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TOTAL QUALITY MANAGEMENT AS CULTURAL PHENOMENA – A CONCEPTUAL MODEL AND EMPIRICAL ILLUSTRATION

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ABSTRACT

Total quality management has proven to be more than just a quickly disappearing management fad or fashion. It has been considered one of the most influential management innovations of the 20th century. TQM is based on a rather naïve and overly rational view of an organization but, without a doubt, it has had a significant influence on contemporary management practices. The ISO 9000 family quality standards and quality award criteria have led to the practical development and diffusion of the discipline, and at the moment, they provide the most comprehensive definition for TQM. The Malcolm Baldrige National Quality Award has been selected as the practical definition of TQM for this study.

The role and impact of TQM is examined based upon how it ensures an organization will meet its mission and ultimate objective of long-term survival. The means of how to achieve survival are specific to an organization, and depend on multiple factors. At the basic level, organizational survival is based on the processes of external adaptation and of internal integration. The role of TQM is analyzed based on the impact it has on those processes. Additionally, this analysis takes into account both the symbolic and technical value of TQM practices and approaches.

TQM is studied as a cultural phenomenon. Schein's model of organizational culture is used to create a multilevel framework of TQM. The framework has four interrelated levels: basic assumptions, core concepts and principles, management areas, and management practices. This research focuses on the deepest level, the analysis of basic assumptions. These are implicitly inherent to the discipline, and the process of deconstruction is used to uncover the core basic assumptions that support the implementation of a TQM program. They define the basic beliefs held in an organization, which has been able to fully implement TQM. These basic beliefs include an organization's mission and relationship to the external environment, the nature of human nature and relationships, the nature of reality and truth and the nature of time and space.

The deconstruction of TQM and identification of its basic assumptions is done in the context of ideal quality management, which is the perfect implementation of TQM based on quality award scoring criteria. Convergent analysis of the discipline demonstrates that TQM is based on mutually compatible basic assumptions, which forms an ideal quality culture. The concept of ideal quality culture is a simplified model, which does not have any applications in real organizations in its pure form, but it can be used for both the theoretical and the practical improvement of the discipline. This research makes the proposal that future theory development can focus on the analysis of the implications in circumstances where some of the basic assumptions are invalid.

In practice, the argument brought forward in this research is that variation in the success of TQM implementation is based on discrepancies between the existing organizational culture and ideal quality culture. TQM programs are more likely to succeed if the prevailing organizational culture is compatible with the values and basic assumptions proposed by the total quality management discipline. In the empirical part of the study, the practical value of theoretical framework is illustrated in the analysis of application of TQM in project-oriented organization.

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This work would not have been possible without the help of many people and full support from my employer. The initiative to continue post-graduate studies came from my former manager, Teuvo Laaksonen, who has always found time to review and discuss my work. I have been fortunate to have many enthusiastic and generous people around me at work. They have not only given me an opportunity to test new ideas, but also provided me with constructive critiques and feedback, which is necessary for new ideas to develop. The single most significant insight I have gained during this research journey has been that all opinions are worth exploration. They are important and valid at least in the context they have been expressed, and the danger of ignoring them is well illustrated in the poet 'The Blind Men and the Elephant' by John Godfrey Saxe.

I would like to use this opportunity to give special acknowledgement to Jorma Veräjänkorva, whose support was indispensable in the early years of this research, and Juhani Timonen for enlightening discussions, which were the source of many ideas which are presented in this thesis. Quality manager Seppo Säilä has had an essential role in the application of these research results into practice. My current superior, Hannu Pietilä, has been understanding with my research and given me an opportunity to take the time required to complete this work.

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Jaakko Kujala

THE BLIND MEN AND THE ELEPHANT

By John Godfrey Saxe (1816-1887)

It was six of Indostan
To learning much inclined,
Who went to see the Elephant
(Though all them were blind)
That each by observation
Might satisfy his mind

The First approached the Elephant,
And happening to fall
Against his broad and sturdy side,
At once began to brawl:
"God bless me but the Elephant
Is very like a wall."

The Second, feeling of the tusk,
Cried, "Ho! What have we here
So very round and smooth and sharp?
To me 'tis mighty clear
This Wonder of an Elephant
Is very like a spear!"

The Third approached the animal,
And happening to take
The Squirming trunk within his hands,
Thus boldly up sand spake:
"I see," guoth he, "The Elephant
Is very like a snake!"

The Fourth reached out an eager hand,
And felt around the knee,
"What most this wondrous beast is like
Is mighty plain," quoth he;
"Tis clear enough the Elephant
Is very like a tree!"

The Fifth, who chanced to touch the ear,
Said,: "E'en the blindest man
Can tell what this resembles most;
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

The Sixth no sooner had begun
About the beast to grope,
Than, seizing on the swinging tail
That fell within his scope,
"I see," quoth he, "the Elephant
is very like a rope!"

And so these men of Indostan
Disputed loud and long,
Each of his own opinion
Exceeding stiff and strong,
Though each was partly in the right,
And all were in the Wrong!"

Moral
So oft in theologic wars,
The disputants, I ween,
Rail on in utter ignorance
Of what each other mean,
And prate about an Elephant
Not one of them has seen!

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1 INTRODUCTION

Total quality management is one of the most important management innovations of the 20th century, and it has probably had more influence on contemporary management practices than any other management movement. However, TQM itself has been poorly defined and it is a very complex phenomenon. It had a sound basis in the statistical control of manufacturing processes (quality control), but since the 1990's, it has been increasingly applied to the general management of an organization. The objective in the original applications of quality management was to build and manage the organization so that it achieved and maintained a consistent, desired level of quality. The major problems arising from the expansion of the scope of TQM are how to define quality in a larger context and how to take account of additional complexities of managing social systems.

1.1 BACKGROUND OF THE RESEARCH IDEA

It is important to describe the background and development of the research idea, not only to explain the motivation for the research, but also to give some indication about the preliminary pre-assumptions of the researcher. In organizational research, where the study is always impacted by the observer's knowledge, previous experience and personal bias, the researcher's background is an important factor when evaluating research findings and conclusions. As a researcher, this section forced me to examine my potential biases and to reveal some of my initial assumptions about the nature of TQM, which led to a more objective research approach.

This analysis takes a phenomenological view of the study of the total quality management approach and claims that the social world has no external, objective, or observable truth. Any objective fact about organizational behavior is simplified, trivial and has been taken away from social context. In this research, the focus is on understanding the role and impact of total quality management in managing organizations, which are, by nature, social systems[1]. Objective facts studied only in a positivist perspective are inadequate to provide useful knowledge of the factors affecting the success of TQM practices.

1.1.1 Background and motivation for research

I have been involved with TQM since the beginning of my working career, immediately after graduating from the University of Technology in 1994. Initially, for a young computer engineer in Valmet Corporation confused by the complexities involved in managing and understanding elaborate organizations, TQM seemed to provide answers to all management problems. It has a rational and predictable prescription for any aspect of managing an organization. One could, after all, forget the complications of human nature and complex interrelationships among people or the implications of various external environments. Organizations are carefully designed systems used to implement specific tasks; they function almost like machines and the universal instructions on how to use these machines were given to us by founders of the discipline, like Juran and Deming.

[1] I have adopted the following general definition of an organization for this study*: "Organizations are social arrangements for achieving controlled performance in pursuit of collective goals*" (Buchanan and Huczynski 1997).

These instructions were later codified in the form of ISO 9000 series quality management system and quality award criteria[2]. These frameworks guide implementation of TQM based management practices in an organization.

However, it became evident that some of the practices and prescriptions of the total quality management discipline did not always work, nor did they provide the desired results. In some cases, they were rejected and never implemented. A good example relates to the use of customer surveys, which, in many cases, did not seem to impact actual operations. In addition, the implementation of such surveys proved to be much more difficult than originally anticipated by the discipline. Customers were not always co-operative, nor were they aware of all of the essential product aspects, therefore making them often unable to provide useful information. In addition, consumer personalities or individual political agendas seemed to impact results. In certain environments, the needs and requirements of the customer were very distinctive and statistical analysis of the surveys did not provide any additional information. As a result, while most of the units decided to create a customer surveying methodology, some managers decided not to create a sound and systematic approach when surveying the customer.

It was disturbing to find that, in many cases, clearly technically insignificant TQM practices receive a lot of management attention during the review and assessment of the quality management system[3]. They were praised as good management approaches, and it was often proposed that these practices would be implemented in other units as well. Experienced managers intuitively recognized that some TQM practices had value beyond their purely technical benefits. The discipline itself did not have any justification as to why an organization should implement management practices, which were not producing any technical benefits.

Quality management professionals were unable to provide satisfactory answers for the inconsistent success of TQM implementation. Most research and journal articles from the early 1990s described TQM cases where the research approach and objectives were outlined to promote total quality management applications or to demonstrate the failure of the TQM movement. These articles did not provide an analysis of TQM applications, which could explain and predict quality management approaches in various environments. A few rigorous empirical studies on the subject did not provide justification for the promises made by the TQM discipline, nor did they show any reasons for enthusiasm. As a matter of fact, some well-published failures of Malcolm Baldrige National Quality Award winners[4], and surveys of manager's perception of economical benefit of TQM programs[5], did suggest that the promises of the discipline were not fully delivered.

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[2] Garwin (1991) shared this same perception about Malcolm Baldrige National Quality Award claiming that it "*codifies the principles of quality management in clear and accessible language*".

[3] There ware multiple issues, which did not seem to make any sense for a young engineer. One to mention here was the emphasis for creating history trends out of data, which often did not seem have any relevance in current operations.

[4] Among the most praised TQM implementations were those of Florida Power and Light, Motorola and Xerox. The recent performance and financial results from those companies do not suggest superiority of those companies using TQM.

[5] For example, Industry week (1992) reported a study in which only 26% of organizations surveyed believed that TQM had helped them to meet such goals as increased market share and customer satisfaction.

TQM is a mature management approach that is widely used in various industries. The wide acceptance and use of the discipline provides additional motivation for the research. Improvements to any aspect of the discipline would lead to significant economical benefits. However, there was not much evidence of systematic re-evaluation and improvement in the discipline. Although it promotes a continuous fact-based improvement, there was no evidence that the discipline itself developed according to its own core values. As a result, most principles and values central to TQM are based upon approaches that are over a decade old. They were created for repetitive manufacturing processes and brought to other industries without deep analysis.

An additional motivational factor has been the recent development of the ISO 9000:2000 family of quality management standards, which will increase the significance of effective TQM implementation[6]. It forces certified organizations to apply a considerably wider scope of TQM values and practices compared with the previous version of the standard (ISO 9001:1994).

1.1.2 Reaching to the research question

The first problem in researching the role of TQM and the benefits of TQM implementation is identifying how to measure its success. A logical measurement instrument is Quality Award Criteria, which were developed to measure the implementation level and success of the TQM program. The problem with quality award criteria is that they give only broad guidelines, and it is difficult to identify which practices and organizational results are derived from the use of TQM programs. In some cases, quality award criteria promote practices that do not seem to provide any business value for an organization. The prevailing conception was that total quality management approaches benefit an organization, but this concept was based on perception rather than fact-based evaluation. A deep knowledge did not exist regarding which areas were most beneficial and how resources could be focused on these areas. TQM was unable to provide this information, even though one of the core practices in the discipline is the measurement of organizational performance. One of the central management areas in the award criteria, information and analysis, clearly fails to provide this evidence and direction for the future improvement of the discipline.

The next phase of this analysis was to question the reasons behind the slower-than-expected implementation of TQM programs. The research question was whether or not there were problems with the content and normative guidelines of the discipline, or if slow implementation can be blamed on management. The most plausible explanation was that some of the principles inherent to the discipline do not fit certain organizations, causing friction in implementation practices. TQM advocates and literature gave a clear answer to this problem: management commitment, additional work and patience will bring results.

In Valmet Corporation, there was a clear target for the TQM implementation process. The CEO of the corporation gave all business units a target of 700-points[7] to achieve by the

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[6] By the end of year 1998, 271,966 certificates were issued in 143 countries (Romano 2000).

[7] Sources: company internal documents, interviews and Veräjänkorva (1996, 1998). In addition to the 700-point target on the MB-scale, units were given a mandatory target to achieve a minimum of 400 points, or they would be placed under special attention of management.

year 2000. However, by 1999, after almost a decade of intense work, not a single unit had been able to reach their target. The best unit in the Valmet Corporation won a Finnish Quality Award with a score significantly lower than the target posed by the CEO of the corporation in year 1998. Why then, were units unable to meet the target of 700 points on the Malcolm Baldrige Quality Award scale?

This failure to achieve the target level was not due to the lack of commitment from senior management of the corporation or having incompetent managers in the business units. The high quality of management systems and the competence of managers were demonstrated when Valmet was selected as being among the most competently managed organizations in the world[8]. The implementation program received strong support from the corporation's senior management. A company-wide training program and the necessary resources were provided in the implementation of the TQM program. All business units had the full support and commitment of the senior management or the corporation, which is one of the most often-mentioned fundamental requirements for a successful TQM program.

While most units were able to achieve the mandatory 400-point level quite easily, they had difficulty moving beyond the 400 to 600-point level. Above the implementation level of 400-points, management must move beyond merely copying and implementing basic practices. They should also be able to demonstrate evidence of an integrated management system, a systematic approach to continuous improvement, and a fact based approach to management. In addition, some requirements related to gathering data in order to demonstrate organizational results proved to be difficult to implement in practice. Some of the main obstacles were a requirement to show trends toward improvements that cover all significant management areas, and an ability to show relevant benchmarking information.

Brown (1999) gives a convincing answer to overcoming the difficulty in reaching the score of 700 points. He brings attention to the fact that a score at this level indicates a truly world class organization in all areas. Perhaps the reason that Valmet did not achieve targets was because TQM was still in the early phases due to slow implementation. One approach in getting a rough figure of the TQM implementation level is a methodology introduced by Dale (1999:87). He classifies organizations, which are engaged in TQM implementation programs, into six categories:

1. Uncommited: Organization has no formal process for quality improvement and it may be totally ignorant of TQM.

2. Drifters: Organization has been engaged in a process of continuous improvement for 2-3 years, but some members are expressing disappointment that TQM has not lived up to expectations. TQM is still considered the latest management fad.

3. Tool pushers: Organization has a typically formal quality management system (for example ISO 9001 based quality management system) and it has been engaged in continuous improvement for 3-5 years. It employs a selection of quality management tools such as statistical process control, design of experiment, quality function deployment, and benchmarking is used for quick fixes of problems.

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[8] Industry Week selected Valmet for the third time as one of the world's best-managed companies. The magazine based its assessments on consistent management performance, financial performance and investments for the personnel and the future during the year. There are only 12 other companies that have appeared in the list three times (Valmet Corporation, Internal news release 19.08.1999)

4. Improvers: Organization has engaged in a process of continuous improvement for 3-8 years and it has made significant improvements. CEO and senior leadership have committed themselves to TQM through their leadership and personal actions, but TQM program is still mainly in the hands of a few enthusiastic individuals.

5. Award Winners: Leadership culture exists throughout the business and the program is not dependent on the commitment and drive of few individuals. All employees participate in improvement activities and a number of successful changes have been made.

6. World Class: The never-ending pursuit of complete customer satisfaction to satisfy latent customer requirements is a personal goal for everyone. Company values are fully understood and shared by employees, customers and suppliers.

The detailed requirements in each level are given in Dale (1999), but based on an overview of each level, I would be reluctant to say that any Valmet unit has exceeded level four. In many units, quality tools were not used to the extent that they would be considered to have completely met the level 3 requirements. This conclusion closely corresponds to scoring given during the external assessment; most units were unable to move beyond the implementation of certain basic TQM practices. These units had barely been able to implement the ISO 9001 based quality management system, which is generally considered to be at about the 300-point level in the Quality Award Criteria scoring system.

The problems with implementation seemed to be difficult to articulate. There were multiple explanations, which were often related to specific situations. This research path did seem to clarify the problem and I decided to ask the following hypothetical question to gain some understanding of the underlying reasons for problems with TQM: What type of organization would be able to reach, or even approach, 1000 points? A description of such an organization and its environment would give readers insight into the discipline and could potentially to uncover hidden assumptions about organizations, human beings and the environment, which prevent or support effective TQM implementation. In fact, this practice leads toward uncovering the limitations of TQM, because some of those assumptions may not be valid in all environments. This approach may seem critical, but the objective does not question the value of the TQM discipline in general. Rather, it provides a strong basis for implementing TQM programs into specific environments.

I was inspired by an analogy to the natural sciences. The objective to improve TQM by seeking limits to the applicability of the discipline is similar to the evolution of Newton's laws of gravity, which have advanced from general theory to include also boundary conditions[9] for the applications of the theory. In those cases, where Newton's Laws of Gravity are not applicable, alternative and complementary theories, such as the Theory of Relativity, can substitute Newton's Law and provide more accurate results.

Boundary conditions for TQM have not been identified, nor are there specific theories available for guiding TQM implementation into specific environments. This limitation can lead to potential problems in implementing TQM programs. We can't predict the success of implementation programs or the potential outcome of TQM interventions in specific cases, which decreases its value as a practical management discipline. The fact that there is no accurate understanding that explains limitations of TQM was the strongest

[9] When applying these laws, explicit assumptions are made about (1) the relative speed of the object, and (2) the size of the objects.

motivational factor for this research. Additionally, the lack of a core theory for TQM makes any systematic improvements to the discipline difficult.

1.1.3 Valmet quality Journey

I provide an introduction to quality management practices in Valmet Corporation[10] during the years 1989-1998 because this company had a significant role in my research and the quality management practices used in Valmet Corporation provided a context for the early development of the research idea. Valmet was the world's leading supplier of paper and board machines and related process automation. Paper, board and tissue machines, stock preparation equipment, paper finishing machinery, converting machines as well as related process control and power transmission account for over 90% of the Valmet Group's net sales.

Valmet Corporation has been a pioneering organization in the development and distribution of the quality management ideology in Finland (Savolainen 1997). The beginning of the Valmet quality journey can be traced back to the 1970's, but the quality efforts intensified in the early 1990' through the ISO 9001 certification program and the introduction of quality award criteria[11].

The decision to acquire ISO 9001 certification for all significant units was made in 1989. The leading unit was paper machinery, where certification was perceived as being a mandatory requirement for doing business in the future. ISO 9001 based system was also considered to be a building block in the TQM based management system[12], the first step in the more comprehensive quality management system. A formal decision to use quality award criteria as a measurement and improvement platform for all units was made in 1993. Corporation prepared to support individual units by introducing action plans on how quality awards could be used to improve business operations, by providing training programs, and by initiating an extensive assessment program. Almost all training was developed internally; consultants were not used, and quality related knowledge was kept inside the organization. One major exception was quality training provided by the Juran Institute for external auditors in 1995 and 1997.

The most visible corporate support for implementation practices was internal quality training, which was given in the form of self-assessment workshops. In the workshops, cases from various Valmet units were reviewed and scored against the criteria. This training allowed units to learn from each other and share their best practices. By the year 2000, about 1500 managers had participated in these training workshops.

Valmet initiated an extensive internal and external self-assessment program, which can be considered to be the key element in the integration and implementation of quality management practices in the organization. Internal self-assessment was based on

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[10] The name of the organization was changed to Metso Corporation in 1998 as a result of a merge between Valmet Corporation and Rauma Corporation. In this research, I have used name Valmet is those instances when I refer to the organization prior to 1998. Additionally, for a short period between 1998-2000, the former Valmet Automation was named Neles Automation.

[11] For a description of the early phases of the quality development in Valmet Corporations see Savolainen (1997:54).

[12] See for example Majerczyk and DeRosa (1994) and Peach (1994) for discussion about how to used ISO 9001 standards as the first step for more comprehensive quality management system.

questionnaires and each unit was expected to conduct one before the external assessment, which closely followed the format of the official CPE application process. A team of six external auditors, which also included the business unit's senior managers, conducted an external assessment. The assessment process included a formal written application (fact book), review of the application individually by each assessor, consensus meeting, site visit and final scoring. The identification of strengths and areas of improvement was considered the most significant output of the assessment process, but each unit also received a score according to CPE scoring instructions. The score was an indicator about the implementation level of TQM activities and trend of improvement. In appendix 3, the development of TQM in Valmet Corporation, including ISO 9001 certification, training workshops and external assessment, is shown. This figure was internally used to demonstrate the organization's commitment to the development of quality management systems.

In 1995 a balanced scorecard approach was introduced in Valmet. The methodology was first introduced as a separate process, but in Valmet it was, after a short period of confusion, accepted as an integral part of TQM program. A corporate wide program was initiated to define key measures, and each unit was expected to show its results using a balanced scorecard, which was modified in order to correspond to quality award scoring categories. This was an example of TQM being able to adopt and integrate a new management approach[13].

Valmet has also been active in demonstrating its commitment to quality to external stakeholders. The CEO of the corporation was acting as the president of the Finnish Society for Quality and some customers and suppliers were directly included in the quality improvement activities. They participated in Valmet quality training programs, and in some cases Valmet personnel supported their self-assessment and benchmarking practices. In general, Valmet took quite an active role in facilitating the diffusion of quality ideology among its key stakeholders and among the Finnish business society.

In addition to corporate level programs, each business unit was expected to individually maintain its ISO 9001 certification and develop its business practices according to the quality award criteria. One of the most successful units was Valmet Järvenpää, which won a Finnish Quality Award in 1998. Receipt of this award can be considered recognition of the quality work done in the whole corporation, because several other units have quality management systems in relatively equal level. Specific information related to scoring is confidential and cannot be included in this thesis, but the score was considerably less than 700 points.

[13] A detailed description of balanced scorecard approach is given in Kaplan and Norton (1996). According them balanced scorecard is a management approach, which supports TQM implementation and it is "*perfectly consistent with TQM principles*".

As a part of the merge between Rauma Corporation and Valmet Corporation, an official quality program in corporate levels was discontinued. The program was abandoned mainly because Rauma Corporation was not previously involved with TQM and did not have a program for it at the corporate level. The new corporation was headed by the former CEO of Rauma Corporation, who was was not concerned with the development and continuous improvement of a total quality management system. The lack of focus on quality programs in the corporate senior management level had an immediate negative impact on quality programs in the business units. Most units did not continue overall development of management systems based on quality award criteria and the main focus on quality management activities shifted to the ISO 9001 based quality management system[14].

1.1.4 Remarks on research area

One of the major obstacles I faced was difficulty in determining the phenomena to be studied and analyzed. A review of existing research did not clarify the issue, which made early progress slow, but it was also a source of motivation and provided an excellent starting point for the study. There was clearly a need for this type of research.

I believe that the source of confusion stems from two sources: lack of conceptual understanding of the definition of TQM, and unclear definition of some core concepts of the research areas. The first problem will be addressed later in this report, but the following four distinct concepts can be identified to clarify research approach: quality, job-related skills and competence, quality engineering techniques, and total quality management.

A detailed review of the research done on defining quality is not relevant to this study, which focuses on total quality management as a management discipline. For the purposes of this study, Lillrank's (1998) four-dimensional construction summarizes the main perspectives to quality[15].

(1) A production centered perspective, which focuses on variances in the production process. The most common measure is the number of defects or non-conforming products.

(2) A planning centered perspective that has a focus on product features.

(3) A customer centered perspective, which focuses on the value of products and services for the customer.

(4) A system centered perspective that takes into account all stakeholders who are impacted by the organization or its products.

Traditionally, job-related skills and competence was adequate to produce high-quality products and services. Manufacturing in pre-industrialized and craft-based industry is

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[14] Some units are again considering use of quality award criteria as a management tools and there is active discussion in the corporate level about the role Metso management should take in quality management (Interview with Martti Karttunen, President, Paper Finishing Systems, Metso Paper, Inc., April 5, 2002).

[15] Additionally, Lillrank discusses 'transcendent' quality, but he concludes that because it cannot be measured, it is not a practical concept and it can be discarded. Philosophically it has an important meaning, demonstrating that there is always information and knowledge that can not be managed using a traditional rational and control based management approach.

based upon the competence of individual workers. In the advent of industrialization and mass-production, quality-engineering techniques based on statistical quality control and problem-solving techniques were required as a basic skill of employees. The objective was to enable employees to keep the production process under control and to uncover the root causes for failure.

Total quality management is an approach guided by quality values and principles for building and managing systems (organizations), which are able to meet their quality objectives. The significant role of TQM is grounded in the belief that system related factors are, in most cases, the root cause of quality problems. A clear distinction should be made between TQM as management practice and quality as a measure of organizational performance[16]. Depending on which quality dimension is emphasized, an organization must select (quality) management practices that support its key goals.

1.2 OBJECTIVES AND SCOPE OF THE RESEARCH

The complex nature of TQM and its multiple perspectives, which have been associated with the concept of quality, have made advances in theoretical and research areas difficult. Academic research has been unable to make a significant contribution to the improvement of the TQM discipline and contemporary quality management practices (Dean and Bowen 1994). The academic community has often been accused of producing only impractical information, so this example is not unique and it can be also claimed that knowledge should be pursued for its own sake. However, TQM research is not about producing basic scientific knowledge, but how to apply this knowledge in order to improve organizational performance.

At first glance, TQM seems to be a simple and rational approach to management. It provides clear instructions of how an organization should be managed and what should be included in the organization's core objectives. However, TQM efforts often fail, and some managers intuitively recognize some of the current approaches as organizationally and politically naïve (Spencer 1994). This assertion suggests that TQM is a complex phenomenon including deeper levels beyond visible organizational structure and management approaches. A research on TQM would require a theoretical framework, which would enable to study multiple aspects of the discipline. Since organizations are complex social systems, this framework should take into account the perspective that an organization is a social system. The development of such a framework was the academic starting point for this research.

[16] According Flynn, Schroeder and Sakakibara (1994), a key aspect in theoretical development of TQM is articulation of the distinction between quality management practices (input) and quality performance (output).

The practical initiative to undertake this research comes at the request of the former president of Valmet Corporation to analyze the results of the TQM program, as well as to provide examples of successful TQM interventions. During the 1990's, business results from Valmet Corporation showed tremendous improvement, but there was no proof that this tendency was due to systematic quality development and improvement of operations[17]. This simple request proved to be difficult to carry out and led to three broad research questions:

- What is total quality management (conceptually and/or in practice)?

- What are the limitations in the applicability of TQM? What are the sources of the variation of success among TQM implementation programs?

- How may one measure the benefits of the successful implementation of a total quality management program?

These research questions are complex in nature, and cannot be comprehensively answered based on the existing research. This research intends to increase the understanding of TQM by creating a conceptual definition, which is grounded on established fields of organizational theory and integrates contemporary models(s) of TQM. Alternatively, if this research objective can not be achieved, it would indicate that TQM does not have a sound theoretical basis and is simply a random set of management principles and practices, which are marketed under a common name.

My personal experiences in the case organization and the preliminary analysis of research on TQM demonstrated that many TQM practices, principles and values are based upon superficial assumptions[18]. These implicit assumptions are inherent to the discipline, and they are generally unrecognized. Because they are not valid to all organizational environments, they may provide insights into the second research question.

The main research question leads to three specific objectives for the study:

1. To introduce a conceptual framework for analyzing and better understanding TQM.
2. To identify those central assumptions, which are inherent in the discipline and evaluate how they affect the success of TQM implementation programs.
3. To provide theoretical framework and guidelines to evaluate role and benefits of TQM based management approaches

[17] This letter, signed June 1996, was the starting point for the research: "In the 1990's Valmet has put much effort on the systematic quality development and the improvement of the efficiency of operations. Simultaneously the net income of the corporation has improved in recent years. We believe that the positive financial performance is, at least to some extent, due to quality development. There is, however, little unambiguous proof of this… Especially our top management considers answers to these questions very important…"

[18] Some of those assumptions, covered in detail in chapter 4, include availability of objective information or and assumption about prominent role of customer in senior management capability to change organizational culture.

The second research objective can be directly linked to the research question proposed by Kekäle (1998:136) in his doctoral thesis. He encourages further research concerning "*which dimension(s) or assumptions that are central when it comes to the development of TQM."* This study continues and complements his preliminary work by attempting to identify the central assumptions of the discipline.

This research aims at contributing to the theoretical development, practical improvement and analysis of contemporary TQM approaches. Integrating existing academic research findings develops the conceptual framework. Academically, the objective is to develop a theoretical foundation for TQM and to provide direction for future research. For practical managers, this research should provide new insights to the implementation process of TQM programs in their organizations. This objective is brought up in the empirical part of the study, where the theoretical framework is applied to the implementation of TQM based management approaches in project-oriented organization.

The initial scope of analysis in this research deals with an organizational unit, which has all major functions and can independently make decisions about its future. However, because organizations are open systems, we cannot fully understand the role of TQM without analyzing the role of TQM in larger context (for example corporation having multiple business units or industry segment). TQM is examined as an organizational wide administrative management discipline in the scope as defined in the quality award criteria and ISO 9001:2000 quality management standard. These research results should be applicable for any type of business and not-for profit organization.

This research focuses on the content of TQM and the benefits obtained from a successful implementation program. It does not directly address the issues related to organizational or cultural change, and the most effective method of implementing TQM. However, in line with the arguments made in this research that we cannot separate content and implementation, research results provide some indication of how difficult the implementation process will be and which elements of TQM are the main sources of friction.

1.3 STRUCTURE AND CONTENT OF THE THESIS

The content and structure of the thesis aims not only at presenting research findings, but also at describing the research process. I have also included additional comments and references to related research work in the text, because they give some insight about the mental process of producing this interpretative work. For similar reasons, there is also repetition of core ideas, which illustrate how this report has formed. The logical structure of the thesis follows the path outlined in Figure 1-1.

