count	X2					Total
			1,00	2,00	3,00	7,00	8,00	
1,00		% within X2	2	1				3
		5,3%	12,5%				5,0%	
2,00		% within X2	14	3		2	5	24
		38,8%	37,5%		50,0%	65,8%	40,0%	
Total		% within X2	22	4	1	2	4	33
		57,9%	50,0%	100,0%	50,0%	44,4%	55,0%	
Total		Count	38	8	1	4	9	60
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

K223 * CALGROUP Crosstabulation

		CALGROUP			Total
		1	2		
K223	,00	Count	3		3
		% within CALGROUP	10,3%		5,2%
	1,00	Count	12	11	23
		% within CALGROUP	41,4%	37,9%	39,7%
	2,00	Count	14	18	32
		% within CALGROUP	48,3%	62,1%	55,2%
Total		Count	28	28	58
		% within CALGROUP	100,0%	100,0%	100,0%

K223 * CIROBUY Crosstabulation

		CIROBUY			Total
		1	2		
K223	,00	Count	1	1	2
		% within CIROBUY	4,8%	4,6%	4,7%
1,00		Count	8	9	18
		% within CIROBUY	42,8%	40,9%	41,9%
2,00		Count	11	12	23
		% within CIROBUY	52,4%	54,6%	53,5%
Total		Count	21	22	43
		% within CIROBUY	100,0%	100,0%	100,0%

Table B.64 Crosstabulation & T-Test for CALGROUP (Question 21)

K232 * X2 Crosstabulation

			X2					Total
			1,00	2,00	3,00	7,00	8,00	
K232	,00	Count	1				1	2
		% within X2	2,6%				10,0%	3,3%
	2,00	Count	4	1	1			6
		% within X2	10,6%	12,5%	100,0%			9,8%
	3,00	Count	12	1		2	5	20
		% within X2	31,6%	12,5%		50,0%	50,0%	32,8%
	4,00	Count	13	8		2	2	23
		% within X2	34,2%	75,0%		50,0%	20,0%	37,7%
	5,00	Count	8				2	10
		% within X2	21,1%				20,0%	16,4%
	Total	Count	38	8	1	4	10	61
		% within X2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

T-Test

K232 * CALGROUP Crosstabulation

			CALGROUP		Total
			1	2	
K232	,00	Count	2		2
		% within CALGROUP	6,7%		3,4%
	2,00	Count	2	4	6
		% within CALGROUP	6,7%	13,8%	10,2%
	3,00	Count	10	10	20
		% within CALGROUP	33,3%	34,5%	33,8%
	4,00	Count	10	12	22
		% within CALGROUP	33,3%	41,4%	37,3%
	5,00	Count	6	3	9
		% within CALGROUP	20,0%	10,3%	16,3%
	Total	Count	30	29	59
		% within CALGROUP	100,0%	100,0%	100,0%

Group Statistics

CALGROUP		N	Mean	Std. Deviation	Std. Error Mean
K232	1	30	3,4667	1,2794	,2338
	2	29	3,4828	,8710	,1617

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
K232	Equal variances assumed	1,781	,180	-,066	57	,955	-1,6092E-02	,2869	-,5886	,5564
	Equal variances not assumed			-,057	61,269	,955	-1,6092E-02	,2841	-,5864	,5542

Table B.65 T-Test for CIROBUY (Question 21)

K232 • CIROBUY Crosstabulation

		CIROBUY		Total
		1	2	
K232	.00	Count	2	2
		% within CIROBUY	8,1%	4,9%
2,00	Count	1	1	2
		% within CIROBUY	4,5%	4,9%
3,00	Count	8	8	17
		% within CIROBUY	38,4%	39,9%
4,00	Count	6	10	16
		% within CIROBUY	27,3%	35,4%
5,00	Count	5	2	7
		% within CIROBUY	22,7%	15,9%
Total	Count	22	22	44
	% within CIROBUY	100,0%	100,0%	100,0%

Group Statistics

CIROBUY	N	Mean	Std. Deviation	Std. Error Mean
K232 1	22	3,4081	1,4027	,2881
2	22	3,5809	,7341	,1665

Independent Samples Test

		Levene's Test for Equality of Variances			t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
K232	Equal variances assumed	4,042	,051	-.539	42	,693	-,1618	,3375
	Equal variances not assumed			-.539	31,702	,694	-,1618	,3375
						85% Confidence Interval of the Difference		
						Lower	Upper	
						-.8630	,4994	
						-.8688	,6060	

CURRICULUM VITAE

Emin Özkan was born in Samsun in 1968. He graduated from İstanbul Technical University, Department of Management with a B.S. degree in Industrial Engineering and M.Sc. degree in Industrial Engineering/Engineering Management in 1991 and 1993, respectively. Meanwhile, he worked for Project Management Co., as a planning expert in 1993. He earned his M.B.A. degree from California State University, Stanislaus in year 1996. During his study, he tutored business courses such as Finance, International Finance, Management Science, Math and Statistics at California State University Stanislaus. Since 1997, he is working for Anadolu Group, Human Resources and Industrial Relations Department. He was responsible for Change Management Project at Abank. Presently, he is working at ERP/SAP Project for Brewery Group of Anadolu Group. He speaks Turkish, English and German.