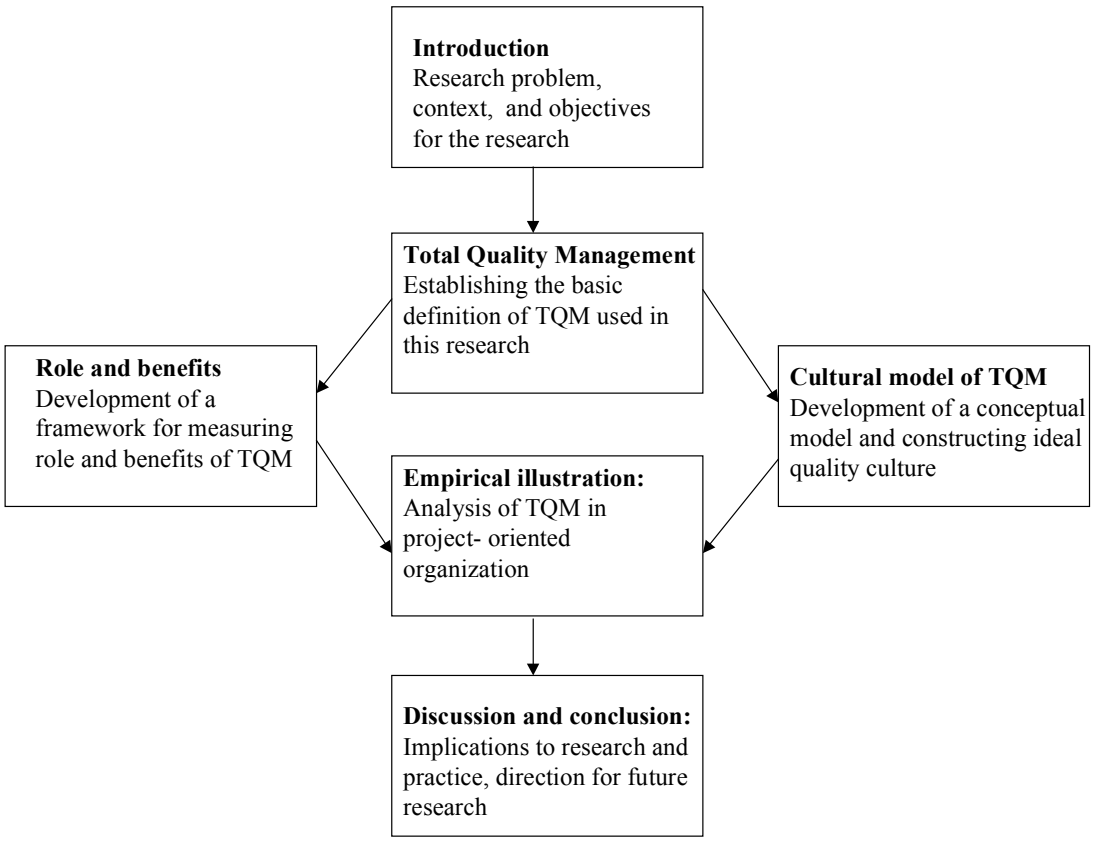

Figure 1-1: Structure of the thesis

Chapter 1 begins with background and development of the research, and introduction of context, which has had significant influence on implementation and objectives of this research. This introduction leads into specific research questions and objectives, research approach and theoretical background.

In chapter 2, the main focus is on the review of existing research, history and development of TQM, and introduction of contemporary models of TQM. This analysis presents the current conceptual foundation of TQM and leads into the selection of Malcolm Baldrige National Quality Award Criteria 1999[19] (NIST 1999) as practical definition of TQM. In order to avoid problems related to measurement of implementation level and to simplify the model, it is refined further to the concept of ideal quality management, which is the perfect implementation of a TQM program.

Chapter 3 discusses the role of TQM in supporting organizational survival, which is assumed to be the ultimate goal for any organization. Organizational survival is studied from two different perspectives. The first approach is based on the processes of external adaptation and internal integration, which are the core processes in ensuring organizational survival. The institutional perspective complements these two processes by enabling us to study the effectiveness of external adaptation or internal integration based on technical or symbolic gains.

Chapters 4.1 – 4.3 introduce the conceptual framework of TQM based on the cultural model of an organization. This four-level framework is used to deconstruct TQM and to analyze its key components. In chapter 4.5, the research approach shifts from analytical to constructive using basic assumptions identified in the previous chapters as building blocks for new construction. The objective is to explore whether TQM basic assumptions are mutually compatible forming ideal quality culture.

Chapter 5 provides an empirical illustration of how a conceptual framework can be applied to study TQM implementation programs. An example of the application of TQM in a project-oriented organization is used to demonstrate practical values of the theoretical framework in order to understand difficulties in the implementation process. In addition, Appendix 1 describes an application, in which a framework has been used to evaluate the use of the customer satisfaction survey methodology in two case organizations.

Chapter 6 discusses insights brought forward in this research, which could be used to analyze practical quality management approaches leading into the development of the TQM discipline. It also analyses the contribution of this research in theory development.

Finally, in chapter 7, a conclusion and directions for future research are given.

[19] Malcolm Baldrige National Quality Award Criteria – Criteria for Performance Excellence (CPE)

1.4 RESEARCH APPROACH

This research is based on hermeneutic research approach. The traditional "scientific" positivist research paradigm is not well suited for studying TQM as an organization-wide phenomenon with the main focus on increasing our understanding of TQM[20]. The development of theory of TQM is still in the early phases, and there are not clear questions available to be tested using large-scale empirical studies and positivist approaches. I'm not claiming that a positivist perspective cannot be used in studying TQM, rather the role of a positivist perspective should be to support qualitative analysis (theory validation). Additionally, TQM as organizational phenomena is too complex to study from positive perspective[21]. It can be used in situations where TQM is studied in specific and limited scope, such as with a reduction of process variation or lead-time in assembly line. These types of applications of TQM lead to objectively measurable results, and the cause-effect relationships between events can be defined.

This research is based upon hermeneutic research paradigms and qualitative methods. The time span of the research process has spanned five years, during which time I have been integrated into the organization and participated in the implementation of TQM practices. The research process follows the logic of hermeneutic research process as described by Olkkonen (1993:33):

- A description and a detailed analysis of the phenomenon

- A search for potential explanations based on my understanding of the phenomenon

- Review of existing research and theories to gain support or discover alternative explanations

- Creation of a model (ideal quality culture, framework for analyzing benefits of TQM based management approaches)

- Validation of the models and a potential for generalization

This five-year research process can be divided into two phases. In the beginning, the research was mainly exploratory. The initiative for the research came from personal observations that there were difficulties in the implementation of some total quality management practices[22]. The main objective was to gain an initial understanding of the definition and scope of TQM based on both the existing research as well as the empirical observations in the case organization. Interpretative explanations of the potential impact of TQM practices and underlying reasons causing difficulties in the implementation of TQM based practices emerged concurrently. The research approach used in the first phase can be classified as action-analytical (Olkkonen 1993:72).

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[20] See Allan (1998) and Waldman (1995) for discussion about research approaches and methods in research on TQM.

[21] In chapter 2.1 Review of Existing issues related to research approach are further discussed. The evaluation of research done from positivist perspective supports this conclusion.

[22] This study takes a critical approach in a sense that it aims at understanding reasons behind failure of some total quality management practices. However, the ultimate objective is not to criticize TQM as a management discipline, but to gain better understanding, which can be applied to theoretical development and practical implementation of the discipline.

A constructive approach is taken to create an ideal quality culture and a theoretical framework to study the role of benefits of TQM approaches in the second phase of the research. This analysis uses and takes and advantage of ideal models, which are simplified representations of real world phenomena. They allow one to analyze theoretical elements in the model and how they are related to each other without taking into account the complex nature of social systems. The practical value of these models is based on the identification the differences between an ideal model and a real organizational setting.

Ideal quality culture and theoretical framework to study benefits of TQM approaches are applied in project-oriented industry in the empirical part of the study. The objective of this phase of the study is to illustrate that these models are relevant to study TQM implementation programs in a practical setting. The objective of case study is not to validate the reliability of a general model, but to be seen itself as a "theory of a case"[23], which leads to practical action plans in the case organization.

The research results are descriptive in nature. They are based on my interpretation of the phenomena through a selected theoretical and conceptual framework. The objective of this research is to increase our understanding of TQM, and I do not attempt to provide normative guidelines on how to select or implement TQM based approaches.

[23] A term used by Ikujiro Nonaka in Academy of Management 2001 meeting in Washington. His proposal was that we should not overlook case related information, which is rich in context and thus has a potential for additional insights. Session 920: Knowledge Creation and Practice Grounded Research.

1.5 THEORETICAL BACKGROUND

The scope and objective of this study largely determines its theoretical sources. Organizational and management theory is a natural theoretical basis for studying an organization-wide management discipline, which has a significant influence to almost any aspect of organizational design. Cole and Scott (2000:Introduction) identify organizational theories that could support the analysis and theoretical development of total quality management: contingency theory, resource dependency, evolutionary economics, organizational learning, organizational ecology, and institutional theory. Dean and Bowen (1994) provide a comprehensive analysis of TQM in respect to management theory, including leadership theory, human resource management literature, strategic planning, use of information, process management and the customer-supplier relationships

The main theoretical sources for this research are the concepts of organizational culture and institutional theory. Organizational culture provides a foundation for the conceptual framework, and institutional theory complements traditional measures of performance, which are used to evaluate and understand the role and benefits of TQM interventions. Additionally, contingency and resource-based theories are relevant in challenging the universal applicability of TQM, and they are briefly covered in this chapter.

1.5.1 Nature of the organization

Organizations are social systems that operate in socially constructed external environment. I am using Buchanan's definition for an organization as a basis for my work. Buchanan (1991:9) defines an organization as *"Social arrangements for achieving controlled performance in pursuit of collective goals"*. The note that states organizations are social arrangements distinguishes them from physical systems. Organizations are based on social relationships between individuals and governed by factors, which affect human behavior. Controlled performance means that there is deliberate action to control these arrangements in order to achieve collective goals set for an organization. Collective goals are the ultimate purpose or mission of the organization. They are the shared set of goals, upon which the employees in an organization have agreed. In addition, each member of the organization may have individual goals. An important factor in the management of the organization is handling the potential inconsistencies between individual needs and the collective purpose of the organization.

Buchanan's definition does not capture all the characteristics of an organization. Morgan's (1997) metaphors of organizations are used as tools for analyzing some of the specific TQM aspects and their role in an organization. The metaphors applied to support and illustrate theory development for this study are organization as a machine, organism, culture, political system, a psychic prison, and as an instrument of domination. These contrasting metaphors can be used as a tool for critical evaluation of the organizational phenomena (Buchanan 1991:11).

1.5.2 Resource-based theory and contingency theory

Contingency theory claims the design of the organization is contingent upon environmental factors and there is no single best way to manage an organization (Lawrence and Lorch 1967). Contingency theory challenges total quality management as a universal approach to management[24]. The design of an organization is supposed to be contingent on environmental factors, in particular, work being performed and as well as the wider task environment. The main focus in contingency theory is on the impact of environmental uncertainty to organizational structure and what kind of information is required to perform the work processes. According to the contingency perspective, TQM principles and the associated practices should be matched to situational requirements (Sitkin, Sutcliffe and Schroeder 1994).

While contingency theory focuses its attention primarily on the structure of the organization, resource-based theory focuses more on the organizational environment and asserts that organizations are heterogeneous and possess various resources. This resource's heterogeneity produces variability in performance across firms (Peteraf 1993). In this research, the specific focus is on the organizational culture as an intangible resource. The assumption here is that a proper organizational culture is an intangible resource that is necessary for successful TQM implementation. Additionally, as organizational culture is influenced by external environments, resource based theory can be used to explain the formation of specific types of organizational cultures. For example, if an organization has been able to gain exclusive access to certain raw material and created a monopolistic situation in the market segment, it will be less likely to take into account customer needs and requirements. Cultural assumptions about role of the customer would be different in this type of organization compared to an organization engaged in competitive situation.

The proponents of resource-based views have argued that the competitive advantage results from those resources that a firm can control and own. Consequently, the focus is on research has been mainly on individual firms (Dyer and Singh 1998). In this research, it is argued that the success of TQM implementation programs is influenced by the cultures of those external organizations with which the organization is interacting. Organizations are open systems, and the value of internal cultural resources is dependent on how they match with industry level macro cultures and whether they encourage co-operation instead of competition.

1.5.3 Institutional theory

The dominant perspective on the analysis of effectiveness of TQM approaches focuses on the technical efficiency and effectiveness of its processes in order to ensure cost-effective production of high quality products. Institutional theory complements this view and asserts that, in addition to technical effectiveness, organizations need to achieve social fitness and legitimacy. This endeavor may be accomplished by adopting the prevailing rationalized concepts of organizational work, which society has institutionalized.

[24] The universal applicability of its management approaches (especially its principles and values) is one of the basic arguments in for TQM. If that is the case, an organization can expect similar benefits from TQM implementation programs regardless of organizational factors (for example size, technology or external environment).

Organizations that do so increase their legitimacy and survival prospects independent of the efficiency of those acquired practices (Meyer and Rowan 1991). The impact of institutional practices on organizational effectiveness is indirect, and they may not directly influence the core technical task (for example providing high quality products and services for customers) of the organization. Organizations, which fail to demonstrate their legitimacy by adopting these institutionalized practices, may not receive the necessary resources[25] or are forced to demonstrate legitimacy by some other, more costly means.

The relative importance of technical and institutional practices leads to the definitions of technical and institutional environments[26] (Scott and Mayer 1991):

- Technical environments are those where a product or service is produced and exchanged in a market where organizations are rewarded for effective and efficient control of their production system.

- Institutional environments are those characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy.

Depending on the type of environment, different motivational factors influence management interventions and potential outcomes of these interventions. In technical environments, the motivation for management intervention is the potential gain in the form of symbolic value. In institutionalized environments, management interventions lead primarily to symbolic value. The distinction between these two types of management approaches is important, because they lead into different types of practical applications and have a specific-criterion used to measure success.

Generally, technical merits are the only acceptable measure of success, and management justifies any practice by demonstrating or claiming that they have instrumental value. In the case of technical intervention, the objective is actually to improve the organizational processes, but in the case of institutional practices, the claim is made solely to gain and maintain symbolic value. The symbolic value of institutional practices can be maintained by protecting them from evaluation on the basis of technical performance: inspection, evaluation, and control activities. This protection can be achieved by de-coupling institutional activities from the technical core of the organization (for example by creating a separate department or function to maintain quality management system).

Technical and institutional environments are not mutually exclusive; they coexist and any organization must, to a certain extent, be technically effective while still maintaining its legitimacy. Organizations implementing any prevailing management practice, such as total quality management, are likely to gain both technical and symbolic benefits. Technical gains can be measured by the traditional standards of organizational performance such as cost reduction, decreased lead-times or increased product quality. Even if a TQM implementation program does not lead to improvements in technical performance, an organization may benefit by, for example, gaining access to new

[25] For example, organizations need to stress the importance of their employees and show that they care about their well being, in order to attract high-quality ones.

[26] In this discussion, environment refers to both the internal and external environments. An example of institutional benefits in an environment internal to organization is management legitimizing it actions by demonstrating that they are based on a rational analysis of data (for example from customer surveys).

customers[27]. The extent of these benefits is determined based on the strength of institutional demands from external environments and the technical fitness of adopted management practice(s).

1.5.4 Organizational Culture

Organizational culture provides the primary theoretical background for this research. There is a clear consensus that TQM programs go beyond implementing technical management practices and require a fundamental change in the way in which organizational members work together to meet customer requirements. These changes cannot be analyzed by focusing on visible technical interventions, but by gaining a deeper understanding of underlying cultural assumptions that support or prevent the success of those interventions. Organizational culture is a promising perspective of studying TQM, because it is based on understanding of organizations as social structure. Additionally, organizational culture and TQM share the characteristic that they are not constrained by organizational boundaries. The scope of TQM extends to include traditionally external stakeholders of the organization, such as customers and partners, which are considered as an integral part of the technical core of the organization.

As a concept, organizational culture is a complex phenomenon which has as many definitions and interpretations as that of quality management. In TQM research organization culture has typically been treated in a manner that does not fully capture its multidimensional and complex nature (Lyndby, Dematteo and Rush 1999). Although there is no consensus about the definition of organizational culture, most authors agree on the following characteristics: holistic, historically determined, related to anthropological concepts, socially constructed, soft, and difficult to change (Hofstede, Neuijen, Ohayv and Sanders 1990). These characteristics have not lead to an agreement on what constitutes and what is the core of organizational culture.

As culture has multiple meanings, various schools of research in organizational culture can be separated. Silen (1994) brings forward five research approaches:

- Comparative research focuses on differences in cultures, mainly on national levels.
- Corporate research, where culture is seen as consciously created by an organization.
- Cognitive cultural research attempts to understand cognitive backgrounds to collective value choices and actions.
- Symbolistic cultural research concentrates on the creation and maintenance of organizational culture through symbols, heroes and stories.
- Psychodynamic research that sees culture as the individuals' psychomental processes mirrored in their social relations.

The research approach selected for this study is based on cognitive cultural research paradigm, which is mainly drawn on the work of Schein (1985, 1992), as a theoretical base for creating a conceptual framework for TQM. His framework provides a model, which is directly linked to the basic functions of an organization (external adaptation and

[27] Many organizations require that their suppliers meet certain quality management standards, such as QS-9000 in U.S. car manufacturing industry.

internal integration); it recognizes the various cognitive levels of culture, and it is based on an integrated approach. These characteristics make it applicable to this research[28].

In the cognitive model of organizational culture, it is recognized that culture may manifest itself in the form of practices or espoused values, but the essence of the culture is a coherent set of basic assumptions or beliefs about how the world behaves. I have adopted Schein's definition of organizational culture[29]. Schein (1992:12) asserts that organizational culture is

> "*A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems."*

This definition of culture can be applied to any size of social unit that has an opportunity to stabilize its view of itself and its surrounding environment. Initially, culture is based on the founders of the group. Over time it stabilizes and forms an accepted way for organizational members to feel and think. According to Schein, only those assumptions, which are shared by organizational members, are truly part of the culture, which makes his model an integrated cultural model. The culture that evolves in a particular organization is a complex outcome of the original ideas of the founders, external pressures, internal potentials and responses to critical events. This process rests on the idea that the ultimate objective for a group is survival, and culture develops in response to meet this challenge. All group and organizational theories distinguish two major sets of problems that all groups, no matter what their size, must deal with (Schein 1992:11):

(1) Survival, growth and adaptation in their environment

(2) Internal integration that permits daily functioning and adaptability

Respectively, if TQM is studied as a cultural phenomenon, we should focus our effort in understanding its role and impact on these two distinct processes. TQM, in it broadest scope[30], is a holistic approach to management. As such, TQM should provide a means to deal with these two concepts; alternatively it should exclude some of the tasks related to external adaptation or internal integration. Any model describing complex organizations is a simplified representation, but it should explicitly explain the premises on which it was based and the consequences of omitting some aspect from the model. These tasks are not explicitly done in TQM, which makes it a potentially naïve approach to management.

Three different perspectives to organization culture follow and are presented in order to evaluate some of the limitations and implications of the selection of Schein's cultural model for the basis of the research. The perspectives brought forward are the strength of the culture, level of integration and multiple conceptual levels. The research on organization culture can be positioned based on these three characteristics.

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[28] See Lundby et al. (1999), Kekäle (1998) or Silen (1994) for more detailed review of various perspectives and approaches to organization culture in relation to research on total quality management.

[29] In this report, Schein (1992) has a prominent role. If not otherwise mentioned, culture related analyses are interpretation of his work in this research context.

[30] As defined in quality award criteria, for example Malcolm Baldrige Quality Award Criteria – Criteria for Performance Excellence or European Quality Award criteria.

Level of integration in organizational culture

Mayerson and Martin (1987) propose the use of three cultural paradigms: integration, differentiation and ambiguity, to gain better understanding of organizational culture and cultural change. The level of integration refers mainly to the degree to which culture is viewed as an organization-wide phenomenon, is based on mutually shared and compatible assumptions, and is controlled or created by top management. Table 1-1 (modified based on Mayers and Martin 1987) shows the key characteristics from paradigms of integration and differentiation. The third cultural paradigm, ambiguity, is based on the notion that organizational culture includes also competing and conflicting cultural assumptions. This third paradigm does not meet the definition of culture as used in this research, and it is therefore excluded from this discussion[31]. I acknowledge that in the practical implementation of TQM programs competing and conflicting cultural assumptions could have significant implications, but this study advances theory from this limited perspective to organizational culture.

Issue	**Paradigm 1: Integration**	**Paradigm 2: Differentiation**
Source	Leaders as culture creators	Multiple sources of cultural content
Characteristics	Homogeneity	Diversity
Conflicting values	Denied	Channeled (sub-cultures)
Change	Organization-wide, holistic	Incremental, partial
Response to Environment	Central, slow	Local, flexible

Table 1-1: Level of integration: Contrasting the two paradigms

The main difference between integrated and differentiated culture is the level of analysis. Integrated culture is homogenous on an organizational unit level, while differentiated culture is based on shared assumptions held by specific groups in an organization. The boundaries between these groups may be based on any factor, such as function (for example marketing), location, occupation, or demographic factors. Research does not provide a clear picture of the extent to which integrated organizational cultures actually exist. Most researchers accept the existence of subcultures within an organization. There is also wide agreement that organizational culture is influenced by national, occupational and ethical cultures. At one extreme, an organizational boundary can be viewed as just an arbitrary boundary around a collection of subcultures. Lillrank and Kostama's (2001) study on cultures in an airline company demonstrates that in complex organizations various functions are likely to create subcultures with different assumptions[32]. The assumption made here is that TQM culture is a set of overriding assumptions, which are not significantly influenced by national, occupational or ethical cultures.

[31] According Schein (1992:140): "*If there is a cognitive drive for order and consistency in the human brain, we can assume that human groups will gradually learn sets of assumptions that are compatible and consistent. If we observe inconsistency and lack of order, we can assume that we are dealing with an as yet unformed culture or that we are observing a conflict among several cultures or subcultures*".

[32] Essential dimensions differentiating between cultures in their study were found to be types of performance targets, cost of quality in single events, and the kind of logic used in daily reasoning.

Viewing an organization as an open-system, and inclusion of its environment as a part of the organization[33] complicates the issue of whether an integrated TQM culture can form. Organizations not only depend on the environment, but in their core production processes they often include external stakeholders, who have their own specific organizational cultures. We cannot study an organizational culture within the boundaries of legal organizational structures. Similarly, research concentrating on TQM cultures cannot focus only on organization itself, but it must take into account multiple cultures of stakeholders of an organization. Optimally, these stakeholders form a cognitive strategic group[34], which has adopted TQM principles for setting its strategies and for deciding how to co-operate and compete with each other.

Levels of Organizational Culture

Levels of organizational culture are based on the degree to which the cultural phenomenon is visible to the observer or member of the group (Schein 1992). However, in Schein's discussion, only basic underlying assumptions are considered to truly be a part of the organizational culture. Artifact and espoused values are only a reflection of the underlying culture. They are shaped by environment and personal characteristics of an organization's members.

Cultural level	**Content**
1. Artifacts	• Visible organizational structures and processes • Architecture of the physical environment • Language • Technology, products • Style as embodied in clothing, manners of address • Myths, stories told about organization • Published list of values, observable rituals and ceremonies
2. Espoused values	• Strategies • Goals • Philosophies
3. Basic underlying assumptions	• Unconscious, taken-for-granted beliefs, • Perceptions, • Thoughts, and • feelings

Table 1-2: Cultural levels (Schein 1992:17)

The most visible level of the culture is its artifacts and creations. They are discernible reflections of deeper values and assumptions of organizational culture. They include the organizational structure, policies, and procedures. They are easy to observe but difficult to decipher. Organizations may have a quality policy statement that emphasizes the role of

[33] For example, close partnerships between key suppliers and customers.

[34] See Peteraf and Shanley (1997) for discussion about significance and formation of cognitive groups. Their work is based on the concept of strategic group identity, which is defined as a set of mutual understandings among members of a cognitive intra-industry group regarding the central, enduring, and distinctive characteristics of the group.

the customer, but this statement does not tell us anything about the basic underlying assumptions of the organization[35].

Espoused values can predict what people will say in a variety of situations to rationalize their behavior (Argyris and Schön 1996:13). They do not necessarily predict what people will do in these situations and, as such, cannot be alone used to study whether TQM programs change behavior. For example, people in the organization may claim that they are customer-oriented if that is the principle, which is valued in the organization. Similarly, if the focus on TQM implementation programs is only on visible practices or espoused values, new practices are accepted and implemented only on rhetoric.

People behave according to how they assume the world works (Buchanan 1991:25). Over time, an organization creates a mutually compatible and consistent set of assumptions, which governs the behaviour of individuals in the organizational setting. This set of assumptions forms the deepest level of organizational culture (Schein 1992). This level of organizational culture is close to the concept of organizational identity, which is, according to Reger, Gustafson, Demarie and Mullane (1994), a set of constructs, "*generally embedded in deeply ingrained and hidden assumptions*," which individuals use to describe what is central, distinctive, and enduring about their organization. Savolainen (1997, 2000) in her research uses a concept of ideology, which she defines as being a "*pattern of ideas which is systematic cluster of principles of ideas. The system of ideas comprises beliefs, attitudes and insight, which are related to each other*" (1997:24). Her definition of ideology is similar to the concept of ideal quality culture used in this research.

Initially, culture is based on the assumptions of its founders, but it continues to evolve through successful experiences. If a certain practice based on deeper level assumptions succeeds many times, the underlying assumption is taken for granted and gradually becomes treated as reality in the process of cognitive transformation (Schein 1992). If the practice remains continually successful, it will initially be transformed to a shared (espoused) value and ultimately to shared assumptions. The basic underlying assumptions are similar to 'theories-in-use' (Argyris and Schön 1996). They form a basis for how organizational members perceive their environment and which type of actions they take in specific situations. All assumptions are not considered part of an organizational culture. Only assumptions gaining wide acceptance may become part of the organizational culture.

These levels of culture are used as a basis for creating a multilevel, conceptual framework for studying TQM. Because basic assumptions are difficult to study, most research on TQM has focused on artifacts or espoused values. Here, the focus is on analyzing basic underlying assumptions, which must be brought to the organization as a part of TQM implementation programs.

[35] As the most visible and observable management approaches work on this level, the level of quality management implementation (for example in quality award criteria) is evaluated based on artifacts or, at best, in taking into account espoused values of employees.

The strength of culture

The strength of a culture refers to how strongly and deeply cultural assumptions are embedded into the everyday work of the employees. According to Kotter and Heskett (1992), strong cultures include norms and values, which are clearly understood and have significant influence on employees' behavior. They go further by defining strong cultures as being strategic if cultural values and norms fit the organizational environment and strategy. Additionally, adaptive culture enables an organization to adapt to the changing external environment[36]. Lundby, Dematteo and Rush (1999) uses the concept of total quality integration as it relates to the strength of quality culture. They define to refer " *the extent to which the principles and philosophy of TQM are fully integrated with organizations' culture*". They claim that a TQM based organization may create a strong, strategic and adaptive culture, which ensures the organization's long-term survival.

The main question arising from Kotter and Heskett's (1992) research is whether a strong TQM culture is always beneficial for an organization (forms a strategic culture), or if it is only a subset of the organization to benefit from a change in organizational culture as a result of TQM implementation program. A TQM based culture may not fit all organizations. This line of reasoning leads to the conclusion that an effective TQM implementation program may also decrease organizational effectiveness and its survival prospects.

[36] Adaptive culture itself may have a core set of strong and enduring values, but it includes elements that enable changes in the more peripheral parts of each culture.

2 TOTAL QUALITY MANAGEMENT

2.1 REVIEW OF EXISTING RESEARCH

This extensive review of existing research serves two purposes. It is important to have an overview of existing research in order establish a good base in existing theory. On the other hand, one of the objectives of this analysis is to present a conceptual framework to integrate and advance TQM research. This objective demands on a detailed analysis of the current state of research. One of the core issues that must be understood is how research results are brought into practice and what the implications of contemporary TQM[37] models are. In order to use these research findings to advance contemporary management practices, the main problems in bringing TQM related research results into practice must be identified. Finally, I use this review to justify the hermeneutic research approach by bringing forward some problems with positivist research approaches and using research results.

Traditions in academic research relating to total quality management are relatively recent as the academic community initially ignored quality management. As a result, early articles on TQM were mainly descriptive case studies, which were often written with the purpose of advancing diffusion of the discipline. As such, researchers did not take an analytical approach to identifying boundary conditions for successful TQM programs.

In the mid-1990's, the discipline began to be taken more seriously. During this time, many respected mainstream organizational research journals included TQM related studies. For example, The Academy of Management Review (March 1994) and Decision Sciences (Vol. 27) contains articles that focused solely on TQM. This new interest changed the direction of TQM for the academic community. As a result, there is an extensive and growing body of knowledge about the structure, implementation and impact of quality management practices. In addition, as quality management touches almost every aspect of organizational life, many organizational research areas that are not directly linked to TQM can be used to understand and analyze it[38].

2.1.1 Research domains

The following review of TQM research has been divided into five distinct research domains according to the research approach and objectives. Those studies, including contributions to multiple categories, are listed according to the primary research approach. Academic research on quality management is classified into the following categories:

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[37] An important criterion for evaluating applied research in business administration is contribution to practice (Olkkonen 1993).

[38] Mainstream organizational researchers do not generally pay attention to the specific prescriptions of TQM (for example teamwork) as TQM practice. This lack of interest is quite natural, because TQM does not bring any new ideas to specific management areas, and concepts introduced in TQM are simplified from their original applications.

(1) Historical analysis of the development and diffusion of the TQM discipline,

(2) Empirical studies on the impact of TQM to operational or financial performance

(3) Defining quality, TQM constructs and analysis of TQM critical factors,

(4) Theoretical analyses of TQM that draw from disciplines of organizational theory, and

(5) TQM and organizational culture.

I focus on the main studies involved in each category and the overall contribution of these studies to the practical development of the discipline. The extent of TQM related research makes a comprehensive review impractical. The main emphasis is placed on academic studies published in highly regarded research journals, but some insightful articles in more managerial oriented literature are noted. Only a short overview to research domains is provided here, and a detailed contribution of each article to this research work is brought forward in the appropriate chapters as a part of theory development. In each category, I have identified at least those studies and articles, which I have considered relevant for the development the development of this work[39]. The extent of the research work in TQM does not allow a complete review of all research in the field.

Historical analyses

This stream of research focuses on the early development of the concept of quality, and quality control activities. It provide the core theoretical foundation for contemporary TQM, statistical process control and an analysis of the causes of variation. The purpose of focusing on historical analysis is to understand how these specific quality control activities evolved into total quality management and how TQM has been shaped since the late 1980's by various environmental forces.

Juran's (1996) essay on the history of TQM starts from the pre-industrial age, covers the development of TQM and gives a prognosis about the future of TQM. The most relevant articles for this research consider the evolution of TQM from quality control. The origin of TQM is generally considered to be Japanese industry practices, which were heavily influenced by Deming and Juran. Garvin (1988) provides a good overview, which also includes the development path from quality control to TQM. Cole (1998, 1999) focuses on the diffusion of TQM in the United States. An article by Sterett and Decarlo (1990) gives a detailed description of the introduction of the Malcolm Baldridge National Quality Award, and the most significant changes throughout the evolution of the quality award criteria are described in Herz (1997).

Historical analyses provide us with a deeper understanding of the original scope and context in which the applications of quality control and management were applied and how they relate to contemporary TQM discipline. Westphal, Gulati and Shortell's (1997) study of the diffusion of TQM in the American hospital industry explains how institutional isomorphism shapes TQM programs. His study has important implications beyond the hospital industry because the same processes have influenced the development of the discipline since its foundation in repetitive manufacturing environment. The gestation of most TQM approaches, values and principles was in a repetitive

[39] I acknowledge that the selection of studies may have been influenced my pre-understanding of the research phenomena. The selected literature should be taken as one criterion in the evaluation of research results.

manufacturing environment, where it was applied in a more focused manner to control technical oriented production processes. This raises a question whether those values and ideas are still applicable in the contemporary applications of TQM.

Empirical studies on impact of TQM to operational or financial performance

This stream of studies aims at demonstrating the worth of TQM in improving organizational performance according to rigorous scientific traditions and positivist perspectives. Measuring and assessing the impact of TQM includes three distinct types of assessment: an empirical demonstration that TQM has been implemented, the assessment of whether expected improvement in organizational functioning are actually observed, and an assessment of improvements in bottom-line organizational effectiveness (Hackman and Wageman 1995). Each of these problems presents challenges to the objective data gathering methods and even to the basic selection of measures[40]. In addition to the measurement problem, most researchers acknowledge that the causal relationships between management practice and operational performance are difficult to prove[41]. Even in those studies where data showed a significant TQM-performance correlation, there is no proof that TQM caused an increase in performance. However, many reports regarding the effects of TQM do precisely that: TQM is implemented, unit productivity or organizational profitability improves, and it is concluded that TQM has caused the improvement.

Hiam's (1993) review of existing research, where he summarizes the results of 20 existing empirical studies, is the starting point for this line of research. Hiam finds serious defects in the implementation of the studies and concludes that they measure mainly a manager's perceptions of the implementation level and results from TQM programs. Additionally, consultants conducted most of these studies and did not meet the criterion for scientific research. This finding initiated a serious of studies on the impact of TQM. Hendrics and Singhal's (1995, 1997, 2001) series of studies on stock performance of quality award winners is without doubt the most published and well-known piece of research in this category[42]. The evidence from these studies supports the proposal that implementing an effective TQM program improves operational performance and leads to an abnormally high return on investment into award winners' stock. This series of studies is the major evidence linking the implementation of total quality management programs to improved operational performance.

Ollila's (1995) study on the impact of ISO 9001 implementation on customer perception of product and service quality is the only research that aims to link TQM implementation with its core objective of increased customer satisfaction. His findings support the proposal that there is a positive correlation between the implementation of ISO 9001:1994 based quality management system and customer perceived products and service quality. Simmons and White's (1999) research on the impact of ISO 9001 certified quality management system to operational and financial performance proposes that certification has a positive impact on profitability for large electronic manufacturing firms, but it did not show any improvement in operational performance. Samson and

[40] The difficulties of measuring organizational performance are elaborated upon in Robbins (1990:47-56).

[41] See for example Hackman and Wageman (1995), Powell (1995) , or Easton and Jarrel (1999)

[42] Extracts of these studies are published in American Society of Quality www-pages to demonstrate that quality award winners have been able to increase the value of their organization.

Terziovski (1999) use quality award criterion categories in their study on 1200 Australian and New Zealand manufacturing organizations. Their research suggests that only a few quality management approaches contribute to organizational performance[43]. The finding that only a few quality management approaches contribute to organizational performance is confirmed by other authors (Dow, Samson and Fort 1999; Powell 1995), which leads to the suggestion that an organization could select only a subset of TQM approaches to gain most of the benefits. This surprising result contradicts the integrated model of TQM, which assumes universal acceptance and mutually reinforcing relationships among various quality management practices[44].

The second line of criticism to the results of these studies is drawn from rational choice argument. It is assumed that managers are, at least to a certain degree, capable of evaluating the potential benefits of any new management technique. As a result, we can expect to discover positive results in empirical large-scale studies related to TQM and organizational performance, but these results would not prove that TQM is beneficial for all organizations. They merely show that some organizations can use TQM to improve organizational performance.

Some studies also suggest that language, ideologies, and tools promoted by disciplines are not necessary for success (Powell 1995). According to this view, possession of intangible resources required for successful TQM implementation are positively correlated with the success of the organization, but TQM implementation does not have a significant contribution to the development of those resources. These results lead to the question of whether successful TQM implementation programs can be considered as only an indicator to the existence of valuable intangible resources.

The main shortcoming of these types of studies is that they do not aim to understand the reasons behind successful or unsuccessful TQM implementation. Results and prescriptions based on large samples may predict the probability of TQM succeeding in the target population, but they don't predict the outcome of TQM intervention in specific cases[45]. This lack of a deep-seated analysis implies that their main value is in marketing TQM programs and for use in management rhetoric. This does not minimize the value of these studies and the role of management commitment in quality management implementation programs. However, one needs to be aware of the limited role these studies can play when they are used to provide guidance in actual implementation practices.

Based on the research done in this category, one can conclude that there is only limited support regarding the effect of TQM practices for organizational performance in general applications. Some research results of empirical studies on TQM's impact on operational and financial performance suggest that implementation of successful TQM program has positive correlation to operational and financial performance. However, they do not provide evidence that TQM implementation program is source of competitive advantage leading to better business results. This conclusion is similar to the one reached by Easton

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[43] Leadership, management of people and customer focus

[44] Most researchers claim that much of the power of TQM results from synergies that occur from the integration of multiple approaches (see for example Easton and Jarrell 1999; Douglas and Judge 2001).

[45] The management considering implementation of TQM based management approaches should be not interested in whether TQM on average leads into better business results, but whether it is suitable for their organization.

and Jarrel's (1999) extensive review of existing research linking TQM with financial performance. Their review of 394 studies is the most extensive work done in the area, and they found only a few credible studies supporting the claim that TQM has positive impact on organizational performance. Based on studies of empirical impact of TQM, there is a controversy concerning whether or not TQM has any tangible impact on firm performance remains. It is surprising that the lack of clear scientific evidence of TQM's benefits has not raised more questions for pragmatic western managers[46]. Rather, TQM proponents tend to be dogmatic and defend quality management practices from a quality-ideology point of view.

Construct development – quality and total quality management

There are many studies and analyses available upon which to define quality and there is a mutual understanding about dimensions of quality. Most of these definitions originate from Garwin's (1988) definitions of quality and the dimensions of product and service quality[47]. The concept of quality is quite mature and well defined. However, limited research has gone into understanding the consequences of emphasizing various aspects of quality, which would potentially link the concept of quality with quality management practices. Reeves and Bednar's (1994) study on "Defining quality – alternatives and implications" makes the only significant contribution to this issue.

The shared understanding about the concept of quality has not led to similar developments in the definition of total quality management. One major stream of current research involves attempts to develop a generally accepted definition of TQM (Grandzol and Gershon 1997). This research strives to reveal the most significant practices and to create a generally accepted definition of TQM. The general research approach is heavily reliant upon empirical data, which is analyzed using statistical methods. Some of these studies include contextual factors, such as firm size and industry, which assist in explaining which practices are most suitable for specific environments.

This review notes the value of an increased number of rigorous academic studies to redefine TQM based on empirical findings (Saraph, Benson and Schroeder 1989; Flynn, Schroeder and Sakakibara 1994; Powell 1995; Flynn, Schroeder and Sakakibara 1995; Ahire, Golhar and Waller 1996; Black and Porter 1996; Grandzol and Gershon 1997; Dow et al. 1999; Zhang 2000). However, these studies have not been able to create a single generally accepted definition of TQM. The value of studies in this area should be evaluated solely based on its influence on contemporary management practices and whether it is able to provide a well-accepted basis for research on TQM. Using this criterion, this research domain has been unsuccessful. It is also an example of how a positivistic research approach has been used for a problem, which is not defined well enough for this type of analysis.

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[46] The situation in the late 80's was exceptional, because with an increased import of high quality Japanese products, the U.S. industry felt threatened (Cole 1999). As a result, during the 90's the ultimate answer for managers reluctant to accept TQM based approach, was that the Japanese have been able to implement and benefit from these practices.

[47] Garwin (1988:40) gives five definitions of quality as transcendent, product-based, user-based, manufacturing-based and value-based. Additionally, product or service quality is divided into eight dimensions or categories: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality.

Hackman and Wageman (1995) take a different approach and base their framework on a detailed analysis of the work of Juran (1969, 1974), Deming (1986,1993), and Ishikawa (1985). Their work can be considered a landmark in that it not only captures the main tenets of the founders of the discipline, but it also creates a conceptual framework for a more detailed analysis of TQM assumptions, changes principles and interventions. This work has had a significant influence on TQM research and it can be considered the most significant piece of research work used in my analysis.

Linking TQM with organizational and management theory

Organizational theory is a multidisciplinary research area that involves the analysis of structure, management and change processes within an organization. This stream of research is based on the notion that since TQM is an organization-wide function, organizational and management theory should be used to describe, explain, and improve it (Benson 1991, Waldman 1995). As a consequence of practitioner origins, quality leaders present concepts such as continuous improvement and ad hoc techniques, yet these concepts have visible links to work in operations research, systems theory, worker motivation, organizational learning, sense-making, and many other facets of organization theory (Cole 2000). Theoretical analysis of TQM focuses on the analysis of the theoretical foundations of TQM and how it compares to accepted management and organizational theory.

Anderson, Rungtusanatham and Schroeder's (1994) research aims at identifying a theoretical basis of Deming's management method using Delphi methodology. Hackman and Wageman (1995) use a qualitative approach in their attempt to create a theoretical framework based on the early developers and advocators of the discipline (Juran, Deming and Ishikawa). They identify several problems in implementing approaches proposed in total quality management. These problems have been useful in providing insights for this research[48].

Dean and Bowen (1994) provide the most detailed work linking TQM with management theory. Their research work covers all CPE areas and they identify the main similarities and differences between TQM and management theory. Waldman's (1994) work focuses on human resource management practices. Ford and Evans (2000) examine how theories and concepts in strategic management comply with TQM. This line of research demonstrates that TQM and management theories are based on rather similar concepts and precepts. The main difference is that while management theory is based on contingency principle, TQM takes a universal approach to management.

Cole and Scott's (2000) analysis of quality movement and organizational theory, which is a broad collection of TQM related articles, attempts to establish a link between organizational theory and total quality management. It identifies areas where organizational theory may provide additional insight to the development of total quality management. Spencer (1994) uses metaphors of organization (mechanistic, organism and cultural) to examine TQM in order to bridge the gap between organizational theory and total quality management.

[48] The intent is not to invalidate current TQM approaches. Difficulties in TQM implementation are used as the starting points for a detailed analysis of the underlying reasons for the problem, which leads into the identification of TQM basic assumptions.

A line of research investigating TQM from a contingency perspective claims that organizational task environment or technology (routine – non-routine) should have an impact on which TQM approaches should be emphasized. Sitkin et al. (1994) examines the impact of uncertainty and proposes that two alternative approaches, total quality control and total quality learning, be used to match situational requirements. Reed and Lemak (1996) propose that firm orientation, customer or operation orientation, together with a level of uncertainty, are the key factors affecting the success of TQM based approaches. Reed, Lemak and Mero (2000) and Powell (1995) use resource based theory to examine whether TQM can produce sustainable competitive advantage. Reed et al. (2000) research on role and impact of total quality management approaches in service-oriented firms is based on Thomson's typology. These studies from contingency perspective are especially important in understanding how TQM can be implemented in project-oriented organizations, because they bring forward problems which arise when TQM is taken away from its original application in large-scale manufacturing firms.

Theoretical analyses of TQM are the most beneficial categories of research in improving the TQM approach, but the practical development of the discipline has not been able to use these research results in full potential. The main problem with the use of this research is that it requires a deep understanding of organizational and managerial theories. This gap in the language between organizational theory research and everyday managerial work seems to be difficult to overcome. Managerial literature studies on TQM seldom refer to theoretical analysis done on an organizational theory perspective. The development of practical models of TQM seems not to take advantage of academic research results[49].

The contribution of these studies to theory development and the improvement of contemporary TQM practices are limited by the multiple definitions of TQM. These studies often begin with the author's definitions of total quality management[50]. Research results are not comparable, and they are difficult to combine in order to gain a wider perspective. The situation has been improving with more research using quality award criteria as a proxy for TQM.

Research on TQM as cultural phenomena and identification of quality culture

The study of TQM from a cultural perspective pursues the understanding of the cultural dimension of TQM discipline. The focus is on understanding the role organizational culture plays in the TQM implementation process. In this research domain, organizational culture is assumed to be a major variance-causing factor inhibiting or supporting successful TQM implementation. Hildebrandt (1991) research on quality culture and TQM emphasized the importance of corporate culture and uncovering current underlying cultural assumptions as primary condition for successful TQM implementation. Lundby et al. (1999), Kekäle (1997) and Silen (1995) provide the most detailed analysis of organizational culture in research on TQM. In general, research on organizational culture and TQM can be divided into two broad categories: studies that focus mainly on TQM

[49] For example, research results have not been actively used to improve Malcolm Baldrige National Quality Award Criteria (A telephone interview of Harry Hertz, Director of Malcolm National Quality Program, with direct responsibility of the development of the criteria, May 1999).

[50] See appendix 2 for a review of TQM definitions on which major empirical and theoretical research work is based.

values, principles and norms, and those articles focusing on the basic assumptions of TQM.

Research in this first category includes the Cameron and Sine (1999) definition of various types of quality cultures and Dellana and Hauser (1999) research that uses a competing value approach in identifying which type of culture is important for TQM implementation. Zeitz, Johannesson and Ritchie (1997) claim that the essence of TQM is cultural change and TQM practices are just tools for this change. Manley's (1998) research examines the TQM tools for influencing workers to alter organizational culture. This line of research implicitly assumes that management is capable of changing and creating a culture for successful TQM implementation and that this change is beneficial for the organization. Westbrook (1993) concludes that "*If an organization wants to adopt TQM as guiding principle, it begins with an effort by management to make the culture supportive*." McNabb and Sepic (1995) are more pessimistic about the potential for cultural change, and they claim that organizational culture is a major force in setting both direction and limits for organizational change. Reger et al. (1994), in their research into the difficulties in implementing TQM, apply cognitive self-concept theories (organizational identity theory, personal construct theory, and self-discrepancy theory) to explain why planned organizational change, including cultural change, is often difficult and resisted by the most loyal members of the organization.

Research into TQM basic assumptions focuses on those implicit assumptions inherent in the discipline. These hidden assumptions influence the TQM implementation process as they may conflict with the assumptions of the existing organizational cultures. In his dissertation, Kekäle (1998) identifies the effects of organizational culture on the successes and failures of TQM implementation. He identifies some of the underlying cultural assumptions affecting TQM implementation and comes to the conclusion that the organization has two alternatives when it comes to implementing TQM. First of all, management may choose the approach that fits the existing organizational culture, or, secondly, they can systematically manage a cultural change. Jauch and Orwig (1997) examine the assumptions of TQM in the context of higher education. They propose that the difficulties in TQM implementation programs are caused by unstated assumptions of the TQM model. TQM may be useful in some areas such as administration, record keeping and maintenance. In other areas, however, it frequently violates the basic assumptions upon which teaching and research in universities is based. By adapting TQM in those areas, more harm than good may be done. Grant, Shani and Krishnan (1994) come up with similar conclusions in their study of TQM in the context of Western business environment. They suggest that some of TQM's basic assumptions inevitably conflict with those of established Western management approaches. This line of research leads to the conclusion that a better understanding is required of the cultural assumptions, which are central to a successful TQM implementation program.

2.1.2 Critical view to total quality management

TQM is often viewed mainly as one management fad among many others, such as lean production, time based management or balanced scorecard. From this perspective, academic research has mainly studied the diffusion of TQM as a management fashion or fad and has predicted its disappearance. Hackman and Wageman (1995) take a serious look at the discipline, identify a trend that "*rhetoric is winning over substance*" and

predict the fast disappearance of the movement. Some of that criticism has faded away as over time, TQM has proven to be a management discipline, which must be taken seriously. In the form of ISO 9001 quality management standard, it has an important and mandatory part of business management in most industry segments. Research into organizational and management theory cannot ignore TQM but should actively aim at improving the discipline.

Some authors have expressed a concern that TQM fundamentally differs from the prevailing "economic model" of the firm, which makes the implementation of "customer oriented" TQM approaches difficult (Grant et al. 1994; Knights and McCabe 1999). Although most TQM proponents accept the importance of financial performance, they do not see it as a competing goal for customer satisfaction or employee well-being. Rather, they claim that these TQM related organizational goals eventually lead to better financial performance.

TQM is also based on simplistic and purely rational model of the organization. Knights and McCage (1999) conclude, in their study of how TQM is constrained by power relations and organizational identity, *'TQM is rarely presented in the literature in the context of the complex social relations it embodies and within which it resides.*' As a managerial oriented framework, TQM is based on a simple and rational model of an organization, but it should not be presented to managers as the complete guide to management.

TQM is also viewed as being a reformulated form of Taylor's scientific management, and there is a concern that control over an employee is extended to not only cover his/her physical work activities, but also to change his/her basic values and principles. In the critical non-managerial research, it is viewed as the ultimate form of 'self-control', which is reinforced by peer pressure in work-teams and measurable objectives. These ideas are taken to extreme forms in the postmodern approach, which aims at revealing the "hidden agenda" of total quality management. Research in this category includes Boje and Winsor (1993) and Steintard and Fizgibbons (1993) studies, in which the basic underlying theme is the rights of an individual in comparison to productivity gains. These studies are supported by McCabe, Knights, Kerfoot, Morgan and Willmot (1998), who claim that "*pervasive feature of TQM is the assumptions that management can control both people and their organizations so as to improve quality"*. These perspectives to TQM are similar to Morgan's (1997) metaphor of the organization as an instrument of domination.

Managerial critique from inside the discipline itself has been rare, and it is based mainly on anecdotal evidence from single case studies to advertise implementation approaches proposed by various management consultants. The problem with these studies is that they are based on the subjective opinions of an individual, and they are seldom justified based on existing theory and research. Pyzek (1999a, 1999b) provides an analytical and constructive critique. He blames TQM for failing to follow its own core idea of continuous improvement. Some of the problems identified are: the imposition of one best way, TQM approaches require exceptional leadership, results take too long, most ideas are decade(s) old, creativity is discouraged, there is an over emphasis on group-activities, and overvaluation of long-range planning. Pyzek's critique is supported by Hackman and Wageman's (1995) conclusion that "*only if the continuous improvement idea comes to apply to TQM itself will this provocative philosophy have chance of sustaining itself over time*".

2.1.3 Summary

Academics initially ignored the discipline as another management fad among many. Once academic research intensified during the mid 1990's, the lack of a sound theoretical basis and the multidisciplinary nature of TQM made the progress of the research slow. For almost a decade, there has been intensive research into identifying critical elements of TQM as well as their connection to management theory. However, there is great variation among the success of TQM implementation programs, which are not thoroughly explained by the current theory of TQM. Research has been unable to provide us with tools to analyze why some TQM applications are successful while others fail to produce the desired results. Even with a great deal of effort placed upon defining TQM, the research has failed to provide a generally accepted definition to be used as the basis for research and practical development of the discipline. These shortcomings of existing research and knowledge of TQM are directly related to objectives for this research.

2.2 HISTORY AND DEVELOPMENT OF TQM

The origin of TQM can be traced to 1949, when The Union of Japanese Scientists and Engineers (JUSE) formed a committee of scholars, engineers, and government officials devoted to improving Japanese productivity and quality of life (Cole 1998, Powell 1995).

American firms began to take TQM seriously around 1980, when some observers argued that Japanese manufacturing quality equaled or exceeded U.S. standards, and warned that Japanese productivity would soon surpass that of American firms. Productivity trends supported these assertions, predicting that Japanese and other Asian countries would soon dominate world trade and manufacturing (Powell 1995). The reliability of certain Japanese made products (cars and semiconductors) was 5-10 times better than comparable U.S. products. At the same time, consumers started to pay attention to product quality. For example, quality was a low priority among car buyers in the 1970s, yet in the early 1980s, it was the most significant (Cole 1998).

President Reagan signed the legislation for mandating national study (U.S) in 1982, with the intent to encourage productivity and competitiveness. The final report from that study included that "*a national quality award similar to Deming Price; should be awarded annually… requirements and the accompanying examination process should be very similar to Deming Prize system to be effective*". This study led to the formation of a committee to establish the national quality award in 1985 and to the creation of the Malcolm Baldrige National Quality Improvement Act of 1987.

The Malcolm Baldrige National Quality Award was created to unify and focus on quality management improvement efforts in the U.S. The quality award model, together with ISO 9000 series quality systems, has been the leading force in shaping and spreading the quality management ideology and practices during the last decade. CPE represents the latest era in the evolution of quality management discipline. This evolution process[51] has four distinct stages (Garwin 1988, Wiele 1998).

(1) Inspection: In the early stages of the discipline, simple inspection processes were used to ensure the quality of the product. Product and services were compared to pre-

[51] Dahlgaard (1999) presents a critique about this four- stage model. One of her main concerns is that it does not take into account the change in scope of quality management application. I believe that the changes in scope are implicitly present, and in this research the change in scope is explicitly articulated.

determined standards to ensure the appropriate quality levels for customers. This inspection process generally did not have any influence on production activities or in the determination of those requirements.

(2) Quality control: Under quality control, statistical tools and methods are used to control the manufacturing process. The focus shifted from inspection to reducing process variability. However, the ultimate target had remained the same to meet the requirements. Quality control activities also included a cause-and-effect analysis to understand the immediate cause for variability and root causes for failure.

(3) Quality assurance: This stage began the era of quality planning. While quality control was still a reactive approach for detecting problems and fixing them, quality assurance focused upon proactively anticipating and avoiding those problems. Additional advances planning for quality and improving the design of the products were required. These approaches still relied heavily on statistical and cause-effect analyses which, contrary to the quality control era, were used to plan for quality.

(4) Total quality management[52]: The fourth stage of managing quality was introduced during the last decade. The original approach to TQM[53] relies on the approaches created in the previous stages of the discipline but applies them on a wider scale.

The above development of the discipline demonstrates how total quality management has evolved from being narrowly focused on statistical process control to encompass a variety of technical and behavioral methods for improving organizational performance. Whereas statistical process control is a precise set of quality improvement techniques, TQM extends these methods to all functions and management levels of an organization (Grant et al. 1994). The change of scope moved quality management to a completely new arena, a holistic approach for the general management of an organization. In the late 1990s, the emphasis on the use of original quality tools faded away, and TQM evolved to a wide set of management principles, practices and approaches.

During the late 1990s, additional developments took place. Early analysis of TQM identified the role of quality in strategy as one of the main differences between the TQ and management theory perspectives (Dean and Bowen 1994; Cole 2000). This difference was evident in the early years of the awards, but the modification of the award criteria in 1995 changed this limited scope of quality award criteria in the area of strategic planning. The strategy development process was given a wider scope and included items beyond planning for quality. If we consider CPE to be a holistic management discipline, this development is well justified from a management theory standpoint. Quality is a potentially important source of competitive advantage, but it is not the only one (Dean and Bowen1994, Cole 2000). However, this development further separates TQM from its original application.

The foundation and core concepts of total quality management are still based on the same principles that were initially used to control the manufacturing process. The scope of TQM has radically expanded to include all management processes of an organization. However, in this process, the foundation and core concepts of quality management have not been fully analyzed and re-evaluated. The Cameron and Sine (1999) research is the

[52] Other competing terminology, such as Big Q and Little Q (Juran 1992) and Company-wide Quality Control (CWQC) in Japan, have been used to define this expanded scope of quality management activities.

[53] I consider the Malcolm Baldrige National Quality Award (1987) “an original approach” to TQM.

only attempt to identify various cultural assumptions related the development of the discipline from quality control to total quality management. The applicability of the total quality management approach in this wider business scope troubled Juran (1992); he claimed that there is no proof that TQM can easily be introduced into this new environment.

Grant et al. (1994) identifies four distinct features in the origin and the diffusion of TQM as a management innovation: intellectual origin, sources of innovation, national origin, and dissemination process. Modern management theory originates from social sciences, microeconomics, psychology and sociology. On the contrary, TQM has origins in statistical process control. The originators of TQM innovations have been pioneers of the discipline, who worked in industry and had background mainly in engineering and physics. This foundation contradicts the origin of most new management ideas as being developed by academia and management consulting. Management innovations normally have been based on North American national origin. TQM is based on the integration of management techniques, which were developed in Japan and brought to North American industry. This dissemination process was led originally by smaller companies such as Florida Power and Light.

The History and early development of TQM is important for this study, because it can be theorized that some of TQMs basic underlying assumptions are based on early applications of TQM. Additionally, the content and structure of the discipline have been impacted by the fact that it has been introduced as a training platform and/or consultant product to audiences having a background in engineering. In this role it has formed into rational approach to management, which brings forward only generally acceptable issues (such as the important role of customer). TQM has rarely been presented in the context of complex social relations such as organizational power and politics.

2.3 CURRENT CONCEPTUAL FOUNDATION OF TQM

2.3.1 Research based frameworks of TQM

The definition of total quality management did not develop as a result of academic work and systematic analysis of existing management and organizational theory (Grandzol 1997). The original development of the discipline is based on seminal work of Juran (1989), Deming (1986) and Ishikawa (1985) who provide the original definition of quality management. These are the primary authors of the movement and they provide us with a starting point for understanding contemporary TQM. Their work shares a common set of assumptions and prescriptions (Hackman and Wageman 1995), but as these initiatives are prescriptive and managerial in nature, they do not provide us with a theoretically or empirically valid framework for TQM. An increasing number of rigorous academic studies that redefine TQM based on empirical findings have been conducted in recent years. This research stream endeavors to reveal the most significant practices of TQM using statistical analysis of quality management practices. These studies were discussed as part of the literature review and the summary of TQM constructs is presented in Appendix 2.

A common factor among most approaches used to define TQM is the lack of recognition of the different conceptual levels inherent in the discipline. The main obstacle in not being unable to come up with a definition for TQM is the lack of a clear conceptual

framework, which would lead to deeper understanding of the management discipline itself and how it could be implemented in the most effective way. This deficiency is addressed by Hackman and Wageman's (1995) multilevel conceptual framework, which consists of assumptions, change principles and practices. His analysis provides us with some indication as to why (and which) quality management practices are successful in certain situations. Dean and Bowen (1994) introduced a three-level conceptual framework: principles, practices and techniques. The core problems with these two frameworks are that they are not directly connected to existing research[54]. Here, their research is broadened with specific emphasis placed on connecting TQM with research and concepts in the field of organizational culture.

2.3.2 Contemporary practical models of TQM

While most management researchers agree that TQM is one of the most significant management inventions of the century, the real influence for contemporary management practices comes from widely spread practical applications of TQM. Two major frameworks, ISO 9000 family of quality standards and Quality Awards, are generally accepted as models for Total Quality Management[55]. ISO 9001 based quality systems have traditionally taken only a limited approach to TQM focusing mainly on ensuring the quality of the sales-delivery process, but the recent developments of ISO 9000 quality management standards are consistent with the philosophy and practices of quality awards[56]. These two frameworks give a mature, well-defined, and widely accepted definition of Total Quality Management. Studies indicate that TQM did not reach an integrated set of commonly accepted practices before there was general acceptance of the ISO 9001 as quality management systems and quality award models (Wiele 1998, 2000). They provide a consistent and comprehensive definition of total quality management, opposite to the work of individual quality gurus[57].

ISO 9001 standard

The ISO 9000 standards were developed with the primary goal of being used in international trade (Wiele 1998). The core objectives in creating these standards were to break down trade barriers and to rationalize business-to-business relationships (Conti 1999). This process has led to situations where many organizations require their suppliers

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[54] This applies only to the conceptual frameworks itself. The content of these frameworks, for example continuous improvement, is analyzed based on existing academic research.

[55] Juran (1996) states that the confusion about the definition of TQM "has been reduced by the publication of the criteria…" By the early 1990s, this wide exposure had made the Baldrige Award criteria the most widely accepted definition of what is included in TQM. In addition, several studies support the conclusion that MBNQA is an implementation of the total quality management discipline.

[56] ISO standard is often evaluated against quality awards to demonstrate its shortcomings as a model of TQM (see for example Garwin 1988). These two models are partly competing and Conti (1999) even doubts that the recent development of ISO 9001 was mainly driven by the need to compete against quality awards.

[57] Quality gurus such as Juran, Deming and Crosby do not provide a complete, well thought-out management discipline and numerous attempts have been made to define the TQM discipline and derive a theory based on their work. An example of one such attempt is Anderson et al. (1995) analysis of "Theory of quality management underlying Deming management method".

to be certified[58]. ISO 9001 certification demonstrates that an organization has implemented the minimum level of quality control. Beyond this symbolic role, which actually can lead to significant business benefits in the form of simplified and standardized business relationships, ISO 9001 standards are used to improve the internal effectiveness of the production processes.

The ISO 9000 family of standards is developed from British Standards BS 5750 (Wiele 1998). It is maintained by the International Organization for Standardization, which has made the standards widely accepted. By the year 1998, 143 countries were using this international standard or national standards. The first version of these standards was published in 1987. The technical committee ISO/TC 176 is responsible for drawing up and updating the ISO 9000 series, which is a collective effort of all member countries of the organization. The first revision took place in 1994; the second revision (ISO 9000:2000) was finally accepted and published by spring 2001. We have little experience in how the new version will be used in organizations, because most of them are still operating under the previous version (1994). Organizations certified according older version of the standard have three years to update their quality management systems to comply with the new standard. This development of ISO 9000 family of standards is an important justification for the importance of this research, because with the new standard, the organization must implement a quality management system, which is significantly broader in scope. We can expect that an organization preparing for certification according to ISO 9000:2000 will face similar problems as identified in the studies of the TQM implementation programs.

The old 1994 version was not identified as a model for TQM. Rather, it is focused on quality assurance and it has the main application to ensuring standardized internal processes to provide product and services that meet predefined requirement. It does not explicitly stress the importance of continuous improvement and customer satisfaction[59]. Many organizations regard ISO certification as the first step toward the implementation of the full TQM system[60]. All requirements of the ISO standard are compatible with quality award criteria, and it can be considered as a subset of quality award criteria, but the latest 2000 version is more comprehensive in scope and can be considered an alternative for quality award criteria[61]. ISO 9000:2000 standards are a collection of three documents:

- Quality Management System – Fundamentals and Vocabulary

- Quality Management System – Requirements (ISO 9001)

-Quality Management system – Guidelines for Performance Improvement (ISO 9004)

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[58] The primary reason for Valmet Corporation to begin a certification program in early 1990s' was to maintain a position as an accepted supplier in case ISO 9001 certification would became industry standard.

[59] It can be claimed that they are implicitly inherent in the standard and they are also included in the ISO 9004 (guidelines for performance improvement). The problem with this interpretation is that most companies are implementing quality management system to meet the specific requirements of the ISO 9001 standard.

[60] This approach was taken in Valmet Corporation. ISO certification was assumed to cover about 30% of the requirements in quality award criteria, which was the next step beyond certification.

[61] In case organization, the broader scope of ISO 9001:2000 has been used as justification to discontinue the use of quality award criteria. The current scope of the quality standard has been considered to cover all significant areas of the management.

ISO 9001 and 9004 have been developed to complement each other. The first provides detailed requirements for scope and implementation of quality management. It is also used as a reference in the certification process. The latter gives directions and guidance on a wider range of objectives for a quality management system compared to ISO 9000 standards, but they both share similar structure (Table 2-1) and are intended to be used parallel to one another. It is recommended, as a guide for top management, to move beyond the specific requirements of ISO 9001 in pursuit of continual performance improvement.

1. Scope
2. Normative Reference
3. Terms and Definitions
4. Quality Management system
5. Management Responsibility
6. Resource Management
7. Product Realization
8. Measurement, analysis and improvement

Table 2-1: The structure of ISO 9001/9004 standards

In addition to detailed requirements, eight quality management principles have been identified in ISO 9000:2000 (Quality Management system – Fundamentals and Vocabulary), which "*can be used by top management in order to lead an organization towards improved performance*". The principles, which provide a basis for value based management, are presented in Table 2-2. These principles are only guidelines for management and the formal certification process can only formally account for those requirements presented in quality management system – requirements. However, some of the principles, such as continuous improvement, customer-orientation and fact-based management, are an integral part of the formal requirements. There are mandatory requirements that the management system be based on objective facts (such as process of performance measures or customer satisfaction). An organization must be able to demonstrate continuous improvement based on objective facts, and senior management has the ultimate responsibility for quality.

Customer focus

Leadership

Involvement of people

Process approach

System approach to management

Continual improvement

Factual approach to decision making

Mutually beneficial supplier relationships

Table 2-2: ISO 9000:2000 – Quality management principles

The main use of ISO 9000 family of quality standards is in the external certification process, which is an evaluation of quality management system against specific requirements in the criteria. In the external certification process, an organization is expected to demonstrate management practices above the minimum requirement and demonstrate that it is constantly improving management practices. There are specific requirements for management reviews, which are conducted in order to ensure the continuing suitability, adequacy and effectiveness of the quality management system for the internal evaluation of the quality management system. Additionally, the new ISO 9004:2000 standard includes guidelines for self-assessment. The self-assessment approach is "*intended to provide a simple, easy-to-use approach to determine the relative degree of maturity of an organization's quality management system and to identify the main areas for improvement*" (ISO 9000:2000, Guidelines for Performance Improvement:107).

Quality Award Model

Quality award models form a comprehensive set of quality management principles and practices. They offer a paradigm for implementing quality strategies, benchmarking best practices and performing self-assessments, or competing with other organizations in organizational excellence. Three major quality awards, The Malcolm Baldrige National Quality Award, The European Quality Award and The Deming Prize are the most noted quality award models. Vokurka (2000), in his comparative analysis of national and regional quality awards, found significant similarities in the criteria used for assessing award applicants. One reason may be that countries seeking to establish national quality awards look toward these established awards as models for TQM (Chuan and Soon 2000). The detailed content and structure of other quality awards differ, but they share the same set of values and principles. Additionally, there has been a close co-operation between the organizations, which maintain quality awards[62].

Various authors (Juran 1996, Dean and Bowen 1994; Ford 2000) agree that quality awards, such as the Malcolm Baldrige National Quality Award and the European Quality Award, are currently the most demonstrative philosophies of the TQM discipline. Dean and Bowen (1994) identify several advantages to using the Baldrige criteria: The conceptual framework underlying the award addresses the principle domains of TQM; it has been kept and updated to reflect current thinking on TQM and an award criteria that is not limited to a single perspective. The link between organizational theory and the management approaches proposed in quality awards has been established by some of the most respected scholars in the field and the framework itself has been validated by empirical studies[63]. Also, as discussed as a part of literature review, research on TQM is increasingly accepting quality award criteria as the basis for research.

In comparison to academic research on the definition of TQM, some of those definitions are more focused and have an emphasis on specific approaches, but they fall in the scope of TQM as defined in CPE. The approaches of quality management system in the ISO

[62] Based on a telephone conversation in 1999 with Harry Hertz, who has been responsible for the development of Malcolm Baldrige National Quality Award Criteria in National Institute of Technology (NIST).

[63] See Dean and Bowen (1994), Black and Porter (1995) or Ford and Evans (2000)

9000 family and CPE are based on similar principles. The main difference in these two models lies in the scope of applications, which in considerably larger in CPE.

The extensive scope, wide acceptance of quality award model, and existing body of research justify the selection of quality award model as a proxy for TQM. The definition used for Total Quality Management in this study is based on the Malcolm Baldrige National Quality Program. TQM is defined to be a management system, which substantially addresses the criteria of the Malcolm Baldrige National Quality Award.

2.3.3 Malcolm Baldrige National Quality Award

The Malcolm Baldrige National Quality Award (CPE) was founded by Public Law 100-107, which creates a public-private partnership designed to encourage quality from American companies (Brown 1999). The purpose of the award is to form a basis for organizational self-assessments and to provide an external assessment process to objectively assess an organization's quality management practices and to select quality award winners.

Three additional goals have been added to the criteria (NIST 1999):

- Assistance in improving performance practices and capabilities
- Facilitation of communication and sharing of best practices and information among organizations of all types
- Provision of a working tool for understanding and managing performance, planning and training

In order to meet these goals, the criteria have developed into a comprehensive definition of TQM, which is widely accepted for practical use in the organizations and theoretically validated by numerous studies. The unique feature of CPE and other quality awards is that they are based on multilevel definitions for TQM. It is built upon a set of core values and concepts, which are recognized as the highest level in the model. These values and concepts presented in Table 2-3, are "*the foundation for integrating key business requirements within a result-oriented framework*" (NIST 1999:1).

Customer-Driven Quality

Leadership

Continuous Improvement and Learning

Valuing Employees

Fast Response

Design Quality and Prevention

Long-Range View of the Future

Management by Fact

Partnership Development

Public Responsibility and Citizenship

Result Focus

Table 2-3: Core values and concepts in CPE

Each of these values and concepts is discussed in detail in CPE, and they have an important role in the development of the quality management system. Core values and concepts are the guiding principles for selecting, implementing and improving business practices used in the organization. They are embodied in seven management areas (categories), which are designed to cover the main areas critical to the effective management of the organization. These management areas are further broken down to 19 items to be addressed as shown in Table 2-4.

The systems approach to management is one of the core principles in CPE. An organization is comprised of a system of interrelated parts. To achieve the best overall results, management actions should consider the interrelationships among various management areas and approaches. These connections between multiple management areas are important criteria when evaluating the maturity of quality management system. In this sense, we can consider quality management to be an integrated system of multiple management approaches, which are designed according to quality management principles and values.

Categories/Items	Point Values
1 Leadership	**125**
1.1 Organizational Leadership	85
1.2 Public Responsibility and Citizenship	40
2 Strategic Planning	**85**
2.1 Strategy Development	40
2.2 Strategy Deployment	45
3 Customer and Market Focus	**85**
3.1 Customer and Market Knowledge	40
3.2 Customer Satisfaction and Relationships	45
4 Information and Analysis	**85**
4.1 Measurement of Organizational Performance	40
4.2 Analysis of Organizational Performance	45
5 Human Resource Focus	**85**
5.1 Work Systems	35
5.2 Employee Education, Training, and Development	25
5.3 Employee Well-Being and Satisfaction	25
6 Process Management	**85**
6.1 Product and Service Processes	55
6.2 Support Processes	15
6.3 Supplier and Partnering Processes	15
7 Business Results	**450**
7.1 Customer Focused Results	115
7.2 Financial and Market Results	115
7.3 Human Resource Results	80
7.4 Supplier and Partner Results	25
7.5 Organizational Effectiveness Results	115
TOTAL POINTS	**1000**

Table 2-4: Management areas and scoring in CPE

CPE does not propose that any specific management approaches be used, but it requires that the organization demonstrate that they use selected approaches in all areas of management in a way that they make sense for the business and address all important business factors. However, there are general requirements for management approaches, which provide guidance as to which type of management practices should be used. An example of such a requirement is that the approach must be "*systematic, integrated, and consistently applied*" and based on "*reliable information and data*" NIST (1999:42). This model has been complemented with examples of preferred management practices, which include use of the customer satisfaction survey, benchmarking practices and implementing cross-functional teams. However, the main force that unifies TQM approaches is based on the objective of *CPE "to facilitate communication and sharing of the best practices*" (NIST 1999:1). In the quality community there is a shared understanding about preferred practices and, for example, award winners are expected to share their experiences and approaches of for implementing the TQM program by law[64]. In addition, there exists an extensive body of prescriptive literature about management practices coherent with CPE (see for example Brown 1999, Blazey 1999).

Scoring system

An integral part of CPE is its scoring system, which contains precise directions regarding the content and implementation of a quality management system. It is used in the official application of the quality award price and in the internal assessment and development of the management system. In the official application process, it is used to evaluate management approaches, to come up with comparative scoring, and to give feedback to all applicants. A scoring system also has an important role in the self-assessment process, because an organization is likely to evaluate itself based on these scoring guidelines and launch improvement activities in those areas receiving a low score. The main concern is that these improvement activities do not always converge with the main business objectives of the organization[65].

The Scoring system has three dimensions: approach, deployment and results. It is used to evaluate the maturity of TQM implementation based on approach, implementation level and organizational results. A specific weight is given to each area to be addressed (Table 2-4). The first two scoring dimensions are applied to management areas from one to six, and the results dimension to the category seven (Business Results).

The Business Results category[66], in which expected organizational output (the collective goals of the organization) are defined, is the most significant category in the scoring system. As 45% of total points in CPE are based on this category, any organization that

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[64] Malcolm Baldrige Quality Improvement Act of 1987

[65] Scoring guidelines state "*evaluation ... must consider the importance of your reported Approach, Deployment, and Results to your key business factors*" (NIST 1999:42). Based on author's experience, importance was one of the most difficult areas to evaluate and it was quite often implicitly excluded. On the contrary to the intent of the criteria, areas not important to the business of the specific unit usually received low scores and these areas got excess management attention.

[66] The Business Results Category *"examines your organization's performance and improvements in key business areas – customer satisfaction, product and service performance, financial and marketplace performance, human resource results, supplier and partner results, and operational performance. Performance levels relative to competitors are also examined.*" (NIST 1999:24)

applies for the quality award or uses it as a tool for improvement activities or self-assessment is likely to emphasize the concepts and evaluation criteria presented in this category[67]. The principles and values explicitly emphasized in this category here are a result of orientation, management by fact, continuous improvement and long-term goals of the organization. In this respect, this study deviates from the position of some researchers (Dean and Bowen 1994; Cole 2000) who have excluded the "Business Results" category from their research, because they consider it to be simply an assessment of organizational effectiveness. Ideally, this should be the case, but in CPE management approaches and organizational goals are not clearly separated for this type of cause and effect analysis.

Development of Malcolm Baldrige National Quality Award

The criteria have evolved from a set of guidelines for quality management to a framework for assessing organizational competitiveness and performance excellence. The development of CPE demonstrates the general trend in the development of TQM. Hertz (1997) reviews the evaluation and maturation of CPE during its first 10 years. He identifies the following general changes in the scope of the criterion:

- Shift in emphasis from quality assurance of products and services to the current focus on process management and business results – from quality assurance to quality management and to overall performance management
- Focus on strategic quality planning has shifted to strategic planning
- Focus on customers has matured to focus on customers and markets
- Human resource utilization has evolved to human resource development and management
- Focus on supplier quality has given way to a focus on supplier and partnering arrangements and how to improve the performance and capabilities of both parties
- The emphasis on individual quality improvement activities evolved into evaluation and improvement in all key areas of an organization's operations

The changes in scope have impacted individual award categories and items and their weighting in scoring system. In the early version of the criteria, customer related performance received much higher attention, and the scoring has shifted to account for financial and marketplace performance of the organization. Explicitly defined core values and principles have remained largely the same even though a detailed definition has evolved over the years. The major addition made to core values was an inclusion of "Result Focus" in 1995. Since 1997, there have been no major changes to the scope. Revisions have been mainly to clarify those elements in the criterion, which have proved to be difficult for organizations to understand.

[67] It should be noted that the purpose of self-assessment is to find strengths and areas for improvement, not to come up with specific point score for organization. Problems associated with scoring were recognized in Valmet Corporation, and in the self-assessment process a detailed scoring was not recommended.

2.4 TQM IMPLEMENTATION, CONTENT AND PERCEIVED BENEFITS

Research results demonstrate that TQM can provide some benefits for the organizations that have been able to implement the discipline, but there is a wide variance in perceived success of TQM programs. The most apparent reason for differences in the success of TQM practices is that it does not fit for all organizations. Spencer (1994) argues that so-called universal practices explain the mixed results gained by many organizations using TQM methods. However, most TQM advocates and managerial-oriented quality literature support the proposition that quality management should not be affected by contextual variables (Benson, Saraph and Schroeder 1991)[68]. This assumption is also used as a basis for many TQM studies, which focus on the general results of TQM implementation. These studies do not contribute to the understanding of which environment's specific practices are the most effective. As a result, little attention is devoted to boundary conditions for total quality management applicability in total quality management or even how variability in an organizational setting might be reflected in total quality management implementation (Sitkin et al. 1994).

Measurement problems

It should be questioned whether a true variability exists in TQM success or if it is simply a problem related to the measurement of outcomes from TQM interventions. Most success stories are based on achievements in very focused areas such as reducing defects or cycle time in specific processes. However, these achievements should not be taken as direct evidence that TQM has been a major force behind organizational success. Some researchers have expressed concern that many TQM success stories are merely a rationalization of management actions[69], and cannot be directly linked to the use of quality management practices (Zbaracki 1998). From this perspective, success stories are more of a management tool or vehicle used to gain legitimacy from various stakeholders. Rhetoric is an important part of management, and we should not underestimate the pressure managers are under, which causes them to rationalize their actions and show results. However, exaggerated success stories may create unrealistic expectations for TQM programs and cause later programs to be declared failure when they do not meet these exceptions.

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[68] The universal applicability of the discipline is also a presumption of CPE and ISO 9001 quality management standard. "*Whether your business is small or large, involved in service or manufacturing, or located down the street or across the globe, the Criteria provide a valuable framework for performance excellence and can help you assess and measure performance on a wide range of key business indicators: customer, product and service, operational, and financial*" (NIST 1999). "*All requirements of this international standard are generic and are intended to be applicable to all organizations, regardless of type, size and product provided"* (ISO 9001:2000, Fundamentals and Vocabulary: 11).

[69] These "rationalized myths" are partly formed by institutional pressures to comply with rationality assumption of managerial work. They also have a symbolic meaning: to demonstrate that management actions are the result of careful planning and that managers know how to best achieve collective organizational goals.

Most of the studies of TQM implementation are based on questionnaires, which mainly measure a manager's perception about the level of TQM implementation. There are concerns about the validity of using these questionnaires as a research method, because they measure implementation at a rhetorical and possibly biased (on the part of management) level (Powell 1995). Other factors which compromise the reliability of these surveys in measuring actual practices are environmental pressure to demonstrate compliance and results and pressure to rationalize actions. A common problem with TQM programs is that policies are instituted at the top management level but do not affect actual behavior (Zeitz et al. 1997). TQM research rarely addresses questions of reliability. An exception is research that that focuses on quality award winning companies, because the application for it involves careful inspection of actual quality practices. It is safe to assume that award winners actually have implemented the full TQM package (Hackman and Wageman 1995)[70]. Although the level of TQM implementation is difficult to measure, quality award criteria provide us with one standard for the level of quality management practices in an organization.

About separating TQM content and implementation

We cannot analyze the content or structure of the TQM discipline independently from its implementation. This is a key challenge when empirically analyzing TQM programs. However, almost all definitions of TQM separately assess the content of the discipline and its level of implementation. For example, in CPE approach (content) is evaluated independently from deployment (implementation). Failures in implementation or gaining business benefits from TQM implementation program are not defined as a design problem of the system or its principles but as simply an implementation problem (Reger et al. 1994, Knights and McCabe 1999).

The most frequently mentioned causes of failure are the lack of proper implementation and management commitment[71]. This assertion is strongly rejected in this study. Implementation failure can only be blamed on management if they did not attempt to familiarize themselves with the principals of TQM or if they are incompetent in managing the organization[72]. However, if managers consider TQM to be too complex or decide that it is not best for the organization, this is a problem of the discipline in not providing the tools necessary for management.

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[70] This statement is likely valid in the sense that any company cannot achieve quality award without implementing an extensive TQM-program. However, part of that program is careful documentation and justification of practices to meet award requirements. It can be argued that the difference between winners and the next level organizations is mainly documentation, not the actual implementation level. This problem was also evident in Valmet Corporation's self-assessment program, which was essentially based on the documentation of existing management approaches.

[71] "In both management practice and guru theory, TQM is normalized such that any failure of outcomes is defined not as a problem of design or principle, but simply as one of implementation" (Knights and McCabe 1999).

[72] One of the core competencies for a manager is change management, which rules out that competent manager do not have generic skills to implement TQM programs.

Other reasons for not accepting and implementing the TQM program, or failing to gain positive results from its implementation, are caused by ill suited prescriptions or inaccurate assumptions inherent to the discipline. Some of the assumptions made by TQM are incompatible with organizational context and TQM implementation programs may emphasize management practices, which do not provide a competitive advantage for that organization. In some environments, organizations must adopt extreme practices hostile towards TQM in order to ensure organizational survival. If, for example, stockholders place emphasis on achieving their short- term financial goals, it may force management to change direction (for example lay off people to increase stock price). This type of initiative results in the failure of one of the core principles of the discipline: valuing employees. Failing to achieve this principle cannot be ascribed to inappropriate managerial priorities and failure to pursue organizational objectives as set by total quality management. In this type of environment, values and principles set out by total quality management principles do not ensure the survival of the organization.

2.5 THE CONCEPT OF IDEAL QUALITY MANAGEMENT

The measurement problems and difficulties associated with the separation of the content and implementation are addressed in the concept of ideal total quality management. A management approach is considered to be a part of ideal TQM only when it is has been fully implemented. Because I have selected quality award criteria as a proxy for TQM, ideal quality management is established as a management approach used in a perfect organization based on the quality award scoring system. The scoring guidelines for approach, deployment and organizational results in 90%-100% level are as follows (NIST 1999: 43):

SCORE	**APPROACH/DEPLOYMENT**
90% to 100%	• a sound, systematic approach, fully responsive to all the requirements of the Item • the approach is fully deployed without significant weaknesses or gaps in any areas or work units • a very strong, fact-based, systematic evaluation and improvement process and extensive organizational learning/sharing are key management tools; strong refinement and integration, backed by excellent organizational-level analysis and sharing • the approach is fully integrated with organizational needs identified in other Criteria or Categories
SCORE	**RESULTS**
90% to 100%	• current performance is excellent in most areas of importance to the organization's key business requirements • excellent improvement trends *and/or* sustained excellent performance levels in most areas • evidence of industry and benchmark leadership demonstrated in many areas • business results fully address key customer, market, process, and action plan requirements

Table 2-5: Scoring guideline for 90%-100% organization according CPE.

In addition to assumptions, principles and practices explicitly mentioned in CPE, those supported by the original founders of the TQM discipline or contemporary TQM practices are considered to be a part of the discipline in this theoretical examination. In the instance where they contradict the content of the criteria, they have been identified and analyzed in order to provide additional insight. This approach, which uses many sources in defining TQM, leads to a deeper analysis.

The definition for ideal quality management is the following:

> *"Ideal quality management consists of those values, management practices, and results, that would lead into a perfect score of 1000 points in the CPE scoring system; and significantly reflect the ideologies of early founders of the discipline."*

As there is not currently, nor has there ever been, such a TQM implementation, one must consider principles, values, and the best practices associated with CPE as a way of leading to ideal total quality management. The main problem in using CPE as a basis for defining TQM is that, over the years, the wording of the criteria has evolved to account for any management principle or practice proven to be beneficial. In the current form, it can be considered the complete "cookbook" of management, containing all generally accepted approaches to managing an organization. It does not provide a clear definition of what can be included and what is excluded from TQM or which approaches should be emphasized if there are trade-off between competing goals. Although the basic list of principles and core values of the organization has remained unchanged, the interpretation has changed to moderate original objectives. In addition, some of the principles and core values of the discipline take into account contradictory requirements. In cases where CPE does not provide clear direction, I have compared it to TQM's founding authors' original work and interpretation of the discipline.

2.6 CONCLUSION

The quality award approach provides a basis for the theory development of TQM. There is a growing body of research based on quality award criteria, which links it to established fields of organizational and management research. This approach for implementing TQM program is not necessarily preferable, rather it comprehensively captures the main tenets of TQM and has gained wide acceptance. For these reasons, it makes up the most suitable TQM framework upon which to focus research and improvement activity.

There are considerable differences in the success of TQM implementation programs. Here it is argued that most of those differences may be caused by variances in organizational context. According contingency perspective management practices should be matched to situational requirements. Some of the differences may be only management rhetoric to demonstrate to external and internal stakeholders that they are capable of making rational and successful management decisions. In this study the notion that most failures in TQM programs are caused by improper implementation is strongly rejected, and it was argued that any practical management program should also be reasonable simple to implement.

The concept of ideal quality management, which is the complete implementation of CPE, was introduced in order to bring forward underlying problems inherent in the discipline. By definition, it can not be reached, nor does this research claim that it could exist in practice. This concept simplifies the model by excluding any disturbances caused by the

environment. We should also note that research on TQM implementation in practical applications has focused on a rather low level of implementation[73]. This focus places serious concerns on theory development, because the implementation level has a significant influence to the content of TQM. Organizations at the beginning of the implementation program may focus on improving independent areas and on the use of a few specific TQM tools. In the early implementation phases, organizations do not need to pay attention to the integrative system approach to management or to consistent long-term approaches, which are continuously improved.

[73] Research into the content and benefits of TQM implementation programs has focused in relatively low level of implementation. For example Dellana and Hauser (1999) in their study identify important cultural elements for organization below 400 points in CPE scoring system. Thus, the results of most empirical studies on TQM are limited to the organizations in the very early phases of TQM implementation program.

3 ROLE AND BENEFITS OF TQM

3.1 ORGANIZATIONAL OBJECTIVES

A universal list of organizational objectives cannot be defined. Especially in this study, which is not limited to one type of organization, organizational effectiveness is difficult to measure. The measures of organizational performance are considerably different among various business sectors and not-for-profit organizations, but it is generally accepted that survival is the core objective of any group or organization (Robbins 1990; Schein 1992). An organization's mission, primary task and reason to be is built around this concept (Schein 1992:53). Organizational survival depends on several factors, but the objective itself is applicable for any type of organization.

In TQM organizations, the core mission is predefined and universal. We can start with historical definitions of the core mission of the organization, because the founders of the discipline were very clear and decisive about the primary task of the organization. Deming, Juran and Ishikawa share the view that *"An organization's primary purpose is to stay in business so that it can promote the stability of the community, generate products and services that are useful to customers, and provide a setting for the satisfaction and growth of organization members"* (Hackman and Wageman 1995). This view to organizational mission is in contrast to the economic view of a firm, which claims that the purpose of an organization is to generate profit and maximize shareholder value[74]. The evident contradiction in organizational objectives is moderated by the claim that the main issue is the time perspective: customer-orientation and employee well-being leads to better financial results. TQM does not directly reject the notion that an organization's objective is the pursuit of profit maximization, but the driving force should be customer satisfaction, which leads to financial results. For this study, I have taken the view that a business organization must generate a fair profit for investors in order to ensure access to adequate financial resources. Non-profit organizations should aim at effective processes in order to keep costs under control. If an organization needs to go beyond these financial objectives, non-TQM based management practices need to must be selected.

[74] Grant et al. (1994) claim that "*TQM and the economic model are inherently incompatible, and that companies will need to choose, implicitly if not explicitly, between the two*". Knights and McCabe (1999) reach similar conclusions in their study of TQM implementation in the retail banking industry in the UK.

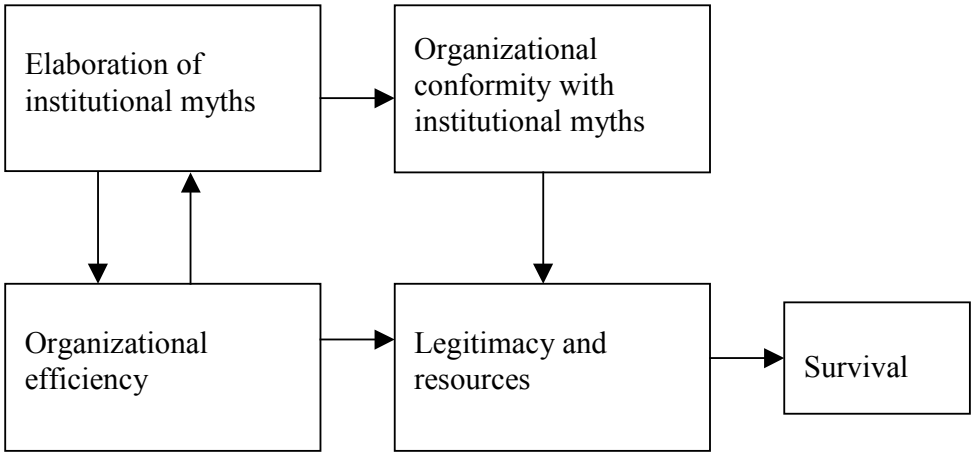

Figure 3-1: Organizational survival (Mayer and Rowan 1991)

An organization's primary long-term objective is to stay in business. The role and benefits of TQM can be ultimately measured based on how it supports this objective, which brings forward two distinct roles for any quality management program or approach. The survival of some organizations depends on achieving high standards of efficient internal production while others are required to conform to the normative codes of their relational network in order to guarantee survival.

Although organizational survival is generally accepted to be the ultimate goal of an organization, other perspectives exist. Spencer (1994), in his study of TQM as a cultural model, recognizes that organizational goals are not always shared. He concludes that, from a cultural model perspective, the purpose of an organization is to serve the diverse needs of all whom it affects and that organizations are comprised of individuals who each have their own purposes. This dilemma has been recognized in TQM, which emphasizes the use of value based management to alter and change the values and priorities of individuals to comply with those of the organization.

3.2 ROLE OF TQM IN ENSURING ORGANIZATONAL SURVIVAL

Research on TQM has focused on technical performance, and it does not consider the institutional consequences of adopting quality practices (Westphal et al. 1997). This deficiency has been addressed in this research by using two complementary approaches in analyzing the TQM role in ensuring organizational survival. The first approach is based on the TQM influence in the processes of external adaptation and internal integration. The second approach analyzes the role of TQM from an institutional perspective, which recognizes the discipline's symbolic value.

3.2.1 Processes of external adaptation and internal integration

The technical value of TQM adaptation is based on its influence on the core processes, which ensure organizational survival: adaptation to external environment and internal integration. In TQM, the focus is on adaptation to the external environment in meeting customer requirements, which is accomplished by continuously scanning customer and market requirements. The processes of internal integration ensure that the organization is kept together and they have an internal environment to interact in the most effective manner. Some of these practices, such as norms for intimacy, friendship and love, are not addressed in TQM, but the discipline does have a significant influence on most of the internal integration processes.

External adaptation

Adapting to the environment involves management maintaining favorable relationships with the major stakeholders of the organization. In the total quality management approach, the customer has a key role in ensuring organizational survival. Schein (1992) recognizes that the needs of all stakeholders should be balanced, and an organization must create and maintain effective relationships with all major stakeholders. He proposes that organizations use a sequence of steps as shown in Table 3-1to solve the problems of external adaptation. In the table, I have identified some of the areas in which TQM influences these processes.

(1) Mission and strategy: obtain and create a shared understanding of the core mission

- Mission and strategy are based on TQM values and principles

(2) Goals: develop a consensus on goals

- Senior management derives specific goals from mission and strategy

(3) Means: develop a consensus on the means to be used to attain the goals

- Management system and organizational structures, based on TQM values and principles, are created to attain the goals

(4) Measurement: developing a consensus on the criteria to be used to measure results

- A complete set of objective measures is created to review and control organizational effectiveness

- The performance review system includes review of the achievement of goals, process performance, and adherence to defined approaches

(5) Correction: developing a consensus on appropriate corrective actions

- Analysis of objective facts is used to create corrective actions

- Process deviations are grouped into common or specific causes of failure

    - System based common causes require changes in the system

    - Specific causes can be corrected by employee development

Table 3-1: TQM influence to the processes of external adaptation

The process of external adaptation is analogous to the plan-do-check-act cycle and the principle of continuous improvement in the quality management discipline. Also, the structure of CPE is built around this concept as demonstrated in the figure systems approach to management in Appendix 4. This sequence of steps assumes that it is possible, and favorable, to develop a consensus of organizational goals. Senior management has the focal role in these tasks. A measurement system is used to collect objective facts about current performance levels and organizational results, which are analyzed to create corrective actions. According to these principles, external adaptation is best achieved through conscious and the rational planning process, which is based on a detailed analysis of existing processes and specific customer needs and market requirements.

There are alternative methods for ensuring adaptation to the external environment. Biological science and evolutionary theory give different perspectives as to the external adaptation. Species have not developed as a result of a planning process, but through an evolutionary selection process[75]. This model may be beneficial for groups and organizations in turbulent environments, and it requires diversity and competing goals rather than a consensus of goals and a shared understanding of mission and strategy. Organizations possessing various resources and skills and containing members with distinct goals are more sensitive to changes in the environment as there are multiple perspectives and objectives used in scanning the external environment. In addition, they have spare resources, which may be necessary for adaptation to a new environment. These extra overlapping resources decrease organizational effectiveness and are often eliminated as a part of successful TQM program implementation. This discussion relates to the dilemma between continuous and breakthrough improvements, which are both mentioned and supported in CPE[76]. According to this analysis, the approach taken in CPE leads to a continuous and incremental improvement process.

Internal integration

In order to accomplish the tasks related to external adaptation, an organization must maintain internal relationships with its members. These processes ensure that organizational members are able to create a common understanding of organization goals so that they can effectively co-operate to achieve these goals in the most effective manner. The major processes that allow an organization to internally integrate itself are summarized in Table 3-2. Additionally, I have provided examples of how a successful TQM implementation program influences these processes.

[75] The discussion of whether this process of evolution has been planned or guided is not debated in this study. Also, evolutionary processes can be planned as in the case of breeding domestic animals. However, the point is, planning is done by selecting and supporting successful varieties and rejecting those not meeting desired characteristics. Evolution requires variety, as opposed to TQM, which aims at reducing variety.

[76] "*The term continuous improvement refers to both incremental and breakthrough improvement*" CPE (1999:1).

(1) Create a common language and conceptual categories

- CPE brings its own language "quality jargon" and conceptual categories[77].

(2) Define group boundaries and criteria for inclusion and exclusion

- Group boundaries extended out to include external stakeholders

- Long-term focus on relationships with all stakeholders

- Criteria for inclusion and exclusion based on quality (not price)

(3) Create rules regarding how organization members get maintain and lose power

- Senior management has the power and responsibility

- Senior management delegates power down to organization, but the delegation is done within the system created by managers

- Power relations are based on functional rationality

(4) Develop norms of intimacy, friendship and love

- Not addressed

(5) Define and allocate rewards and punishments

- Performance based rewards (monetary or non-monetary)

- Group based rewards emphasizing the role of teamwork

(6) Deal and explain the unexplainable – create an ideology and religion

- TQM philosophy, principles and values

Table 3-2: TQM influence to the processes of internal integration

One of the most important but often overlooked roles of TQM is to create a common language and conceptual categories, which allow employees to work together and perceive the world in a similar manner. This synergy enables them to communicate effectively and respond to specific information a similar way. Holistic quality management systems, such as quality award criterion or ISO 9001 quality management standard, also create a common framework in viewing the operations and purpose of the organization. This common language and vocabulary extends beyond the single business unit bridging companies and industries (Garwin 1991).

In organizational levels, TQM extends group boundaries by integrating previously external stakeholder groups as an integral part of the organization. This integration is accomplished through partnership types of arrangements with key suppliers and customers. The criteria for inclusion and exclusion are the quality of products and services and a willingness to engage in a long-term mutually beneficial business relationship. At the individual level, all employees are expected to work toward common organizational goals. However, a failure to achieve these goals is generally not attributed to the individual employee, because their performance is bounded by system related factors. Because employees, in principle, are regarded as being motivated to contribute to

[77] In Valmet Corporation, one of the most widely recognized benefits from quality training was a common language and model for managers in multiple business units to discuss and analyze management approaches. Common language and conceptual categories are the basis for effective sharing of management practices and learning from each other.

the shared goals, these system related factors, including proper training for employees, ensure that everybody knows their role within the organization and has an opportunity to work toward a common goal.

Rules regarding how organizational members get, maintain or lose power are not considered to be important in TQM, because it is based on rational approach to management. The senior management is considered to have ultimate power over decisions[78]. They use this power to build a system that enables them to empower employees or groups to work independently, but still within the limits set by management. In general, power relations are implicitly excluded from the discipline, which is based on the assumption that employees will behave rationally and work toward a common goal. For similar reasons, the norms of intimacy, friendship and love are not discussed. A reward system is a difficult and contradictory issue in the discipline. In practice, employees and groups are rewarded for performance, but the TQM approach to stress the importance for proper design of the system counteracts this practice[79].

As a management ideology, TQM provides "*a set of overarching values that can serve as a prescription for action vis-à-vis other groups and the broader environment, especially in areas that are difficult to explain and manage*" (Schein 1992:89). TQM values and principles can be used to "*explain(s) the unexplainable*", which provides an organization with consistent direction and additionally gives management, as TQM analysts, legitimate authority in leading the organization[80].

3.2.2 Institutional perspective

The starting point for most studies into TQM's role and influence is the outcome predicted by the discipline founders, which is based on the implementation program's technical benefits. These technical objectives are achieved based on how TQM influences the behavior of employees in the organization. This sole focus on technical outcomes has serious research implications, because it limits the research scope in those studies[81]. A broader perspective, one which takes into account not only the intended consequences, but also any influence the discipline has on organizational survival, should be used. Institutional theory suggests that if pressure to conform, rather than technical exigencies, guides the adoption of TQM, firms may realize legitimacy benefits rather than technical performance benefits (Wesphal 1997). However, the success of TQM programs is generally measured and understood based on technical merits, such as shorter cycle-times of reduced cost of non-conforming products. If total quality management fails to produce the expected technical merits, the whole program may be set aside and labeled as a failure.

Mayer and Rowan (1991) provide a starting point for the discussion about the role and benefits of TQM from an institutional perspective: "*Independent of their productive efficiency, organizations that exist in highly elaborated institutional environments and*

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[78] Knights and McCabe (1999) in their examination of assumptions about power relations in TQM conclude that according quality gurus (Grosby, Deming and Juran) power resides in the hands of the management.

[79] If performance is related to the design of the system, why should individual employees be rewarded or punished based on their individual performance?

[80] See Savolainen (1997) for study of TQM as a management ideology.

[81] For example, Hackman and Wageman (1995) claim that TQM should change employees' behavior.

succeed in becoming isomorphic with these environments gain the legitimacy and resources needed to survive." All environments are, to a certain extent, institutional and thus, the success of TQM should be measured based on technical and institutional merits. Table 3-3 presents examples of TQM's institutional practices and symbolic values they can create. It should be noted that none of these practices is purely institutional, because they can also lead into increased technical effectiveness of an organization.

Management practice/approach	**Symbolic benefit (legitimacy or access to resources)**
ISO 9001 certification	Mandatory requirement in some market areas
Adherence to customer or industry standard quality assurance	Pre-condition to be considered as subcontractor (for example QS-9000 in car manufacturing industry)
Demonstration as being customer-oriented	Rationalized myth, applies to all external stakeholder relationships (all legitimate organizations are expected to pay attention to customer requirement)
Customer satisfaction survey	Adherence to ISO-9000 requirements, customer expectations, or to justify some management actions (based on claimed information received from those surveys)
Employee satisfaction measurement	Access to the best personnel. A good employer is expected to value its employees
Fact based decision making process	Management gains legitimacy to make "rational" decisions, which are based on the analysis of all available information.

Table 3-3: Institutional benefits of some TQM based management approaches

In institutional environments, organizations compete for social acceptance rather than economic efficiency. Organizations that omit environmentally acceptable elements of their structure or create unique structures lack a legitimate account of their activities. They are more susceptible to claims that they are negligent, irrational, or do not have any purpose to exist. Claims of this kind, whether made by internal participants, external constituents, or the government, can cause organizations to incur real costs (Powel 1991). For example, an organization that does not have a formal quality management system, according to ISO 9000 series, may have to prove compliance by some other, potentially more expensive means.

Institutional theory and institutional isomorphism provide us with different perspectives of TQM as an administrative management innovation. After its initial (perceived) success in improving efficiency in some organizations, TQM has become more of a method for complying with environmental pressures. Compliance with widely accepted and expected practices will allow an organization to gain legitimacy and ensure organizational survival. Wesphal (1997) studied the consequences of TQM programs on organizational efficiency and legitimacy. His results show that early adopters of TQM customized the discipline for

efficiency gains while later adopters gain legitimacy from incorporating the normative form of the program[82].

Symbolic gains from environmental adaptation should not be underestimated. In many businesses, ISO 9000 certification is considered the primarily acceptable manner of demonstrating a commitment to quality. At a minimum, it saves the organization real costs by reducing the resources spent on compliance. However, ISO 9001 certification may also be a precondition required by some customers when researching potential suppliers even before they consider other factors. This is the case in many business transactions, such as the control systems and automation projects financed by the World Bank[83].

3.2.3 Integrated approach to organizational survival

In this chapter, an integrated approach to processes of external adaptation and internal integration with institutional perspective is taken in order to gain a better view of the role of TQM in various organizational settings. Any management approach can be analyzed based on its technical impact or symbolic value related to the processes of internal integration or external adaptation. Figure 3-2 illustrates the role and potential benefits of TQM along dimension “institutional-technical” and “internal-external”.

[82] In his study on TQM adaptation in the U.S. hospital industry, Westphal (1997) goes further and proposes that the primary reason why organizations are making a greater effort to qualify for Malcolm Baldrige is that they face increased pressure from stakeholders to demonstrate organizational effectiveness.

[83] The failure to differentiate compliance as an institutional and technical factor has lead to unexpected consequences. For example, in a tender financed by World Bank, all suppliers were required to have ISO certification, which is the only quality related factor in purchase decision (a case example based on automation system tender in China). All suppliers meeting technical and commercial requirements have to be accepted and the only deciding factor is price. In practice, this rule has lead to competition based on price only as it restricts competition based on quality above certification.

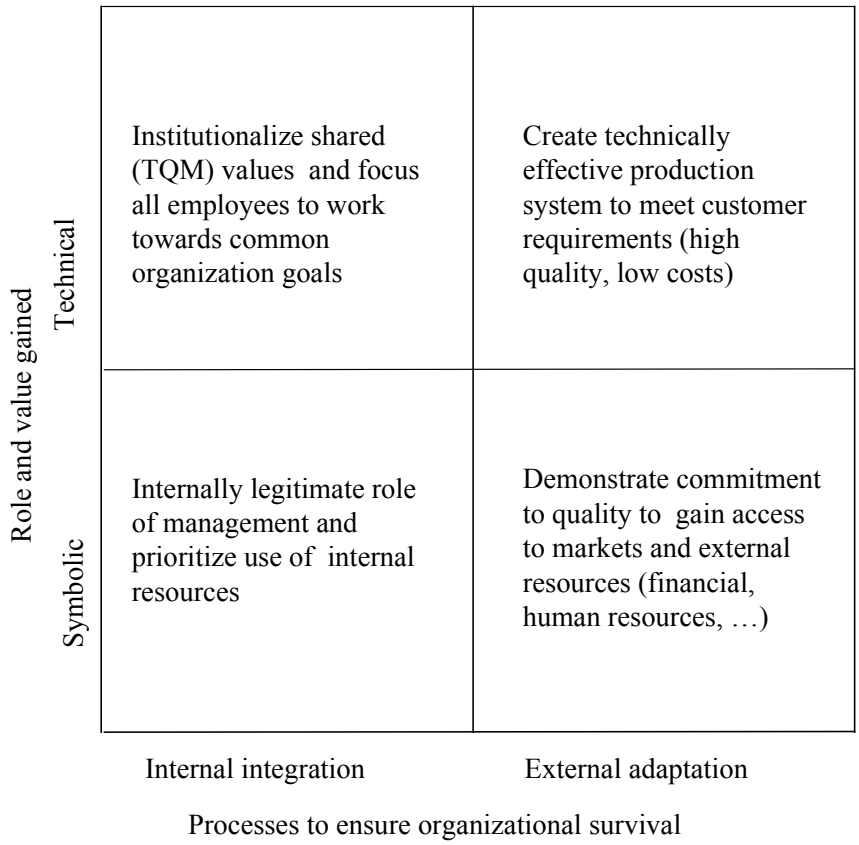

Figure 3-2: Role and impact of TQM in ensuring organizational survival

Internally, management must demonstrate that it can lead the organization successfully[84]. It needs to follow generally accepted practices, even ones that do not meet situational requirements or have a little technical value for the organization. The internal legitimacy of management actions can also be based on pure rhetoric and ex post facto rationalization of management actions. Myths and stories about TQM's success in the organization or elsewhere demonstrate that managers are knowledgeable with the latest management approaches and are capable of leading the organization. On the contrary, if management tries to implement new management practices perceived as being useless, it will lose its legitimacy in the eyes of external or internal stakeholders. An example of the symbolic value of management activities would be an employee satisfaction survey, which is conducted solely to demonstrate management's commitment to its employees. The same survey process could potentially lead into technical value; the results of the survey are used to improve the internal effectiveness of the work system.

The relationship between the institutional and technical value of any management practice is complex. Powel (1991) claims that institutional and competitive processes are not necessarily exclusive and that they can co-exist and contribute the survival of the organization. Zbaracki (1998) provides a detailed discussion about the interplay between TQM's technical benefits and its symbolic value in the form of management rhetoric. His

[84] Only some special types of organizations are based on the absolute authority of the management. An example would be a military organization during wartime.

evolutionary model[85] demonstrates that the relationship between the technical and symbolic role is not only complex, but it dynamically changes over time.

In the long-term, technical benefits are necessary for any management approach to maintain its legitimacy and symbolic value. If an organization and its main stakeholders discover that a specific management approach does not actually generate technical benefits, it will eventually lose its symbolic value and will undergo the process of de-institutionalization. Because evaluation potentially decreases the value of institutionalized practice, These practices are generally guarded from external evaluation, which is based on technical standards[86]. Institutional practices are also often separated from the technical core of the organization (for example by establishing quality management department), which makes their internal evaluation difficult. Additionally, this de-coupling of institutional practices ensures that the technical operations of the organization are not disrupted while an organization can fully benefit from the symbolic value of institutionalized management practices.

3.3 OPTIMUM LEVEL OF TQM IMPLEMENTATION

As organizations, in practice, are not able to reach the ideal state of quality management, this line of reasoning leads to the claim that each organization has an optimum level of total quality management. In most competitive business sectors, the Malcolm Baldrige Quality Award winners achieve an over 700 points (NIST 1999). The obvious consequence is that there is an optimum level of quality management practices. This fact has not been generally accepted or analyzed as it contradicts the core principles of the discipline (continuous improvement). If there is an optimum level for TQM, then continuous improvement is not possible or economically viable in all situations.

The calculation for the optimum level total quality management practices is analogous to the calculation optimum level for quality (see for example Tervonen 1992:125). It is generally accepted that there is optimum level for quality, which can be calculated based on quality costs[87]. A famous slogan by Grosby (1979) claim that "*quality is free*" applies only in situations where preventive quality costs are greater than the cost of low quality in the form of decreased customer satisfaction, repair costs, and lower prices and sales for products. Crosby's objective of zero defects does apply only in specific applications where the cost of non-conformance approaches are infinitive and quality management is

[85] Zbaracki (1998) presents an evolutionary model, which is based on repeated cycles of variation, selection and retention of management practices. "TQM introduces a variation to organizational procedures when it enters to organization. Selection occurs when organization members encounter specific TQM practices. Retention follows when organization members alter their routines and rhetoric."

[86] In the case study, the fragility of institutional practices was one of my concerns. I was not worried about my ability to evaluate the overall value of a specific management practice, but merely suggesting that some practices will generate mainly symbolic value, which would decrease the worth of those practices and introduce a negative change into the organization.

[87] The concept of quality cost and optimum quality level was common knowledge already in the late 70s (for example Veräjänkorva (1977). Since then, the basic concept has not changed, but use of quality cost to improve operations in company-wide has proved to be difficult mainly due to problems in measuring quality cost accurately. In Valmet, quality costs were dropped as a system for improving organizational effectiveness in late 90's due to the above- mentioned problems.

applied to a process having well-defined objectives. In many industries zero defects is not a target for an organization, rather they aim to reach an acceptable level of quality[88].

TQM programs require large amounts of resources and managerial commitment. Even with these facilities in place, programs are not guaranteed to succeed. According to Senge (1999), even those firms that have had significant commitment to quality management for several years are encountering slowing rates of improvement. Resources that must be continuously spend to improve TQM implementation and to show compliance leads to the obvious conclusion that there is an optimum level of quality management practice in any organization[89]. Beyond this break-even point (Figure 3-3), which needs to be determined independently for each organization, there is no return on investment in TQM. The optimum level for investment in TQM is can be calculated based on

(1) Resources used to promote and train employees to follow TQM practices,

(2) Actual development and continual implementation of those practices, which are not directly related to value adding activities (such as conducting customer satisfaction survey),

(3) Organizational effort to show compliance to TQM (such as ISO 9000 registration or quality award application),

(4) Rejection of (or failure to comprehend)[90] alternative, more effective practices, which are not according the principles of TQM.

(5) Technical and symbolic value of TQM .

The law of diminishing marginal returns dictates that at some point, resources invested in TQM do not produce enough benefits to cover investment cost. Those resources are better invested in some alternative way.

[88] For example, see Cusumano and Selby (1998) for a description of how Microsoft manages it software development process and launching of new products.

[89] This proposal takes into account change and uncertainty. As organizations are forced to adopt new and uncertain environments, it would be unrealistic to assume they can maintain same level of sophistication in management practices.

[90] Strong TQM culture may prevent management from seeing other alternative non-TQM type of management approaches. This type of situation can be analyzed through a metaphor of organization as psychic prison (Morgan 1997).

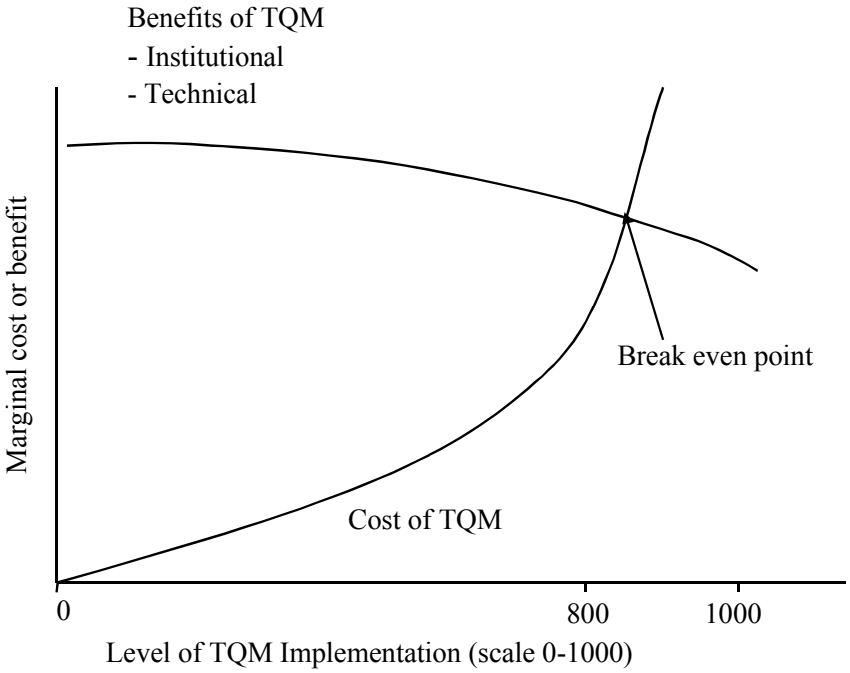

Figure 3-3: Marginal benefits of TQM implementation program

The existence of an optimum level for quality management has significant implications in practice as it would force organizations to define themselves based on that level. This optimum level for TQM has to be determined individually for each organization. The process of determining this level would likely lead to a more realistic comprehension of the potential costs and benefits inherent to a TQM implementation program. The main obstacle is that TQM discipline or associated research does not provide any guidance as to how to determine this optimum level for TQM. This process would also contribute to the content of the implementation programs as the potential impact on business performance has to be justified.

Lillrank, Shani, Kolodny, Stymne, Fiquera and Liu's (1998) study on the implementation of continuous improvement programs is related to this discussion. In their conclusions to practitioners, they bring forward an argument that, in some situations, improvements in organizational effectiveness and generic capabilities cannot provide significant strategic advantages and top management should focus on classical strategic issues.

3.4 CONCLUSION

The ultimate goal of an organization is survival, which can be achieved by through the processes of internal integration and external adaptation. Institutional theory suggests that, depending on the organizational environment, the focus of these processes should be on technical effectiveness or adaptation to environmental expectations to gain access to the necessary resources in order to survive. These institutional processes enable an organization to function optimally in its given environment; thus they also indirectly influence technical effectiveness by allowing its technical core to operate in the most

effective way. In general, technical effectiveness has proven to be positively correlated with organizational survival, and the technical benefits alone would justify the use of TQM. However, in many cases, the technical benefits of TQM have been insignificant or difficult to measure. The perspective of TQM as being purely technical management intervention does not represent its overall role within the organization. At the organizational level, the role and benefit of any management innovation, such as total quality management, should be studied from the perspective of technical effectiveness and institutional adaptation to the environment.

The institutional value of some management practices explains why managers often, as a part of a TQM implementation program, implement practices which are not producing any technical value. These practices may be necessary for management to gain the legitimacy in the eyes of external stakeholders or to meet organizational members' expectations of following certain management practices and norms. If these practices are uncoupled from the technical core of the organization, they allow management to focus on the instrumental role of the organization to meet customer requirements. The separation of these official processes also reduces the disruption to technical production processes and the use of valuable resources. On the contrary those approaches, which are expected to lead into technical benefits, should be integrated with the technical core of the organization.

TQM implementation programs require significant investments, especially in the form of management attention. Each organization has an optimum level of TQM implementation, which can be measured based on resources used for implementing TQM based approaches, rejection of potentially better alternative management approaches, and increased organizational effectiveness caused by TQM approaches. TQM benefits come from two sources: the technical effectiveness of an organization and compliance with normative expectations of internal or external stakeholders. The optimum TQM implementation level depends on existing organizational culture and institutional environment. It is specific for each organization, but in general it could be concluded that if technical effectiveness is the main criteria for survival, the optimum level is positively correlated with fit of organization's culture with ideal quality culture. In institutionalized environment existing organizational culture is has less influence, because organizations are seeking mainly symbolic benefits from TQM implementation program. This type of benefits can be achieved in rather low level of implementation[91]. In this case an implementation program should be managed with the least amount of resources and uncoupled from the technical core to avoid the assessment of formal institutional practices based on technical effectiveness. On the other hand, technical benefits require deep integration of TQM in core technical production processes and in the way members of the organization work together to meet customer requirements.

[91] For example, it is generally accepted that ISO 9001 certification can be achieved in level of implementation, which is less than 300 points in CPE scoring system.

4 TOWARDS A CULTURAL FRAMEWORK FOR TOTAL QUALITY MANAGEMENT

4.1 CONCEPTUAL FRAMEWORK FOR TQM

TQM is a complex and multilevel approach to management, which separates it from most other management intervention programs. As a part of an implementation program, new management approaches and practices are often implemented, implementation process forces management to take a broad view to the management of the organization and quality management discipline provides a set of a set of values and principles to guide any management action. Additionally, there are hidden assumptions, which influence the success of the implementation program. For example, as a part of implementation program, an implicit assumption is that an organization can implement an effective measurement system so that management decisions can be based on the analysis of information and data. An effective implementation requires that management and employees of the organization accept this assumption and change their behavior. A conceptual framework for TQM should consider all these levels and how they are interrelated.

The multiple conceptual levels of TQM have been acknowledged in the structure of quality award criteria. CPE is based on a three level structure consisting of core values and concepts, management areas and management practices. The ISO 9001 quality management system is built upon visible management practices (quality management system), but it also identifies quality management principles, which provide a framework for management to lead its organization toward improved performance. In most academic research, little emphasis is placed on the identification of multiple conceptual levels in the discipline. Hackman and Wageman's (1995) multilevel framework[92] of TQM remains the most serious attempt to create a conceptual framework for TQM. Dean and Bowen (1994) view TQM as a philosophy or approach to management, which is characterized by its principles, practices and techniques.

The research approach used in this study to develop a conceptual multilevel framework of TQM is based on notion that it can be studied as cultural phenomena, because the concept of organizational culture matches the complexity and multiple levels of TQM. Additionally, there are claims that the essence of the TQM implementation program is cultural change (Zeitz et al. 1997). Why not determine the type of culture that exists within an organization that has been able to implement ideal quality management? The major obstacle to overcome is that ideal quality management cannot be implemented and therefore, the analysis of TQM as a cultural construction is done using ideal model of quality culture, which is based on theoretical analysis[93]. The advantage of this approach is that it enables the researcher to build a conceptual framework, which is not influenced by the contingencies of real world organizations.

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[92] The conceptual levels of the framework are assumptions, change principles and management interventions. In their study, Hackman and Wageman define and analyze TQM by identifying key characteristics of TQM in each level.

[93] This analysis draws from empirical observations in the case organization to identify areas in which there have been problems in the implementation program. This research approach, drawing from empirical observations, is also useful in demonstrating the practical validity of the theoretical framework.

The conceptual framework of total quality management is built upon Schein's (1985, 1992) cultural model, the distinctive feature of which is the focus on identifying multiple conceptual levels of organizational culture. It provides us with a framework by which to study principles, values and the management practices associated with ideal quality management. The framework consists of four levels, which can be directly linked to cultural model as shown in Table 4-1.

Levels of organizational culture	**Conceptual model of total quality management** (example based on customer satisfaction survey)
1. Artifacts • Visible organizational structures and processes	1. Management practices and approaches (Management practices, guidelines, procedures organizational structures and processes) • For example customer satisfaction survey
	2. Management areas • Customer and market knowledge
2. Espoused values • Strategies • Goals • Philosophies	3. Core values • Customer–orientation • Fact-based management (decision can be based on survey information)
3. Basic underlying assumptions • Unconscious, taken-for-granted beliefs, • Perceptions, • Thoughts, and feelings	4. Basic assumptions • Customer is the most important stakeholder to ensure organizational survival or organization has a moral duty to help customer • Physical reality dominating and can be measured

Table 4-1: Levels of organizational culture and conceptual framework for TQM

The two deepest levels of organization culture and the conceptual model of TQM are identical, and their definition is directly based upon Schein (1992). The most visible level in the organizational culture model, artifacts, is broken down to two levels: management practices and approaches and management areas. They are similar in nature with respect to cultural levels, but this distinction leads us to a deeper analysis of the structure and scope of TQM. A visible management practice (customer satisfaction) survey is part of broader management task (gathering market and customer knowledge) and a reflection of the deeper cultural values and assumptions.

Lyndby et al. (1999) analyses the preferred type of culture for a firm hoping to capitalize on the potential benefits of TQM. They use a level of integration and strength of culture to introduce a concept of strategically differentiated culture. "*A strategically differentiated culture is one characterized by the presence of an overarching or supraordinate set of norms and values while allowing for unit-level or subordinate norms and values that are consistent with the strategies of those units."* They propose that this type of integrated and strong culture is the most advantageous form of culture for an organization that is implementing TQM, which is also the accepted basis for this research. The main difference is that this study focuses on basic assumptions rather than norms and values inherent to TQM.

Kekäle (1995, 1998, 1999) proposes that a different kind of approach toward the implementation of TQM programs should be taken depending on the existing organizational culture. His research work identifies basic assumptions, which support the implementation of "*soft*", "*mixed*" or "*hard*" TQM approaches (Kekäle 1998:57). For example, depending on the type of organization, the nature of reality may be empirically, socially or individually constructed. His approach, which proposes multiple quality

cultures and methods for implementing TQM, differs from this research work, which looks for a common set of basic assumptions.

Schein (1992) considers only the basic assumptions as being part of the organizational culture, but for practical purposes other levels must be identified. The conceptual framework of TQM provides a tool for identifying the issues related to the various levels of the model. In fact, the identification of TQM's basic assumptions is mainly based on the analysis of visible management approaches' and core values, which explicitly defined in ideal quality management. The process of studying TQM culture is analogous to the approach that is needed in cultural research. The identification of TQM basic assumptions can be achieved by analyzing the visible level of the TQM culture (for example standards, articles, books, quality management systems and organizational practices). In cultural studies, the research process takes advantage of observing an organizational behavior and analyzing it further through in-depth interviews. The analysis of ideal quality culture must rely mainly on artifacts[94], such as written texts and descriptions of TQM, but it has the advantage of being able to extensively exploit existing research.

The various conceptual levels are not isolated. Basic assumptions are intertwined and continuously influenced by the success of various practical management approaches and values introduced to the organization. On the other hand, management practices and espoused values are ultimately implications of some deeper level cultural assumptions. For example, if an organization has a shared cultural assumption that customer can and will select another supplier, if they are not receiving good service, this is reflected is both visible management practices and espoused values[95]. The relationships among items at various levels are not directly related to one another. These interconnections make the organizational culture and cultural change process complex.

Any management approach is influenced by, but also has an impact on, the institutionalization of organization's basic assumptions. As an example, the customer-orientation influences the selection of specific management practices such as customer surveys or complaint management systems. On the other hand, successful applications of surveys or complaint management systems reinforce customer-orientation, because organizations will benefit from environmental compliance or improved technical effectiveness. Cultural assumptions evolve based on successful experiences. However, in organizations, employees are not always capable of assessing whether some practices are beneficial, and therefore, they often rely on information provided by management. Success stories provided by management may be based on small case experimentation or case examples from other organizations, preferably from competitors (competitive benchmarking). They can be considered a significant part of management work and integral in management's efforts to change organizational culture[96].

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[94] I have utilized my observations in the case organization in many areas of this research, but I would not consider them to be the main source in the identification of TQM basic assumptions. Empirical observations have had a key role in focusing research on those areas, where there seems to be a lot of difficulty with certain management practices. However, the underlying basic assumptions causing those difficulties have been analyzed mainly using other sources of information.

[95] A familiar example for most Finnish readers would be government controlled car inspection business, which experienced a tremendous change of both management practices and values after private companies were allowed to enter the business.

[96] In this sense, management rhetoric about successful TQM implementations can be considered to be a part of cultural change effort.

4.2 DECONSTRUCTION OF TQM

The identification of TQM basic assumptions, core values, management areas, and management approaches, is based on the deconstruction[97] of ideal quality management. In the process of deconstruction, incongruities between prescriptions of ideal quality management and behavior and characteristics of organizations as social construction are brought forward. The approach taken is based on multiple sources of information. The starting point for the reconstruction process is the concept of ideal quality management, which is explicitly articulated in CPE. However, it has become a very broad and generalized model for organizational excellence. It includes multiple organizational objectives, and almost any management principle or practice can be included as a part of the criterion. Any proposed principle is analyzed in the context of the overall framework rather than simply being mentioned in the criterion text. In the process of deconstruction, issues that are not mentioned in the information sources are equally important in drawing conclusions. ISO 9000:2000 family of quality management standards has been used parallel to CPE, because it has similar scope and it shares the same basic values and principles. Additionally, existing academic research and empirical observations in the implementation of TQM program in Valmet are used to support the selection and analysis of individual assumptions[98]. A conceptual model of TQM (Table 4-1) and dimensions of basic assumptions (Table 4-2) give a frame of reference for the deconstruction process. Each level in the conceptual model is briefly examined, but the main focus is on the deepest level, TQM basic assumptions.

The initial list of basic assumptions in organizational culture is mainly based on those cultural assumptions discussed in Schein (1985, 1992, 1999). The construction selected as the basis for this study is a combination of multiple structures, because Schein's construction has evolved and developed over time, and he also approaches the issue from slightly different perspectives. In the original work, he did not pay a lot of attention to the processes of external adaptation and internal integration. The principle work is presented in the second edition of "Organizational culture and leadership" (Schein 1992), which analyses the relationship and integration among deeper level basic assumptions and the processes of external adaptation and internal integration[99].

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[97] The word deconstruction may not be familiar for most Finnish readers. A direct translation for the word deconstruction in Finnish is "ristiriitojen osoittaminen" (MOT Electronic dictionary, V98r15, Kielikone Oy).

[98] The identification of each basic assumption is based on empirical observations about difficulties in the TQM implementation process, which was based on both CPE and ISO 9001 quality management standard.

[99] For this research, this integration provides a direct connection from the conceptual framework of TQM to the four-field matrix used for analysis of the role and impact of TQM in chapter 3.

1. Organization's Mission and Relationship to Nature

- Organization's core mission, purpose
- Relationship to environment – how the mission can/should be achieved

2. The Nature of Reality and Truth

- Levels of reality (external physical, social, individual)
- Context dependency
- Reality testing (moralism-pragmatism scale)

3. The Nature of Human Nature and Relationships

- Nature of human being
- Basic relational unit (individualism – groupism)
- Participation and involvement
- Characteristics of role relationships

4. The nature of Time and Space

- Basic time orientation and discretionary time horizons
- Monochronic and polychronic time, temporal symmetry and pacing
- Planning time and development time
- Distance and relative placement, symbols of space, body language

Table 4-2: Dimensions of basic assumptions in organizational culture

However, according to his suggestion that a general list of basic assumptions cannot be identified, this analysis is open to the identification of additional assumptions, which are relevant to the implementation of TQM programs. According to (Zeitz et al. 1997), only dimensions and elements of cultures relevant to a particular purpose can be identified. Respectively, quality culture is only a subset of organizational culture, which is also the conclusion drawn by Dellana and Sine (1999). The intent of this deconstruction is to reveal and analyze those basic cultural assumptions, which are directly related to ideal quality management. In each dimension, I have identified those basic assumptions that are influenced by, or have an impact on, the implementation of ideal total quality management.

4.2.1 Basic assumptions

Although the identification of basic assumptions is based on CPE and ISO 9000 quality management standards, I take a short review of relevant research in analyzing the most significant research done to identify a set of TQM's basic assumptions. The research of TQM has mainly focused on management practices, values and principles, but coincidentally they also include elements that can be considered basic assumptions. There is an indistinct division between TQM basic assumptions, principles, precepts, core values and concepts. TQM constructions (Appendix 2) and related research work contributes by providing a detailed analysis and links to organizational and management theory, which are useful in a detailed analysis of each basic assumption in chapter 4.3.

Grant et al. (1994) in their study of TQM challenges on management theory, argue that even though there is not an explicit theory of TQM, some "*theoretical assumptions*", which underlie the principles and techniques of TQM, can be identified:

- Customer satisfaction as an organizational goal
- Organization design is based on shared goals
- The role of information is in a decision making process
- Dynamic optimization of processes, and
- Blurred organizational boundaries between firms.

Although Hackman and Wageman (1995) did not analyze TQM from an organizational culture perspective, they identified a set of TQM assumptions, which are similar to the cultural concept of basic assumption. In their research, they regard TQM as being based on interlocking assumptions about quality, people, organizations, and the role of senior management:

- Quality is assumed to be less costly than poor workmanship
- Employees naturally care about the quality of the work and will take initiatives to improve it
- Organizations are systems of highly interdependent parts
- Top management has the ultimate responsibility for quality. Employees' work effectiveness is a direct function of the quality of the system that managers create.

Jauch and Orwig (1997), in their study on the use of TQM in higher education, bring forward a set of TQM assumptions in which TQM principles of continuous improvement, customer focus, integrated management system, teamwork, and the role of top management are based on:

- Continuous improvement: continuous slow change is superior to "quantum" change, the best practices can be identified, raw material is passive and conforms to specification, manufacturer desires no variability
- Customer focus: customers are identifiable and can define and recognize quality
- Integrated management system: Goals are well-defined and are consistent across units
- Team work: employees will participate and have something to contribute to team effort
- Tie reward to performance: The organization has discretionary resources
- Top management involvement and cultural change: Management can control outcomes

Silen's (1994) research uses Schein's cultural framework and dimensions of cultural assumptions. In research, he identifies the following central features in the discipline:

- Relationship to environment: In harmony, submissive towards customers
- Nature of truth and reality: Based on processing large amounts of information and social reality in the organization. An inclination to fuzzy logic based thinking. A long time horizon with respect to defining reality.
- Nature of human being: Social, co-operative, hardworking, and conscientious.
- Nature of human activity: Collectively oriented, work task and responsibilities broad and loosely defined, within task limits each person has a right and responsibility to use their brains, purpose of the activities is to satisfy customers with high quality products and services. All employees know strategy and goals.
- Nature of human relationships: groups look for co-operation, equality between employees and managers, open communication (horizontal and vertical).

A core set of TQM basic assumptions is brought forward in Table 4-3[100]. This list converges with the assumptions identified in the existing research, and many of my empirical observations about difficulties in implementing TQM based approaches can be directly related to this set of assumptions. Because this set of TQM's basic assumptions is drawn from the concept of ideal quality management, it is presented in the most extreme form. In the context of a real organization, these assumptions are always compromised and/or even conflicting[101]. The main advantage of this ideal model is that it provides a simplified and pure framework for the analysis of interrelationships among basic assumptions.

Ideal quality management may not seem relevant to practice, because it is an extreme view to understand TQM from a single perspective. This provocative approach was also selected to create a discussion. Additionally, this analysis brings forward a proposal that basic assumptions are compromised in every organization, which may cause friction even in the early phases of a TQM implementation program.

[100] Additionally, the creation of this list is based on the implicit assumption that organizational culture is an integrated set of compatible and consistent assumptions. This assumption is further analyzed chapter 4.4.

[101] Fox example, no researcher or experienced manager would claim that the nature of a human being is purely good or that all decisions in the organization are based on objective facts.

1. **Organization's Mission and Relationship to Nature**
   1.1. Proactive and harmonized relationship to the environment: Organization should continuously scan its external environment and to proactively respond to the needs of external stakeholders, specifically those of the customer.

   1.2. Customer dominating in supplier chain relationship: Organization should respond to the needs of all stakeholders, but the customer has a dominant role and priority in setting organizational objectives. This also applies further down in the supplier chain, where an organisation has a dominant role toward its suppliers/partners.

2. **The nature of reality and truth**

   2.1. Objective physical reality dominating: Scanning of internal processes and external environment produces context independent and objective information, which can be used as a basis for decision making process. Ojective physical reality is limited and shaped by quality ideology.

   2.2. Continuous improvement by analyzing objective facts: It is beneficial for an organization to continuously improve organizational processes. This improvement should be based on analysis of objective information.

3. **The Nature of Human Nature and Relationship**

   3.1. The basic nature of human good: All employees, by nature have an endogenous will and motivation for good work; they are capable of improving themselves, and employees align their personal objectives to comply with those of the organization.

   3.2. Central role of senior management: Senior management has the key role in ensuring organizational effectiveness, and they have the legitimacy to set organizational objectives.

   3.3. Teamwork is more valuable than individualism: Teamwork across functional and legal boundaries of the organization is required to manage and improve organizational processes.

4. **The Nature of Time and space**

   4.1. Future orientation - time to wait for results: Organizational stakeholders prefer to have long-term relationships and they have the patience (and resources) to wait for results.

   4.2. Efficiency through planning and co-ordination: Organization is a set of interrelated parts and to improve overall effectiveness, activities should be carefully planned for coordination and alignment.

Table 4-3: Total quality management basic assumptions (ideal quality culture)

4.2.2 Core values

One distinguishing factor that separates TQM from most other management innovations is that TQM delves further than simply introducing a set of management tools and approaches for a specific technical task. It explicitly defines a set of values, which are an integral part of the discipline. TQM values can be used as a guide when selecting, implementing and improving business practices used in the organization. They also provide the guidelines for value-based management to influence what employees regard as valuable, enabling them to work in a complex environment without explicit knowledge gained from reading instruction and operation manuals. Value-based management is an attempt to achieve coordination by establishing a normative set of high-level values that should guide decision making in individual situations (Lillrank 1998). Core values have an important role in designing management approaches and organizational structures. According to NIST (1999:1), they provide "*foundations for integrating key business requirements within a results-oriented framework".* Additionally, Freeman (1984:91) states that if an organization wants to implement its strategy*, "the values of those affected by it must be factored into the equation*". This consideration and assessment of values goes beyond organizational boundaries. Understanding stakeholder values, especially those of customers, is important in the determination of stakeholder requirements and expectations.

TQM values are non-confrontational in nature and are, in principle, easy to accept and difficult to argue (Manley 1998). Many TQM values, such as customer-orientation or continuous improvement, are widely accepted even in organizations not directly engaged in TQM implementation programs. In this role, they are used to explain and rationalize behavior, but to which degree they actually guide behavior depends on whether the underlying organizational culture in the organization is compatible with TQM values. Additionally, shared values may enable management to gain symbolic benefits from TQM interventions if new management approaches support values institutionalized in the organization. For example, in an organization having shared values of customer-orientation and management by fact, employees would expect management to gather reliable information about the level of customer satisfaction. By implementing this practice, management demonstrates their commitment to shared values and organizational goals[102].

CPE explicitly defines a list of eleven core values and principles and ISO 9000 provides a similar, but slightly more focused set of values and principles. There are no provisions in either CPE or ISO 9000, which state that an organisation could discard any of these core values. As they have been stable since 1992 and converge with the values identified in TQM research, we can conclude that there is a clear agreement on TQMs core values (Table 4-4).

[102] If customer surveys are done only for symbolic value, they do not need to provide actually any information for decision making process. The main issue is that decisions are perceived as being based on analysis of objective information about customer preferences.

Core values are grouped around similar dimensions such as basic assumptions, but this does not indicate that there is a one-to-one correlation between basic assumptions and core values. Core values may seem similar to basic assumptions, but the fundamental difference between them is that core values provide an answer to "How should an organization be managed?" while the basic assumptions are used to analyze the question "Why it should be managed that way?" The latter question could potentially lead to a more in depth analysis of the factors that have an influence on organizational effectiveness and survival, which would not be bound by TQM dogma.

1. **Organization's Mission and shared objectives**
   - 1.1. Results focus: The instrumental role of an organization is to serve stakeholders with the main focus being on the customer, employees and society.
   - 1.2. Customer orientation: The organization must be sensitive to changing customer needs and expectations, meet customer requirements and strive to exceed customer expectations.
2. **Management approach and organizational decision making process**
   - 2.1. Continual improvement: Continual improvement of performance is a permanent objective of an organization.
   - 2.2. Management by fact: Management decisions should be based on the analysis of objective data and information.
3. **Role of management and involvement of employees**
   - 3.1. Leadership: Leaders establish the unity of purpose and direction for the organization.
   - 3.2. Valuing employees: The development and involvement of employees at all levels of an organization.
4. **Planning, co-ordination and time related performance**
   - 4.1. Long-range view to future: Organizations should have constancy of purpose and seek to build long-term relationships between key stakeholders.
   - 4.2. Design quality: Quality must be built in to products and processes, and mistakes must identified early in the production.
   - 4.3. Systems approach: Identifying, understanding and managing the interrelated processes and functions as a system contributes to the organization's overall performance.
   - 4.4. Partnership development: Organizations need to build partnerships to better accomplish its tasks (partners as part of the system).
   - 4.5. Fast Response: Fast response to changing customer requirements and complaints is critical for organizational success.

Table 4-4: Total quality management core values

4.2.3 Management areas

CPE management categories and management areas provide the most complete framework, and they are used in this analysis. They cover all significant areas of the management and relationships among management areas. Their main purpose is to ensure that all important management areas are covered, and the overall consequences of management actions are identified. The systems approach to management is based on the identification of relationships between management areas. I would consider it the most significant contribution of TQM to contemporary management practices and, to a certain degree, to management theory[103]. A figure about CPE as a system is presented in Appendix 4, which demonstrates roles of various management areas and identifies key relationships among them. The main deficiency of the system approach in CPE is that only relationships among management areas are described. The relationships among core values or basic assumptions are not examined similarly.

According to the cultural model used in this research, visible levels of organizational culture are reflections of basic underlying cultural assumptions. Although each individual item (management area) is influenced by all basic assumptions, those management areas having the most significant influence on each management area can be identified:

- Leadership: The central role of senior management
- Strategic planning: The central role of senior management, Future orientation
- Customer and market focus: Proactive and passive relationship to environment, Customer dominating in supplier chain
- Information and analysis: Objective physical reality dominating, Continuous improvement by analyzing objective facts
- Human resource focus: The basic nature of humans is good
- Process management: Efficiency through planning and co-ordination, Teamwork across functional boundaries

CPE states that a management system should cover all areas of management. Organizations adapting CPE for internal improvement or applying for the prize must consider and define management approaches for each of the areas. Management areas in practice define the scope of a TQM implementation program[104]. Additionally, the scoring system has an impact on which areas the management considers to be the most important and how resources are spent.

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[103] The contribution of TQM is the identification of significant relationships between various areas as opposed to management theory, which focuses on specific management areas (for example strategic planning or human resource management).

[104] Valmet Corporation units are not actively using CPE, but some of them still define the extent of their management system according CPE management areas.

4.2.4 Management practices and approaches

Management practices and approaches are the most visible part of the discipline. At this level, the focus is on the artifacts that managers create to enable an organization to meet its mission and objectives. These artifacts include, but are not limited to, organizational structure, guidelines, procedures, and specific tools and practices. While management areas defined the scope of TQM, here the focus is on depth and details of the management approach.

The major part of existing research and literature has focused on the identification of TQM tools and techniques[105] and in analyzing how they can be used in the TQM implementation programs. It is an important issue in practical management literature, but I consider management areas and approaches as the least important level in the theoretical analysis of TQM. Any artifact based on TQM values and basic assumptions can be considered a quality management approach. An organization implementing a TQM program should have the freedom to choose any management approach or organizational structure. This approach is supported by the non-prescriptive claim of CPE (NIST 1999: 6): "*The Criteria do not prescribe: specific tools, techniques, technologies, systems, measures, or starting points; that an organization should or should not have departments for quality, planning, or other functions; how the organization itself should be structured; or that different units in an organization should be managed in the same way.*"

In theory, an organization is free to select any management approach necessary to meet the main purpose and requirements of the management area, which are linked to organization's business requirements. The only criterion is that those approaches are compatible with TQM's core values and basic assumptions. In practice, there are institutionalized TQM practices, which are legitimate approaches to specific management areas. These practices are spread through multiple channels: practical guidebooks on how to implement TQM system to meet CPE requirements[106], quality related journals, quality consultants, and quality award criteria process[107].

One quality management practice, which is explicitly mentioned in CPE and requires a closer examination, is benchmarking. The requirement of an organization to benchmark its core operations using competitive or comparative benchmarking has a significant influence not only organizations internal operations, but how it creates and maintains relationships with external stakeholders[108]. Benchmarking information is supposed to be used to set challenging targets for organization. Additionally, an organization is expected to have benchmarking information for all its core measures of organizational

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[105] Dale (1999) provides a list and description of most popular and well-known TQM tools and techniques. The importance of TQM tools and techniques was also brought up in Valmet's assessment process, which included a survey for all managers about their knowledge of a large set of quality tools.

[106] See for example Brown (1999) or Blazey (1999) on how to meet CPE requirements and prepare for and application process. By following these guidelines, an organization can gain symbolic benefits by demonstrating adherence to generally accepted TQM principles and practices.

[107] The sharing of best practices was one of the objectives for Malcolm Baldrige Quality Award Criteria (NIST 1999:1).

[108] In the following chapters, analysis of basic assumptions bring forward some of those effects, but in essence, benchmarking can be considered as the one of the key management approaches in "perfect quality competition" as presented in chapter 4.6.

performance; these measures are analyzed in category four (information and analysis) and reported in business results category.

Another concern is that many of the requirements in CPE are related to an organization's ability to demonstrate that it has considered all options in a specific management area and that a selected management practice is based on this rigorous planning process, which is under continuous improvement. Thus, an organization assessing itself using the CPE scoring system creates quality costs that are non-business related[109] (see Figure 3-3). In some cases, these quality costs are compensated and can be justified by the symbolic value created when demonstrating internal or external compliance.

4.3 ANALYSIS OF BASIC ASSUMPTIONS

TQM basic assumptions relate to multiple fields of organizational and management theory, which can provide new perspectives for the critical analysis and improvement of the basic structure and content of the discipline. Due the extent of the organizational and management research field, all relevant perspectives are not brought forward in this analysis. Perspectives presented are based upon the author's experience and body of knowledge and are drawn from the existing research of TQM[110]. In this sense, this analysis is also an attempt to demonstrate the theoretical contribution of this framework and to integrate research findings from multiple studies and perspectives on TQM into a single framework.

4.3.1 Historical basis of basic assumptions

The historical and theoretical basis of each basic assumption brings forward some explanations as to why they are part quality culture. This examination is done for each of the cultural dimension, and it is based on the development and early applications of TQM[111]. The Japanese influence is especially important, because CPE is more or less directly based on model of TQM used in Japan, and the development of the discipline in late 1980s was influenced by the intense competition from Japanese companies in U.S markets. Some of the basic assumptions are clearly a result the success of quality management practices in manufacturing and repetitive process type of closed environments. They have also been influenced by national culture in Japan, where many ideas associated with TQM were founded and brought in practice. In many cases, from a theoretical standpoint, organizational and management theory provides alternatives, and TQM has included one among multiple competing theories. This is natural because TQM was not developed as a management or organizational theory; rather, it was created by consultants as a practical tool for mangers to use.

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[109] This was the case in Valmet Corporation as much effort was placed in creating documentation and collecting information that seemed to have no significant role in the management of the organization.

[110] The scope of this work has not been limited by potential theory sources and whether I have been able to create a sound connection to existing theory for each of the perspectives presented. The gaps in this logical reasoning are potential avenues for future research.

[111] I assume that the process of the formation of TQM basic assumptions has been analogous to the one of organization culture. TQM basic assumptions are based on its founder's original assumptions and the successes of the early applications of quality management.

The passive role and harmonized orientation toward the environment may have it roots in the Oriental religions practiced in Japan, but it do not explain why these assumptions have remained in the discipline. Western cultures share the assumption that humankind has control and dominance over the environment. Rather, we should look at a competitive and market situation in early 1980's and the general principles of a market economy, which is built on the principle of free competition. Traditionally, large U.S. manufacturers did not have much competitive pressure to meet or exceed customer expectations. The situation changed with Japanese industry's introduction of products, which were designed and produced to meet customer expectations. Total quality management was developed in this era of a saturated and relatively stable competitive buyer market. U.S. organizations were faced with increasing pressure from Japanese organizations, which were able to produce high quality products preferred by customers. The rapid decline of market share forced U.S. manufactures to take notice of demands for higher quality, because customers increasingly valued quality as an one of the most important factors in purchasing decisions[112]. These customer requirements were perceived as a real objective force that had a direct correlation with the tangible features of the products and service. Organizations were no longer in control of the environment, and they took a passive role of meeting customer requirements.

Historical development of the quality management discipline explains the proactive approach taken to environment. In the beginning, the approach to quality inspection and control activities was reactive. The major improvement over those early models of quality management was quality assurance, which is based on proactive planning for quality, to ensure that the process is capable of meeting specific requirements. These requirements were determined internally, but the introduction of total quality management changed the scope to include the customers (and other stakeholders') requirements and expectations[113].

The assumptions made about external physical reality have roots in the original applications of quality management and in scientific management. In the world of manufacturing processes, external physical reality is measurable, visible and easily interpretable. Any observer with adequate skill and knowledge comes to the same conclusion about the state of the process. The analysis of process information is used to find root causes for variation and processes, which are continuously improved by decreasing variation and eliminating the special causes of variation. Quality control and quality assurance activities are based on the assumption that it is possible to gather information about external physical reality, such as parameters in the manufacturing process, or the number of defects in an assembly line. In this type of environment there is no difference between social and physical reality.

Originally, the environment for quality management began in manufacturing-oriented processes, where the state of the process (for example quality of products, cycle-time and use of resources) was easy to define. The concept of quality and goals for quality management approaches are rather easy to determine in manufacturing oriented environment. Additionally, it is a common objective of anybody in the organization to

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[112] Reeves and Bednar (1994) note that the emphasis of external environment is not TQM initiative. Marketing literature in the 1950's and 1960's began to address the use of preference testing to gain some appreciation of how quality was defined by the customer.

[113] The proactive approach is specifically taken to change organizational processes being able fulfil customer requirement based on tangible product features. TQM does not include approaches to change customer preferences proactively to meet organization's products.

decrease variation and improve technical production processes. These objectives do not compromise anyone's interests and an agreement on goals from a process perspective is relatively easy to reach. Continuous improvement of production processes, including technical skills of employees, can be achieved through careful planning and analysis, and process efficiency improvements are measurable. As a result, it was natural to determine that people are generally good in nature, capable of learning, and they are internally motivated to work toward common goals.

The origin of TQM as a consultant-based approach to management additionally explains the rather simplistic and idealistic assumptions of human nature[114]. A rational approach to human behaviour enables the discipline to exclude most of social aspects of an organization, aspects which are difficult to control, and address them more as implementation problems. The seemingly naïve assumptions about human goodness behind individual behaviour can also be viewed from a practical point of view. The exclusion of undesired opportunistic and political behaviour from TQM discipline discourages it. From this practical management perspective, it can be claimed that TQM's assumptions about human nature are good for management. Schein (1992:126) notes that employee behaviour is influenced by management assumptions. For example, if mangers assume that employee behaviour is opportunistic and must be controlled, employees regard opportunistic behaviour as a proper way to act and they will change their behaviour. Thus, from a practical management point, TQM assumptions about the good nature of a human being may be a self-fulfilling prophecy[115]. It does not need to address opportunistic behavior. However, it is important to understand the consequences of not addressing it and to exclude opportunistic behavior as a part of the quality management theory. If this practice does not occur, total quality management may appear to be a naïve management model[116] and it will eventually loose its credibility.

The assumptions about the nature of human relationships reflect beliefs of wider national cultures. The popularity of teamwork in total quality management is based on the philosophy held in Japanese culture, which emphasises the role of the group over that of individualism. This philosophy has not been well received in the western world, especially in the United States, where the culture places an emphasis on competition and individualism. As a result, some of the quality management approaches, which are successful in Japan (for example quality circles) are faced with resistance and implementation problems) in U.S. based organizations[117].

TQM has also been viewed as an extension of scientific management and a systems approach to management, which had a prominent role in management research in the

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[114] With the exception of Deming, who has a strong focus on human related issues in his approach to TQM.

[115] For an analogy see Ghosdal and Moran's (1996) criticism about transaction cost economics (TCE). In the article, "TCE – bad for practice" an author claims that the basic premise of TCE, which is based on opportunistic behavior of individuals, actually encourages such behavior.

[116] Models do not need to address all complexities of real life. For example, economic models (perfect competition) is a simplistic approximation of the real world, but it is based on some very clear assumptions, which are included in the model. A manager understands that those assumptions are not practical in reality, but these assumptions do not diminish the value of the model.

[117] See Lillrank (1989) for a detailed description about quality control circles in Japan, and Lillrank (1998) about problems in bringing them to U.S. organizations. His research supports the proposal that beyond visible management practices there are assumptions, which have to be taken account in the introduction of new management practice.

1950's, when many of the concepts in the discipline were originally invented. Spencer, (1994) in her study of organizational models and TQM, concludes that "*TQM is a spiritual descendent of the mechanistic model*" and "*many of TQM's revolutionary ideas are derived from systems theory and the orgasmic model*". This would explain the focus on TQM of the overall performance of the system and why it considers relationships among various parts of the organization explicit and linear[118]. The functioning of a machine type of organization is based on clearly defined rules, which also identify the role and responsibilities of each function in the overall system design. According to the Jackson classification, TQM is closely related to the functional systems approach in which *"systems appear as objective aspects of a reality independent of us as observers. Using the methods of the natural sciences, they are examined in order to discover laws that govern the relationships between their parts of sub-systems"* (Jackson 2000: 107). It is assumed that objectives and the current state of the system are known and the problem of management is to select the most efficient means of achieving a defined end, which is also one of the basic principles in the scientific management.

[118] Complexity and chaos theory, which demonstrates that slight change in the initial conditions of complex systems, such as an organization, may result in radical non-linear and unpredictable results. These theories were introduced in the management of the organization in late 1980's (Jackson 2000).

4.3.2 Organization's Mission and Relationship to Nature

In this dimension organization's core mission and relationship with external environment is considered. The basic orientation toward environment and the determination of key external stakeholders are included.

The basic assumptions in this dimension define the organization's mission and a general approach toward the external environment. These two issues are closely linked and they are related to an organization's primary functions. An organization's core mission is complex and it is difficult to define because each organization has multiple functions reflecting the various needs of several stakeholders (Schein 1992:55). Some of the organization's functions and goals are explicitly stated while others are latent. A well-defined mission includes elements that are mutually reinforcing, but it must take into account the competing needs of various stakeholders.

The mission justifies the existence of the organization and gives it an overall direction. In order to keep the organization internally functional, it should be accepted by most of its members. A valid long-term mission of the organization must include elements organizational members truly believe in and consider worth doing and those elements that ensure that the organization can stay in business. If these requirements are both met, the mission can keep the organization internally integrated while still allowing it to adapt to the environment. However, if assumptions about the external environment or organizational capabilities do not match with environmental realities and organizational capabilities, it will sooner or later face a survival problem[119].

One of the basic assumptions is how a group collectively relates itself to the environment. The dimensions an organization may choose include the following: whether it acts proactively to the environment or takes a more reactive approach, and if the organization attempts to alter the environment to coincide with organizational capabilities or if it responds to the environment by adapting its processes to meet external stakeholder requirements. For the latter, Schein (1992:131) identifies three different alternatives: an organization that aims to control its environment, an association that co-exists and harmonizes itself or an organization that subjugates to the environment and accepts whatever niche is possible. In TQM, the main focus is placed on scanning the external environment and proactively, but passively responding to the changing needs of key stakeholders. The role of an organization is *to "coexist and harmonize itself with the environment*". This approach aligns with instrumental purpose of the organization to serve customer and other stakeholders, but it also emphasizes the symbolic value of TQM as institutional practice, which is based on compliance with environmental pressures and expectations.

A proactive approach is explicitly expressed in both the ISO 9000 and CPE. The proposal that TQM is based on passive orientation toward the environment is based on the exclusion of any activities aiming at controlling the external environment. Attempts to create or control markets, influence customer requirements, or improve customer

[119] In Chapter 3, The role and impact of TQM, I have discussed in more detail organization's core mission and related goals. In light of this discussion, the primary concern is whether TQM based mission for the organization is aligned with the environmental reality for all organizations.

perception of product quality are not considered to be part of TQM based approaches[120]. Additionally, TQM places much emphasis on competitive and comparative benchmarking to gain knowledge of organizational performance compared to the best companies in the industry. The explicitly defined objective for benchmarking is to provide targets for organizational improvement, but implicitly it coaxes an organization to passively respond to the competitive factors set by others.

In addition to the general orientation toward an environment, the role of TQM in managing stakeholder relationships can be examined based on how it defines the role and value of each stakeholder. TQM is very clear and specific as to which stakeholders are important to an organization and what the relative importance of each of the stakeholders is. The customer, as the most important stakeholder, is clearly articulated in ISO 9000, CPE and in TQM related studies and literature[121]. In the supplier chain, it is assumed that the customer has the dominant role and the supplier must adapt to the expectations of external stakeholders (Spencer 1994). Consequently, fulfilling customer expectations and requirements is considered to be the most important task in ensuring organizational survival. Similarly, an organization is expected to have dominant position towards its suppliers although co-operative approaches are encourage to optimize the performance of the supply chain by improvement of supplier performance (NIST 1999:40).

Less emphasis is placed on the relative importance of various stakeholders, but the implicit assumption is that the relative value of each stakeholder expected to be the same for all organizations. The customer is considered the most important stakeholder for the organization, but additionally, CPE is very specific about the value, which each stakeholder group has for the organization. Organizations applying CPE are likely to interpret that that for example Customer Focused Results (115 points) is four times more important than Supplier and Partner Results (25 points). In the official evaluation process, importance is considered as one factor in the evaluation of a reported approach, deployment and results (NIST 1999:42), and both CPE and ISO 9000:2000 emphasize the definition of the relative importance of stakeholder needs and requirements. However, based on my empirical observations in the case organization, this practice is difficult to apply, especially in self-assessment purposes; thus, it was generally omitted from the assessment[122].

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[120] Quality system documentation in Various Units in Valmet Corporation have no references to marketing activities aimed at creating customer needs and requirements, or influencing customer perception about service and product offerings beyond to the effective communication of product information.

[121] Even the advocates of conformance-to-specification definition of quality also stressed that customers' wants must be the driving force in establishing specifications.

[122] Organizations use CPE mainly for internal improvement and assessment. In this role, scoring has an important aspect in directing improvement activities to those areas in which mangers have the greatest potential for adding to the overall score of the organization. Managers are not only under pressure to demonstrate the level of their management system, but they also work with the assumption that a high CPE score correlates with the operational and financial performance of the organization. For this reason, Valmet Corporation did not suggest the use of scoring in the unit's internal assessment process.

1. Organization's Mission and Relationship to Nature	
1.1 Proactive and passive relationship to environment - Anticipation of external factors affecting the competitiveness an organization - An organization's purpose is to meet requirements of its stakeholders – especially those of the customer - Relationship to the environment is passive - Support for suppliers to improve their performance in supplier chain	• "*Organizations should anticipate many factors in their strategic planning efforts, such as customers' expectations, new business opportunities, the increasingly global marketplace, technological developments, new customer and market segments, evolving regulatory requirements, community/societal expectations, and strategic changes by competitors*." (NIST 1999:3) • The rationale for a quality management system is *"to assist in enhancing customer satisfactions. Customers require products with characteristics that satisfy their needs and expectations…The quality management system approach encourages organizations to analyze customer requirements and define processes that contribute to the achievement of a product which is acceptable to the customer."* (ISO 9000:2000, Requirements:11) • Approaches to actively influence customer or market requirements (for example marketing) are implicitly excluded in CPE and ISO 9000. • The only exception to passive relationships is an active role in improving supplier quality. In Category 6.3 in CPE, an organization is expected to answer the following questions: "How do you ensure that your performance requirements are met? How do you provide timely and actionable feedback to suppliers and/or partners? " (NIST 1999: 23)
1.2 Customer dominating in the supplier chain - Pre-defined set of (balanced) organizational objectives - Customer as the most important external stakeholder	• "*Organizations depend on their customers and therefore should understand current and future customer needs,should meet customer requirements and strive to exceed customer expectations."* (ISO:2000, Requirements:9) • Scoring instruction in CPE indirectly determines the relative importance of various stakeholders, and the customer as the most important external stakeholder.

Table 4-5: Basic assumptions about the organization's mission and relationship to nature

4.3.3 The Nature of Reality and Truth

In this dimension organizations approach for determinining which is and how truth can be reached is considered. Included is also the assumption that organization should continuously seek for improved performance.

The basic assumptions in this dimension define what is real and what is not, and how management decisions are ultimately made. It is a fundamental part of any organizational culture, and these assumptions closely relate to other assumptions of human nature and relationships. These assumptions, which seem to be quite abstract, determine most the significant aspects of the organizational decision making process: what is relevant information, how to interpret that information, how to determine when there is enough information to decide whether to act, and what action to take.

The first assumption in this dimension relates to how reality is defined. Schein (1992: 97-101) identifies three core issues, which differentiate between cultures in this dimension: levels of reality (external physical reality, social reality, and individual reality), context dependency of information, and the approach to reality testing. External reality refers to those things that can be determined empirically by objective tests. A group that creates social reality internally agrees and reaches a consensus on issues constituting of reality, which may not be empirically testable. Individual reality is formed based on individual personal experiences. For that individual, it represents the absolute truth, which cannot be easily, if at all, shared with other persons. The differentiation of low-context and high-context cultures relates to whether events and information can be understood only in a specific context or whether they have universal meaning. Finally, the moralism-pragmatism scale can be used to understand whether the reality and the managerial decision making process is based on experience or general philosophy such as TQM.

In order to adapt to the external environment and to measure the effectiveness of internal processes, an organization must create a shared understanding of the criteria used in determining what real, valid and reliable information is. It has an effect on how the organization gathers information, and how it is used to manage the organization. According to the CPE objective, reliable information occupies a central role in the process of integrating and aligning organizational functions. The dominating level of reality is external physical reality, and a special focus is placed on customer requirements and expectations. The information that is obtained is assumed to be context independent, which makes it possible to use it as a basis for the decision making process at any organisational level. The decision making in TQM is based on a pragmatic approach. In this type of decision making process, decision are made and, "*Truth is established by scientific method*" (Schein 1992:102). A TQM based organization is expected to scan the environment and measure internal process performance in order to gain objective information, which is analyzed and used as a basis for strategic planning processes and communicated to the organization in the form of quantitative goals.

Continuous improvement and fact-based management have been identified as one of the central principles of TQM in most studies (Dean and Bowen 1994; Hackman andWageman 1995; Spencer 1994). The underlying assumption is that an organization can survive only by continuously improving its internal operations. The most effective way to improve processes is by planning and carefully analyzing objective information extracted from external physical reality. This assumption about continuous improvement integrates organizations' beliefs about whether change is perceived as positive and necessary for ensuring survival, what the bases for continuous improvement are, and

whether there is an ultimate goal beyond which an organization should not strive for improvement of operations[123].

The continuous improvement process is based on measuring and analysing existing processes, and it may include well-designed experimentation and evaluation of whether new methods work. Those practices that are proven to succeed are standardized as a new way of working and distributed to the organization. However, the organization cannot take a new approach as a dogma; rather, it can use it as an evaluation point for a continuous improvement cycle. The effectiveness of the new approach is evaluated based on the objective facts (for example level of customer satisfaction), which start the new development cycle[124]. The approach to management taken in the quality management discipline is somewhat contradictory. Objective physical reality is limited and shaped by quality ideology. An organization is expected to do what is important for the business, but at the same time, it must follow certain values and approaches. CPE promotes "*management by fact*" and "*doing things that make sense for the business*", but it includes strong values and assumptions about what is real and important for the organization. This ideological approach will restrain double-loop learning and create an environment for single-loop learning. Single-loop learning refers to a type of learning, which takes place *"within existing systems of values and action frames in which values are embedded, while other kinds involve changes in values and frames and call for a reflective inquiry that cuts across incongruent frames*" (Argyris and Schön 1996).

The nature of reality and truth is an important factor in adaptation to the external environment. It forms the core of the adaptation process by effectively determining how to gain knowledge about the external environment, which is the process used in defining organizational mission and core objectives, and how to measure performance in relation to those objectives. Additionally, TQM as management ideology contributes to the internal integration process by enabling managers in uncertain situations to comprehend and makes sense of the environment. It enables them to *"explain the unexplainable, or manage the unmanageable"* (Schein 1992:89).

[123] The discussion about optimum level of TQM implementation (chapter 3.3) is related to this last question.

[124] "*The organization should continually monitor its performance improvement actions and record their implementation, as this can provide data for future improvements*." (ISO 9000:2000, Guidelines for Performance Improvement: 83).

2. The Nature of Reality and Truth	
2.1 Objective physical Reality dominating - Reliance on objective measures of performance and external environment - Customer defines product and service quality - Information and knowledge can be generalized	• Objective measurements are the basis for continuous improvement in both ISO 9000:2000 and CPE. • "*Quality is judged by customers."* (NIST 1999:1) • "*Organizations depend on their customers and therefore should understand current and future customer needs…"* (ISO 9000:2000, Requirements: 9) • Generalized knowledge is coded in the form of standard process, descriptions, work instructions (ISO 9000) or the approach to the specific management area (CPE). • Generalized and context free data is used for decision making process: "*Analysis refers to extracting larger meaning from data and information to support evaluation, decision making, and operational improvement within the organization*" (NIST 1999:9)
2.2 The truth is reached by continuously analyzing objective facts - Management decisions are rational and are based on objective facts - Objective information can be obtained (internal performance and exernal environment) - Continuous improvement based on objective measures - Managerial decisions are aligned with TQM values and principles.	• "*Businesses depend upon the measurement and analysis of performance. … A comprehensive set of measures or indicators*[125] *tied to customer and/or organizational performance requirements represents a clear basis for aligning all activities with the organization's goals.*" (NIST 1999: 3) • Factual approach to decision making*: "Effective Decision are based on the analysis of data and information"* (ISO 9000:2000, Requirements: 9) • "*Continuous improvement and learning*" is a core value of CPE. In addition, it is emphasized "Results" category as a requirement to demonstrate "*improvement trends or good performance levels for all key results*." • Process approach taken in the standard emphasizes the importance of *"continual improvement of processes based on objective measurement*". (ISO 9000:2000, Requirements:11) • *Continual improvement should be a permanent objective of the organization*" (ISO 9000:2000, Fundamentals and Vocabulary: 9)

Table 4-6: Basic assumptions related to nature of reality and truth

[125] Measures and indicators are referred to here as being objective "numerical information that quantifies input, output, and performance dimensions of processes, products, services, and the overall organization (outcomes)" CPE (1999:27).

4.3.4 The Nature of Human Nature and Relationship

In this dimension the nature of human beings, the role of management and the basic approach to how work systems should be arranged is considered. All stakeholders which are a part of the production system are included in the design of work systems.

There are assumptions at the core of every culture regarding the proper way for individuals to relate to each other. This set of assumptions forms the basis of human interaction, and it is stongly linked to internal integration and how to make group safe, confortable, and productive. For many people, it defines what culture is about. In addition to its central role in internal integration, assumptions about human nature and relationships also influence our interactions with the external environement and our expectations of external stakeholder behaviour. Organizations are increasingly engaged in deep relationships to previsously external stakeholders. In this dimension, three broad assumptions about human nature, the role of senior management, and orientation toward teamwork form an integrated set of assumptions, which determines the role of employees and organizational structure.

McGregor (1960) identified two extreme and competing assumptions about human nature, which are based on his observation of management attitude toward employees. The first one, theory X, assumes that human beings are lazy and must be motivated. This assumption leads to the conclusion that the role of management is to control, punish, and reward employees to make them contribute to organizational goals. Theory Y, which is also a basis for TQM, assumes that employees are self-motivated and therefore need to be challenged rather than controlled. In the TQM discipline, employees are expected to express themselves through good work and have an endogenous strive for personal improvement. Hackman and Wageman (1995) identified the assumptions about the good nature of a human being as a central principle of TQM: "*Employees naturally care about the quality of work and will take initiatives to improve. They just need to be provided with tools and training*". Similarly, it is assumed that human beings are capable of developing and improving themselves. This is demonstrated in the emphasis on training and development, the key concepts in CPE and ISO 9000:2000.

There seems to be obvious differences of opinion in how people relate to each other and what constitutes basic relational units. They can be examined along the dimension of individualism-groupism. Team-orientation is a central concept of most TQM frameworks and in CPE numerous examples are given in which an organization should consider the use of team-based approaches. The role of teamwork and cross-functional teams is emphasized as being a part of effective problem solving and continuous improvement activities. It is also perceived as a way to improve organizational work processes and effectiveness by increasing the autonomy of people in deciding how work should be done. The rationale of cross-functional teams is based on the assumption that most significant systems related problems extend beyond a specific department or work process. The solution to those problems is beyond the responsibility or control of any individual employee. A comprehensive understanding of all the implications of proposed solutions has to be evaluated by all stakeholders that are influenced by the decisions made. The process approach, which has an important role in ISO 9000:2000, can be viewed as an attempt to increase communication and optimize the performance of the delivery chain, which often crosses multiple functions. Cross-functional teams also provide learning opportunities, because individuals are exposed to more diverse points of view, compared to working in their functional departments (Hackman and Wageman 1995).

The main influence of teamwork is on the design of the work processes and internal integration of the group, but there are also implications for relationships with the external environment as organizational boundaries are increasingly becoming fuzzy (Grant et al. 1994). Traditionally, independent external stakeholder groups, such as suppliers and customers, are included in the product design and manufacturing processes, which formerly were confidential internal processes (Harrison 1996). Organizations are increasingly dependent on their external environment and are being engaged in long-term partnership relationships. Lillrank (1998), in his study on continuous improvement, claims that it "*must include the involvement of those whose work might be changed*". Those parties whose work might be affected often include external stakeholders such as suppliers, partners and customers. The extension of teamwork to include those external parties is a foundation for the partnership concept.

TQM stresses the importance of senior leaders to set organizational direction,[126] and senior leadership is perceived as being critical for organization success. It shares the same premise as the transformational leadership theory of the role of senior leaders critical for organizational success (Samson and Terziavski 1999). They both emphasize the communication and reinforcement of values and common vision. In TQM, this approach to management entails "*aligning organizational members' values with quality values*" (Dean and Bowen 1994). Managers are expected to structure individual behavior to fit the demands of the organization by aligning quality-related values of employees with those of the organization[127]. This ideological side of the discipline aims at creating a shared mental model, meaning and values associated with organizational practices and objectives.

Because TQM implementation program requires changes in organizational culture, senior management has an important and challenging role as a change agent. Juran (1992) asserts *"It is now clear that upper managers have a vital role to play in the quality planning process. This role requires extensive personal participation. It can not be delegated, since a major change in company culture is needed."* The implicit assumption is that senior managers are capable of implementing this cultural change (Jauch and Orwig 1997).

[126] In Valmet Corporation, a strong emphasis was placed on the role of senior leaders and they were recognized as a key driving force in the TQM implementation program. The objective was to have all unit managers participate in an assessment program as an assessor. There was also an expectation for each unit to achieve a minimum 60% level in the leadership category as compared to 40% in other categories.

[127] Employee focus is an important part of TQM, but the focus is involvement and effective use of human resources for the purposes of the organization. (ISO 9000:2000, Guidelines for Performance Improvement: 51) describes people's involvement in the following way: "*People at all levels are the essence of an organization and their full involvement enables their abilities to be used for the organizations benefits*". In CPE, category Human Resource focus "*examines how the company enables employees to develop and utilize their full potential, aligned with the company's objectives*" (NIST 1999:18).

3. The Nature of Human Nature and Relationships	
3.1 Basic nature of human good - Good nature of human being - Each individual has the potential for change and the desire to improve - Intrinsic and/or team based sources of motivation - Human behavior is based on rationality	• Most practices, especially in CPE but also ISO 9000, rely on independent, responsible and motivated employees, who want to develop and challenge themselves. • "*Organizations need to invest in the development of the work force through education, training, and opportunities for continuing growth*" (CPE:2) • In CPE, a separate category is devoted to employee training and development, but employee selection is only listed as one item in the subcategory. Respectively, ISO 9000 has detailed instruction and a focus on employee training but does not give any guidance of employee selection. Termination of employment due to lack of skills is not mentioned in either system. • Emotions such as friendship and love are not mentioned or even indirectly referred to in CPE or ISO 9000.
3.2 Team orientation - Teamwork is preferable over individualism - Alignment of personal objectives with collective goals - Cross-functional teams to enchange operations - Inclusion of external stakeholders in the form of partnerships	• Teamwork as a concept has a central role in TQM, but the main focus is on cross-functional teams: "*Organizations need to build internal and external partnerships to better accomplish their overall goals*." (NIST 1999: 3) • *"An organization and its suppliers are interdependent, and a mutually beneficial relationships enhances the ability of both to create value"* (ISO 9000:2000, Requirements:9)
3.3 Central role of senior management - Quality is the ultimate responsitility of senior management - Senior managers are capable and legitimated to define organization's mission and objectives - Organizational systems are designed by senior management - Senior Managers are able to change culture	• Senior managers are expected to create a vision for an organization and a strategy of how to achieve it, and to deploy that strategy down into the organization: *"The organization's senior leaders need to set directions and create a customer orientation, clear and visible values, and high expectations. .... The leaders need to ensure the creation of strategies, systems, and methods for achieving excellence, stimulating innovation, and building knowledge and capabilities"* (NIST 1999:1) • *"Leaders establish unity of purpose and direction of the organization. They should create and maintain the internal environment in which people can become fully involved in achieving organizational objectives*" (ISO 9000:2000, Requirements:9)

Table 4-7: Basic assumptions about human nature and relationship

4.3.5 The Nature of Time and Space

In this dimension basic orientation towards time, and its implication of planning systems, organizational processes, and organizational efficiency is considered.

The perception and experience of time is a central aspect of how any group functions. It is important in everyday life. When people differ in their experience of time, it usually causes tremendous communication and relationship problems (Schein 1992:107). From a TQM perspective, assumptions related to time have significant implications in how organizations should be managed and structured. Assumptions related to the nature of space, including factors such as distance and relative placement (for example intimacy; personal, social and public distance), have little, if any, relevance in this discussion. They are important elements of organizational culture, but neither directly influence the implementation of TQM programs nor directly relate to assumptions composing ideal quality culture.

The basic time orientation of TQM based organization is in future[128], because even the basic implementation of a TQM change program is a long process. A TQM implementation program requires several years for significant results to appear (Cole 1998). Some studies show that the impact on the bottom line may be negative during the first years of implementation (Hendrics and Singhal 1995), and the implementation for award winning quality takes 5-7 years (Dale 1999). The implicit assumption is that the organization has time to invest in resources and wait for results, and that its external stakeholders are also willing to engage in long-term relationships with the company. Future orientation is supported by a comprehensive long-term planning process, which is based on assumptions that organization can forecast and plan for future based on current and historical measurements. In CPE, one category is dedicated to strategic planning and implementation of those plans. Additionally, one management area (2.2b) is dedicated to performance projections, which *describe "two-to-five year projections for key performance measures and indicators*".

Discretionary time horizon defines the size of relevant units in relationship to any given task (Schein 1992:110). In TQM there is a clear emphasis on shortening the time horizon related to tasks that require a response to market needs and to take a long-term approach in determining the mission and objectives of an organization. The scale and units of time used for responding to market needs depend on the industry and organizational environment; however, regarding the organization's mission and objectives, the time is measured in years. Time related performance has an important role in the measurement of organizational performance. Time is perceived to be valuable, and key measures of the performance of an organization are tied to time performance of work and production processes. The success is assumed to "*demand ever-shorter cycles for introduction of new products and services and a faster and more flexible response to a customer is a more critical requirement*" (NIST 1999:2).

The concepts of development and planning time concern the progress and completion of tasks and activities and how those timelines are defined. Schein (1992:109) characterizes

[128] Alternatives for basic time horizon according Schein (1992) are past, present or future.

the development of time as "*things take as long as they will take*" while planning time is based on milestones and deadlines tied to external objective realities. These concepts are important, because organization is viewed as a system of highly interdependent parts (Hackman and Wageman 1995), and some of the most significant effects TQM has on an organization arise from its effectiveness in promoting coordination and integration of activities (Grant et al. 1994)[129]. The co-ordination of those various parts and activities in the organization can be based only on planning time. All events are planned in specific order[130], and must be accomplished in a given time[131]. The opposite would be development time concept, which takes end results rather than time duration as the basis for planning. This type of approach is used for example in research type of tasks, in which we don't have clear pre-understanding of the task to be accomplished or what end results should be. Rather, we move to the next task when or if the previous stage has produced desired results.

Standardization of work is one method for communication and alignment of various functions in the organization. One of the key management practices in a TQM based organization is the explicit identification of processes and management approaches. Hackman and Wageman (1995) note that once a TQM based business has identified and documented the best practices, they are diffused throughout the organization and standardized. In ISO 9001 quality management standard, the requirement is explicit with regard to most processes having an influence on product and service offering and quality management practices. In CPE, the requirement for defined processes is not at a detailed level, but an organization must define an approach to respond to questions in each category and management area, which leads to a standardized management system.

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[129] For example, in CPE category 4.1, Information and Analysis an organization is expected to describe "*how an organization provides an effective performance measurement system for understanding, aligning and improving performance at all levels and in all part of organization*".

[130] Organizations can be engaged in multiple and concurrent activities, but they are planned and coordinated so that at any given time, there is only one task, which must be completed at an agreed time. Concurrent engineering is the prime example of this type of activity, and it requires carefully planned sequences of actions running in parallel.

[131] The alignment and co-ordination of work processes in the organization is designed horizontally across the organization from supplier to customer. The importance of time in co-ordination of activities is also noted in Valmet Corporation Mission Statement (1996) "The delivery time promised to customer is sacred".

4. The Nature of Time and Space In this dimension, basic orientation towards time and its implication of planning systems, organizational processes, and organizational efficiency are considered.	
4.1 Future orientation - there is time to wait for results - Constancy of purpose - Emphasis on long-term planning, future can be extrapolated - Long-term relationships are beneficial to all stakeholders of an organization	• "*Pursuit of market leadership requires a strong future orientation and a willingness to make long-term commitments to key stakeholders – customer, employees, suppliers, stockholders, the public, and the community*." (NIST 1999:3) • Strategic planning is emphasized in CPE but receives less attention in ISO 9000. One category (85 points) is devoted to strategy, which examines "organization's strategy development process, including how your organization develops strategic objectives, action plans, and related human resource plans. Also examined are how plans are deployed and how performance is tracked."
4.2 Efficiency through co-ordination - System approach – an organization is a collection of interrelated components and functions (processes) - Alignment of key components - Time is valuable, improvements should focus on time peformance of work and procduction processes - Standardization	• "*The Criteria support a systems approach to maintaining organization-wide goal alignment."* (NIST 1999:6). Systems approach is emphasized with in 1999 criteria "*The 1999 Criteria further strengthen the systems view of performance management and places a greater emphasis on the alignment of key components of the performance management system*" (NIST 1999:7) • Systems approach to management: *"Identifying, understanding and managing a system of interrelated processes for a given objective improves the organisations's effectiveness and efficiency."* (ISO 9000:2000, Requirements:9" • "*Other important benefits can be derived from this focus on time: time improvements often drive simultaneous improvements in organization, quality, cost, and productivity…Time performance of work processes should be among the key measures.*" (NIST 1999:2)

Table 4-8: Basic assumptions related to nature of time and space

4.3.6 Critical remarks

In this chapter, a critical perspective is taken in the analysis of basic assumptions. In the previous chapter, TQM assumptions were presented in the most extreme form, which makes them invalid in any practical organization. This is not to claim that any of the assumptions themselves are good or bad as any cultural assumption, by definition, is valid in the specific context. Because basic assumptions in the ideal quality management are expressed in the most extreme form, it would be easy to claim each of them as invalid and therefore not relevant for any practical purpose. However, some of them have been identified as a source of friction in TQM implementation in the practical applications in which they cause problems in the beginning of the implementation program. Review of existing research identifies several areas, where there are potential problems caused by incompatibilities among TQM basic assumptions and organizational culture in implementing TQM based management practices[132]. The objective here is to bring forward potential problems, which organizations may face during the implementation process.

Organization's mission and relationship to nature

The role of an organization in meeting customer requirements and expectations is deeply embedded in quality culture and principles. Customer-orientation is probably the best accepted value in the discipline, and very few critical comments are made to challenge it. Additionally, CPE is very specific about the role and impact each stakeholder group has for the organization. In a competitive environment, a customer is likely the most important stakeholder for the organization, but the stakeholder theory suggests that the relative importance of stakeholders should be evaluated based on the strategic importance they have for the organization (Freeman 1984). The relationship towards various stakeholders is determined in the process of external adaptation as an organization determines, which resources are important and valuable in achieving its mission and objectives.

Additionally, from the perspective of resource dependence theory, an organization should seek control over those stakeholders that are critical for its success (Dean and Bowen 1994). Long-term relationships with key stakeholders can be, to a certain degree, considered an attempt to gain control over its environment, which contradicts the functional purpose of TQM based organization to serve its key stakeholders. Spencer (1994) suggests that the partnerships concept is actually a method for incorporating, within their boundaries, the external resources necessary to survival.

[132] This analysis is based mainly on TQM related research. A more detailed analysis of any of the basic assumptions can be made based on the disciplines organizational and management theory. This task, which must be undertaken by researchers having an extensive knowledge in a specific field of theory, is outside the scope of this research.

The nature of reality and truth

Fact based management is the prevailing and generally accepted approach for managing organizations, but many researchers have expressed concerns as to whether a strong focus on objective information and data is good for management and how this data is actually used in the decision making process[133]. In the original scope of quality management, process performance was measured and various quality management tools were applied to data in understanding the root causes of variation. In the current scope of total quality management, it is used to manage organizations as social systems in which the organizational goals, measurement of performance and analysis of data is always influenced by employees having their own political motives, feelings, values, and perception of the environment. These all have an influence on the reliability and validity of the data obtained from the organization. In this type of environment, merely focusing on the analysis of data and rational decision making process is insufficient in ensuring the validity of the conclusions reached (Hackman and Wageman 1995, Samson and Terzianski 1999). As a result, in many organizations the emphasis on statistics and experimentation is stripped away very early during the process of implementing TQM, leaving only the rhetoric of "*management by fact*" (Zbaracki 1994). This observation is supported by Dean (and Bowen 1994, Cole 2000) in their identification of several of the themes in research literature, which comprise a less than optimistic view of how information is actually used in organizations:

- An organization members' judgment of a situation may be more strongly influenced by the people with whom they interact than by the member's own direct experience with the data.
- Analysis of information often serves political rather than rational motives.
- Analysis is often conducted solely to create the appearance of a rational process in the hope of legitimizing whatever course of action is eventually pursued.
- Decision-makers are always working with simplified definitions of situations, and the choices they make will be, at best, satisfactory.

Cultural and political models of the organization challenge a rational approach to organization and management. Interpretive views are based on the cultural model of an organization and it claims that organization members socially construct an organization's culture and social environment (Spencer 1994). This theory contradicts the TQM model of an organization in which the environment is viewed as a real and objective force acting on the organization and management approaches are based on organizational rationality. The assumption that the organization and its members will behave rationally in order to achieve common goals is challenged. When regarding an organization as a political system power rather than organizational rationality, determines organizational structures. This perspective places serious concerns on the validity of the managerial decision making process supported in TQM.

Product and service quality is one specific area, where total quality management relies on explicit external data. The core of the discipline is quality, which is *"judged by the customer"* (NIST 1999:1). This judgment is a major concern, because the "perception of quality can be quite different from the tangible reality of features, options, and

[133] Also in Valmet, one of the main problems with TQM implementation was demonstrating a sound measurement system and evidence about fact-based decision making process.

performance" (Lengnick-Hall 1996). This problem has been approached by using statistical analysis; quality is judged by customer as a collective. However, this practice does not work in organizations having a small number of customers with diversified needs and expectations. The focus on objective data may also decrease an organization's sensitivity to changing customer expectations if early warnings of environmental changes in the form of tacit information may be overlooked as a commitment on management by fact.

Future orientation

Time orientation is related to organizational survival, mission and its core objectives. If organizational survival is based on legitimacy, it is most likely to emphasize historical achievements (institutionalized environments). In western society, the performance of many business organizations is measured on a monthly or quarterly basis, which forces them to focus on current performance. Additionally, most managers continue to focus on short-term performance measures and dividends, which forces the organization to discontinue quality programs if they do not improve bottom-line results within a few years (Spencer 1994). Organizations are increasingly governed by financial markets, which have a primary interest in financial and growth-related performance. Those organizations unable to produce short-term results do not receive financial resources to create long-term success. Investors factor expectations of future performance into the stock prices, but because many indicators of future performance are fuzzy and difficult to measure, short-term financial performance is the dominating factor in determining investment value. Several studies demonstrate that the implementation of a TQM based management system does not have a significant immediate influence on the value in the stock prices[134].

One of the key practices in future oriented organizations is long-term strategic planning. In a fast changing, non-routine environment, detailed long-term planning does not work well and more attention should be placed on creating systems that can adapt quickly to unanticipated conditions (Pyzdek 1999b).

Nature of human nature and relationship

Concerns about the good nature of human beings are brought forward in transaction cost theory, which expects the opportunistic behaviour as the driving force in the behaviour of actors in engaging exchange relationships. As a theory, it contrasts the view held about human nature in ideal quality management, which is based on the goodness of human nature guided by shared values and assumptions. Most current theories about human nature are based on the assumption that *"human nature is complex and malleable and that one cannot make a universal statement about human nature; instead, one must be prepared for human variability"* (Schein 1992:126). Although evidence from everyday organizational life does not seem to support assumptions of a purely good human nature; one must be cautious and draw conclusions based on observations and artifacts. Opportunistic and self-interested behavior may be more of a consequence of different cognitive understandings than pure self-interest. People may have similar objectives, but

[134] See, for example, Adams et al. (1999) for analysis of the stock price impact of quality awards and Shannon et al. (1995) analysis of market reaction to ISO 9001 certification.

they select alternative actions based on what they believe to be the best approch for achieving those objectives. The potential solution is a strong ideological foundation (quality ideology), which leads to a similar interpretation of the situation by all employees.

The human capability and motivation for improvement can also be questioned. If these qualifications are related to technical skills or knowledge, they can be improved upon by training. These improvements are measurable, and employees are most likely motivated for continuous improvement. From the perspective that the core of TQM implementation is cultural change, training would actually need to change the values and basic assumptions of each employee.

4.4 CONSTRUCTING IDEAL QUALITY CULTURE

An analytical approach was taken to deconstruct TQM and analyze its basic assumptions individually in chapter 4.3. The critical analysis of these basic assumptions identified multiple concerns, which do not support the proposal that quality management is founded on sound theoretical basis. However, one of the most significant features of quality culture is the assumption that it contains a set of elements that are integrated and mutually reinforcing. In this area, the major part of the work has focused on the links between the most visible levels of the discipline[135]. In the construction of an ideal quality culture, the focus is on analyzing whether TQM basic assumptions are mutually compatible. If they form an internally coherent structure, it can be called ideal quality culture.

4.4.1 Relationships among basic assumptions

The objective here is to evaluate whether TQM's basic assumptions have an internally coherent structure, which can be called an ideal quality culture. Dean and Bowen (1994) analyzed the relationship between customer orientation, continuous improvement and team orientation. They came to the conclusion that these three principles closely relate to each other. In this analysis, basic assumptions are grouped around three concepts, which are related to a set of basic assumptions having considerable synergies among them. They are objectives of an organization, managerial decision making processes and the nature of organization.

Objectives of an organization

The organization has an instrumental role in meeting and exceeding customer needs and expectations, and to a less extent, other stakeholder expectations. The relationship to the environment is a passive, but proactive approach is required to stay in harmony with the environment. The customer is the most important stakeholder of the organization, and although the needs of other stakeholders have to be taken into account, the customer defines quality. The concept of the customer can also be applied to internal customers of the organization. Senior management ensures that all employees in the organization share culture and values, which focuses efforts on meeting and exceeding customer needs and expectations. The assumption that physical reality dominates leads to understanding that organization can objectively measure both customer requirements and the effectiveness of

[135] Refer to Appendix 5 for an example about identification of some linkages from employee education, training, and development to other award categories (Blazey 1998:111).

the processes in meeting those requirements. Proactive and passive relationships toward the environment stress the importance of an environmental scanning function, but they also place a heavy burden on internal processes. The organization does not attempt to change the environment to match its capabilities. The process of continuous improvement ensures that the organization is able to exceed customer requirements, stay competitive, and ultimately ensure long-term survival in order to serve the customer.

Managerial decision making process

TQM takes a rational approach to management. A decision making process in the organization is based on the analysis of objective information gathered through a measurement system. Senior management derives organizational objectives from its mission and communicates them down in the organization in the form of clear objectives. The context independence of information enables effective use of information gathered from multiple sources. Employees are given the freedom to perform in defined limits to achieve their objectives. Senior management creates a shared culture, which enables employees to perceive and interpret data in a similar manner. The reliability and validity of the information related to social systems is based on assumptions about the rational behaviour of human beings. Long-term focus and future orientation is important, because a continuous incremental improvement process requires rather stable objectives. Improvements in process performance are generally small, but over time they may produce significant combined results.

Nature of an organization

The organization is perceived as a system of interrelated functions. In order for a system to function efficiently, it needs to have common goals concerning the mission and objectives of the organization. The origin of TQM is large-scale repetitive manufacturing. A central approach to effective management in this type of environment is standardization, which promotes co-ordination (see for example Robbins 1990). Cross-functional teams in the organization, together with key external stakeholders, are required to optimize the performance of overall system. Management has to create a shared culture, and values enable employees to communicate with each other effectively. Employees willingly take their role as a part of system and align their objectives to those of the larger system. Time related performance based on planning time and standardization of practices are used in co-ordinating the operation of various parts of the system.

4.4.2 Contradicting cultural assumptions and management approaches

There is an additional principle generally associated with TQM, which is incompatible with TQM basic assumptions and is beyond the scope of ideal quality management as defined in this research[136]. I argue that ideal quality management is based on assumptions, which truly support only incremental and continuous improvement. An improvement process aiming at radical "*breakthrough*" improvements is based on a different set of

[136] This accounts for the exclusion of financial and growth based objectives for an organization as discussed in chapter 3, Role and Impact of TQM

basic assumptions, which require alternative management approaches. In addition, there is controversy between original prescriptions of the discipline and contemporary management practices as to which type of incentive system should be used.

Continuous and "breakthrough" improvements

Original approaches for TQM were mainly concerned with continuous improvement, which is based on incremental learning. This approach was challenged introduction of the Business Process Re-engineering (BPR) concept in the early 1990s'. BPR emphasized radical improvements and process redesign over the incremental and small step continuous improvement actions proposed in TQM discipline. The flexibility of TQM was demonstrated by the fast assimilation of BPR core principles into the discipline, but this integration was done without deeper analysis into whether this new practice would fit into the existing model of TQM. By the year 1992, the concept of "Breakthrough improvement" was adopted into CPE as a complementary approach to continuous improvement. However, innovation and continuous learning are contradictory as the latter always reduces the variation required for true innovations (Nonaka and Takeuchi 1995). The focus on organizational effectiveness and time related performance leads to the elimination of excess resources and variability in organizational processes.

The potential for innovation and learning in an organization based on ideal total quality management is rather limited and bounded by the system. This constraint is confirmed by Hackman and Wageman (1995), who claim that employees in a TQM organization are expected to do single-loop learning in the scope defined by management. *"Front-line employees are encouraged to find ever-better ways to accomplish their assigned tasks; they are not invited to reflect on the purposes their work serves."* It is the role of management to manage and improve the system, which allows employees to work according to standard practices and offers little room for innovation outside of their specific work tasks. Spencer (1994) comes to similar conclusions and claims that the potential of employees to improve processes is limited by system-related factors, and they are empowered to make decisions within a system created by management. In addition, the main focus is on senior management. The design of the organization and quality are ultimately viewed as the direct responsibility of senior management. The central role of senior management is closely related to participation and involvement in the organization, which raises the question "What are the roles of employees down in the hierarchy?" TQM emphasizes employee involvement and responsibility, but the design of the organization and quality are ultimately viewed as the direct responsibility of senior management. Dean and Bowen (1994) suggest that TQM substitutes instrumental leadership further down in the hierarchy with subordinate training and organizational formalization.

Further, learning within a TQM organization is limited to the scope defined by the core values and principles of the discipline. A side effect of strong culture is well described by Morgan's (1997) metaphor of organization as psychic prison: "*people can actually became imprisoned in or confined by the images, ideas, and thoughts*" (1997:215). The question is whether even the management is expected to do double-loop learning, which is required for true innovations. An example of how TQM limits the managerial decision making process is continuous improvement of methods for measuring customer requirement and expectations (single-loop learning). This practice is strongly encouraged, but managers are not expected to question whether there are alternative methods not

based on TQM values and assumptions for ensuring adaptation to the environment[137] (double-loop learning).

Incremental and continuous improvement is sufficient in a few mature industries, but in general, fast technological development and global competition have created an environment in which flexibility and innovativeness are the key factors to ensure organizational survival. The discipline was able to address the potential adaptability of an organization to constantly changing and uncertain circumstances by incorporating new insight about learning and innovation. It is evident that these new principles cannot be discarded from the overall management approach, but they do not easily fit into TQM discipline. Sitkin et al. (1994) introduce a concept of "*total quality learning*" *and "total quality control*" to address different situational requirements caused by uncertainty. They propose that both approaches can and should co-exist, and the success of TQM implementation depends on how well they match situational requirements[138]. In turbulent environments, the optimum level of traditional control based TQM practices is rather low. In the model of ideal quality management, the focus is on "total quality control", and learning based approaches are excluded from the model[139]. Complementary management approaches, which can be based on theory of organizational knowledge creation (Nonaka and Takeuchi 1995), should be integrated with ideal quality management.

Employee motivation and incentive systems

Theories of employee motivation deviate from the assumption that employees are motivated by economic self-interest or, on the other extreme, where employees are seen to have an intrinsic motivation for good work to produce a high quality product. TQM authorities are clear and decisive about basing pay on performance, and they do not suggest the use of performance based rewards[140]. Deming was the strongest opponent of performance based rewards. He bases that suggestion on the following arguments (Hackman and Wageman1995):

- Organizations do get what they pay for, but they may get only what they pay for. Rewards need to be based on a measurement system, which cannot take into account the full dimensionality of the contributions needed from organization members
- If specific outcomes are rewarded, it may lead to sub-optimization. Reward systems place people in competition for rewards and divert attention away from customer

[137] For example, organizations could focus on developing products with new features and use persuasive marketing techniques to create customer needs for these products.

[138] Cameron and Sine (1999) claim that *"advanced quality cultures are fraught with paradox: control and learning*".

[139] Many authors agree that TQM is dominated by control theme over learning (see for example Pyzdek 1999a). Douglas and Judge's (2001) study on TQM in general hospital industry supports the hypothesis is better suited for control oriented organizations: "hospitals operating with relatively high structural control exhibited a stronger relationship between TQM practices implemented and financial performances."

[140] Deming was the strongest advocate of the rejection of performance based rewards. His opposition goes beyond a rewarding system to oppose any performance based measurements as stated in the Deming management method containing a prescriptive set of 14 points: "11. Eliminate work standards on the factory floor and management by objectives or numerical goals". See Anderson et al. (1994) for a detailed analysis of Deming management method.

needs making it difficult for members of an organization to work together in collective tasks

- Performance-contingent extrinsic rewards can undermine performers' intrinsic motivation.

Performance evaluation and reward systems are contingent to the nature of the work. Jauch and Orwig (1993), in their study of TQM in higher education, are critical of the use of performance evaluation, and based on the review of existing studies, they conclude that there is no good system for the task. Dean and Bowen (1994) suggest that incentive systems should be designed using the contingency principle. CPE is quite specific that incentives and recognition based on performance and skills should be used to align the individual with the key goals of the organization (NIST 1999: 36). This is similar to the observation that the large majority of organizations using TQM modify their performance measurement and reward system so that achievements of specific quality goals can be assessed and rewarded (Hackman and Wageman 1994). Compensation and recognition approaches designed to align employee behavior and values with organizational objectives are part of an ideal total quality management. They do not directly contradict any of the basic assumptions in the ideal quality culture although employees' intrinsic motivation for good work is not fully recognized.

4.4.3 Convergent validity of ideal quality culture

The construction of ideal quality culture enables the analysis of divergent and convergent validity of the ideal quality management. Hackman and Wageman (1994) in their seminal article used the concept of convergent validity to test "*the degree to which the version of TQM based on work of Juran, Deming and Ishikawa share a common set of assumptions and prescriptions*". Ideal quality culture demonstrates that TQM, in the scope defined in this study, is based on a common set of assumptions. It passes the convergent validity test, but there are major concerns with the practical implementation of TQM programs, which often include partial implementation of some TQM practices and competing, non-TQM based practices. They often include elements such as a focus on financial performance and inclusion of "breakthrough" improvements, which are based on contradicting assumptions. As a management approach, they are necessary for any organization to survive, but from a theoretical standpoint, they should be excluded from the TQM discipline.

The construction of ideal quality culture and convergent analysis of that construction demonstrates that not only are cultural elements compatible, but there is a strong relationship between some of the basic assumptions. From a theoretical point of view, this study makes the conclusion that TQM has a solid theoretical foundation based on a set of basic assumptions forming ideal quality culture. For practical managers, these research results suggest that the successful implementation of TQM requires an integrated organizational culture that is compatible with ideal quality culture. Partial implementation of TQM, such as a focus on a single management approach, without paying proper attention to all cultural assumptions supporting this management approach, will be difficult to implement in practice.

4.4.4 Macro level contingencies of ideal quality culture

Organizational culture is a rather abstract concept, and basic cultural assumptions are difficult to measure. In this chapter, the focus is on the macro analysis of different types

of physical environments that would be based on ideal quality culture[141] and in the definition of some characteristics of an organization, which would be able to operate in that environment. This examination is based on the notion that consistent internal culture does not provide adequate conditions that enable TQM to succeed, because organizations do not work in isolation. Rather, the partnership development concept exerts that external stakeholders are an instrumental part of the organization. The success of those relationships is dependent on the compatibility of partner's organizational cultures. Dale (1999:216) notes that *"to develop viable long-term business relationships, considerable changes in behavior and attitude are required in both the customer and supplier organization."*[142] All major stakeholders need to share a similar quality culture for ideal quality management to succeed[143]. Jones, Hesterly and Borgatti (1997) use the term macro-culture to refer to *"a system of widely shared assumptions and values, comprising industry-specific, occupational, or professional knowledge, that guide actions and create typical behaviour patterns among independent entities*". In macro level analyses, the focus is on the interrelationship among all organizations in a specific industry segment[144].

Perfect quality competition defines an external environment in practical terms, where an organization could be able to implement ideal quality management. This discussion is analogous to the one used in economics, which is built upon competition based on price. In quality management, the basic assumption is that competition is based on quality of products and services as defined by the customer. The relationship between an organization and an environment from an economical perspective is ultimately based on the market situation. Economists call the most extreme form of competition perfect competition. The starting point for analysis is perfect competition, which occurs in a market where the following occurs (Parkin 1994:280):

(1) There are many firms, each selling an identical (or similar) product.

(2) There are many buyers.

(3) There are no restrictions on entry into the industry.

(4) Firm and buyers are completely informed about the prices of the products of each firm in the industry.

From a quality management perspective, this idea of perfect competition is limited, because it does not take into account competition based on product quality[145] and the

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[141] In this chapter, detailed links from proposed models to ideal quality culture are not provided, because most of them are rather trivial and/or are discussed earlier in this report. One of the objectives is also to provide an illustration of the perfect macro environment for TQM, which can be used to roughly analyze the various industries in relation to ideal quality culture without a detailed examination of their organizational cultures.

[142] It is surprising that most TQM frameworks do not include external stakeholder orientation to TQM as a critical element in TQM implementation program. Only Waldman's (1995) suggests "*attempt to get external suppliers and customer involved with TQM efforts*" as a key element to the TQM concept.

[143] For example, if customers do not have long-term future orientation as a basic assumption, they may not want to develop long-term partnerships and can take advantage of customer-oriented suppliers having customer satisfaction as one of the key business drivers.

[144] This discussion is analogous to emphasis on interrelationship among functions internal to company in unit level analysis.

[145] If quality is defined as a value for the customer, "quality of products" also takes into account the price of the product.

continuous improvement of the efficiency in the production process. We need to account for the dynamic development of new capabilities and ensure that they are equally distributed to ensure fair competition. In order to achieve perfect competition, which would fully benefit customers and lead to continuous improvement, two additional assumptions need to be added in the model. They are concerned with quality related minor differences in products and service quality and free flow of all quality and production related information.

(5) Firms and buyers are completely informed about the quality of the products provided by each firm in the industry. There may be differences between products, but all competing products belong to the same product category[146].

(6) Firms are completely informed about processes and practices to achieve product quality, and there are no restrictions on obtaining that information.

Information transparency and sharing the best practices and approaches is necessary in perfect competition, because it enables free competition to provide value for customers among all competitors. This approach is also strongly supported in CPE, which promotes "*information sharing of successful performance strategies and the benefits derived from using these strategies*" (NIST 1999:49). Similarly, customers must have free access to all information to reward suppliers making improved products and services. This behavior promotes continuous improvement and is beneficial for customers in the long-term.

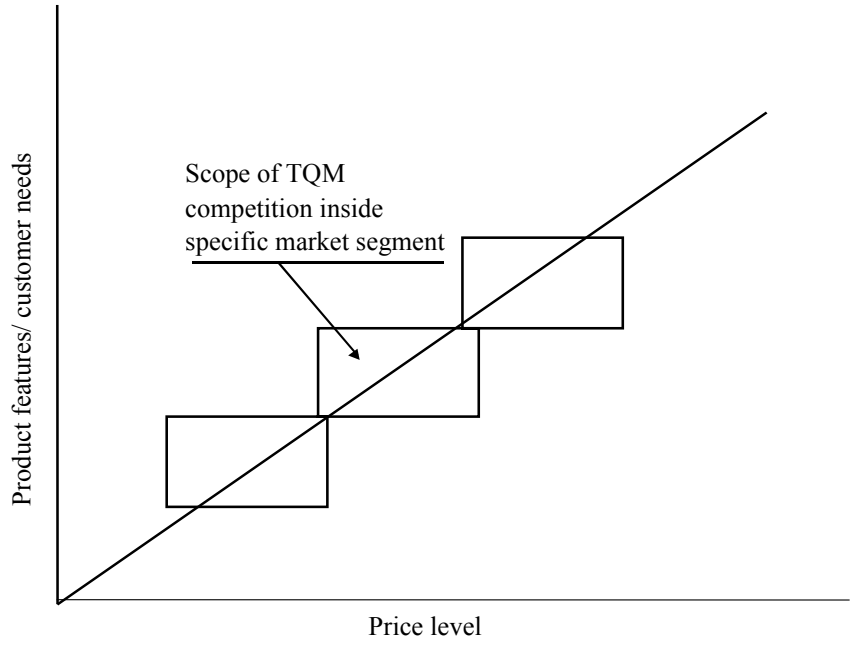

Figure 4-1: Market segmentation and the scope of ideal quality management

[146] Perfect competition from a quality perspective arises in specific market segments where customers have similar needs. Perfect competition is based on competition inside a specific market segment with products that meet the needs of customer.

Perfect quality competition includes all of the above-mentioned conditions, which leads into competition based only on the value of the products and services. Perfect competition and application of ideal quality management are limited to industry segments with similar products, price range and customer needs as shown in Figure 4-1. Approaches to limiting competition inside the market segment or consideration of leaving, entering or creating new market segments are excluded as competitive choices in the scope of ideal total quality management[147]. Within the scope of accepted management practices, firms are expected to compete to ensure continuous improvement in and comparative advantage of industry segment. Any management practice seeking to gain a competitive advantage by interfering in perfect competition should be excluded from the quality management discipline[148]. In perfect competition a competitive advantage can be gained only through internal effectiveness. However, in theory, a firm can gain only temporary competitive advantage, because any new approaches are shared with competitors.

4.5 ORGANIZATIONAL AND IDEAL QUALITY CULTURE FIT

Cultural assumptions behind any new approach, such as TQM, have to be consistent with the existing organizational culture (Schein 1999). Cameron and Sine (1999) in their study on TQM and organizational culture conclude: "*unless the organizational culture was congruent with the quality initiative, positive outcomes were less likely*." One of the main features that distinguishes TQM from other types of organizational change is that the successful implementation of TQM requires a paradigm shift that may question members' most basic assumptions about the nature of the organization (Reger 1994). Reger's research, focusing on cognitive sources of human resistance, explains why even the most loyal members, who sincerely want the best for the organization, resist positive change[149]. In addition, negative resistance, including political and opportunistic behavior, may have an adverse affect on the success of TQM. These concerns are well covered in management research, but they are not addressed in the total quality management discipline.

Schein (1992) is rather pessimistic about the potential for radical cultural change in the organization. The potential for cultural change is limited, because the existing culture is a strong force resisting change if an organization's survival is not threatened. Changing organizational culture is difficult, because culture sets both the limits for and direction of the change in behavior in the organization (McNabb and Sepic 1995). The capability of management to change organizational culture is often overestimated and they are bound by cultural assumptions. Morgan (1997:215) explores the side effects of any strong

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[147] A lot of research has focused on determining whether TQM can provide a competitive or even a sustainable competitive advantage, which would lead to a optimization of value for shareholders. On the contrary, perfect competition maximizes the value the customer receives. In the long-term, an adequate return on investment for other stakeholders has to be created, because they are an important resource for an organization.

[148] Some of the other sources for gaining a competitive advantage include selection of markets to compete in, flexibility and innovation to create and move to new markets, timing of product introduction to decrease competition, marketing to influence customer requirements and needs, and any practices restricting free competition.

[149] Basic assumptions are the result of successful strategies used by an organization in its environment, but TQM programs and studies on its implementation expect that the assumptions it brings are beneficial. As a result, research has focused on how to change organizational culture rather than on whether it should be changed.

ideological approach by using the metaphor of organization as a psychic prison. This metaphor joins the idea that *"people can actually became imprisoned in or confined by the images, ideas, and thoughts*".

This analysis suggests that if organizational culture converges significantly from ideal quality culture, the implementation process will be slow and difficult. If there is a significant divergence between existing organizational culture and ideal quality culture, TQM practices should be tailored to match existing culture, or alternative management approaches should be considered. In some cases this is necessary; organizational environment may have changed faster than organizational culture has been able to cope with and as a result, existing culture may be based on historically successful assumptions which are not valid in the current environment.

Because an effective implementation of TQM approaches required an understanding of existing organizational cultures, we need to define a methodology for studying and understanding them[150]. Schein (1992) introduces some methods including a clinical interview methodology, which is the approach used in the empirical part of this research. There is a clear distinction between organizational climate and culture[151]. From a research perspective, the key difference is that while the organizational climate can be studied from an external perspective, the culture can only be understood internally (Schein 1992; Denison 1996). Examination of an organization's culture is a difficult task, and it cannot be done using simple questionnaire-based approaches, but it requires an extensive involvement and long-term observations in the organization. One factor simplifying this research process is the focus only on those cultural assumptions, which are part of the ideal quality culture. After cultural assumptions in the organization have been identified, a gap analysis of existing organizational culture and ideal quality culture would identify those issues, where we need to place more effort and how to overcome resistance to cultural change. A similar process can be made in any individual management approach, but the scope of the assessment could include only basic assumptions underlying the specific management approach. In Appendix 1, an example of such an assessment is provided.

[150] In order to increase the odds of success when attempting to introduce a change in organization (such as TQM), managers should comprehensively examine their organization's underlying culture (McNabb and Sepic 1995)

[151] See Denison (1996) for a detailed discussion about differences between organizational culture and climate.

4.6 CONCLUSION

In this chapter organizational culture based framework was introduced and its main components were critically analyzed. The conceptual framework created for the analysis of total quality management is based on the cognitive cultural model of an organization. The framework is built on four interrelated levels: basic assumptions, core value, management areas, and management practices. In the deconstruction of TQM, CPE and ISO 9000 models were used as a main source in identifying central assumptions, values and practices of the discipline.

According to Schein's cognitive cultural model adopted for this study, organizational culture is a set of mutually compatible basic assumptions. Analysis of relationship and compatibility of TQM basic assumptions indicate that that TQM is based on an integrated and mutually compatible set of basic assumptions, which form an ideal quality culture.

Critical analysis of the validity of basic assumptions and the construction of a hypothetical environment for ideal quality culture, perfect quality competition, raise serious concerns about the practical validity of basic assumptions. The problems in TQM implementation programs may be caused by unrealistic assumptions, which are implicitly made in the TQM implementation program. When these assumptions differ considerably from existing cultural assumptions in the organization, the implementation programs require a cultural change, which according most researchers, is a rather difficult and time consuming task.

5 EMPIRICAL ILLUSTRATION OF CULTURE BASED MODEL

5.1 INTRODUCTION

Empirical observations about applications of TQM in Valmet have an important role in this research. The main focus in theory development has been on those items, which caused difficulties in the implementation process. Although entire research is grounded in empirical observations, a theoretical framework is applied in this chapter to further examine the applicability of the proposed model in a practical management situation in business unit level.

Another objective for this empirical illustration is to evaluate the applicability of TQM in project-oriented industry. To support this objective and to provide a starting point for the empirical case study, the report includes a brief theoretical discussion about the nature and key characteristics of a project-oriented organization relevant to this study.

5.1.1 Objectives for the case study

The objective of this case study is to illustrate how ideal quality culture can be used to examine the difficulties with TQM implementation in the case organization and how to evaluate the benefits of implementing TQM approaches. The intent is not to provide an empirically rigorous construction to validate culture based framework[152], but to come up with a local "theory-of-a-case", which does have practical value for management and can be used to generate action plans.

This research has a practical validity, because the case organization was renewing its ISO 9001:1994 based quality management system concurrently with this study. The recommendations derived from this study were applied for the development of the system[153].

The practical research questions were as follows:

- Should the case organization maintain its own certified quality management system?

- How implement a quality management system and what is the optimum level of implementation in the case organization?

The aim in this study was to bring management attention insights to these questions from one perspective, which would increase their comprehension about the situation and hopefully lead to better decision-making about the scope and implementation of a new quality management system.

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[152] One may question the existence of empirical methods for validating cultural construction, because the most significant level of organizational culture is beyond perception and thus cannot be directly observed and measured.

[153] Schein (1992:172) describes this as a clinical situation in which the outsider is providing help in a consulting role and claims that it is essential to get the level of cooperation and motivation to really decipher underlying organizational culture.

5.1.2 Research design and description of the research process

The research process leading to the development of a theoretical framework and application of theory in a real world practical situation (this case study) can be best described through an iterative clinical interview methodology (Schein 1992:169-210). Schein proposes the use of this research process when the intention of researcher is to "*decipher the culture in order to make it visible not only to group members but to scientific colleagues."* The research process is a joint effort between the researcher and insiders of the organization to avoid the subjectivity bias and overcome the insider's lack of awareness. Compared to the researcher becoming a participant observer or proceeding as an ethnographer, the clinical research approach is less time consuming and focuses on those issues that are helpful to the organization.

The research process, as described in Table 5-1, can be divided into two parts: comprehending the research problem and theory development, and application of theory in a real world situation. The first part of this research process is reported as part of theory development. This empirical case study, forming the second part of the research, is a natural continuation of the theory development process.

I was working with the case organization[154] in the first phase of the research, but my direct responsibilities did not include maintenance and development of a quality management system. This field role allowed me to become a member of the group while still maintaining some distance and objectivity. I was also able to use multiple data gathering methods, including the use of long-term observations. Concerns regarding ethics and confidentiality were addressed as my role as a researcher was explicit and interviews were conducted anonymously. I was given free access to any information required to conduct this research. At the same time I was able to create confidential relationships with key members of the organization, which was additional motivation for them to assist me with this research.

The case selection was based on my familiarity of the organization. I was also aware that they have significant problems with the TQM implementation process, which justified the time and resources spent in the research process.

[154] I was directly employed with the case organization between 1994-1998. This empirical case study was conducted in 2001, when my role was more as a consultant or an advisor in quality related matters.

Phase 1: Comprehending the research problem and creating a theory

1. Entering and focusing on surprises

- First experiences with TQM, looking for boundaries for applicability, identification that some management approaches were not working according to theory

2. Systematically observing and checking

- Systematic work over a few years while trying to understand what was going on in the organization (with clear research objective)
- Ongoing review of existing research and theories, research focus on basic assumptions related to the implementation of the TQM program

3. Locating motivated insider(s)

- Several motivated work colleagues have been valued sources of information. The objectivity of the research findings was assured by reviews of existing research and discussions with other researchers and external practitioners.

4. Revealing the surprises, puzzlements, and hunches

- Identification of areas in which there are clear problems and difficulties in implementing programs

5. Jointly exploring to find explanations

- A formulation of initial theory: cultural framework and the role of TQM in organization

Phase 2: Application of theory in a real world situation

6. Formalizing hypotheses

- Theoretical discussion about the nature of project-based organizations as non-routine system and reviews of existing research about applications of TQM in project-based organizations.

7. Systematically checking and consolidating

- The research approach and selection of methods for gathering in the case organization

8. Searching for shared assumptions

- Identification of the most relevant shared assumptions influencing TQM implementation.

9. Perpetually recalibrating

- This research process has not followed strict sequential order; rather it has been a cycle of presentation of preliminary research findings and refining them based on feedback.

10. Writing a formal description

- Reporting and structuring findings in the form of a doctoral thesis.

Table 5-1: Structuring the research based on clinical interview methodology

5.1.3 Nature of project-oriented organization as non-routine system

The analysis of the applicability of TQM in a project-oriented organization requires us to define what a project-oriented organization is and what its typical characteristics are. In this research, the focus is on non-routine operations, which distinguish the project-oriented organization) from repetitive manufacturing and service organizations.

Project-oriented organizations can be simply defined as organizations, which carry out most tasks though projects (Artto, Heinonen, Arenius, Kovanen and Nyberg 1998). The uniqueness[155] of each project within such an organization means a variety of approaches must be taken, which causes the organization to take a non-routine approach to management at the organizational level. Project-oriented organizations cannot be effectively managed as a routine system. Truly unique projects require novel approaches and learning by insight, which is a discontinuous process and a source of non-routines (Boisot 1998:32). To address non-routines at the operational level, general organizational level management approaches, such as goal setting or performance measurement, must be continuously tailored to account for project specific features.

Theoretically, a project-oriented organization is a response to the challenges of differentiation and integration. The need for a project-oriented organizational model comes from two distinct sources: the need to diversify and a parallel need for cross-functional integration. In times of great environmental uncertainty, organizations respond by diversifying operations. Organizational boundaries are best positioned where there are clear discontinuities in time, technology or territory (Morris 1994). This type of organizational structure shields local managers from the complexity of the overall environment as well as information that is irrelevant to their specific operations. Organizational flexibility is increased as managers have more freedom to respond to local, unique and fast changing technological and environmental challenges. However, technological and environmental uncertainty also creates a need for integration and the coordination of activities, especially among functional groups, which may include parties external to the organization.

Stymne (1998) defines non-routine systems as "systems *recurrently dealing with non-recurrent events for which there is no routine way to handle*"[156]. The idea of incomplete information concerning the attributes, causes, or effect of the phenomenon is at the core of most definitions of uncertainty (Pashmore and Gurley 1991). The main differences between routine and non-routine systems are summarized in Table 5-2. This table provides examples, which display the anticipated differences between routine and non-routine systems. They are useful in predicting which type of organizational culture we can be expected to encounter in non-routine organizations.

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[155] Turner (1992:5) claims that the one parameter by which projects differ from operations is the level of uniqueness. He defines the project as being *"an endeavor in which human, material and financial resources are organized an a novel way, to undertake an unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.*" The level of uniqueness in each project, not whether the organization considers itself to be a project-oriented organization, is taken here to be the key distinguishing factor between project and other types of industries.

[156] A direct quotation from Dr. Bengt Stymne, Stockholm School of Economics as given during post-graduate course: Learning in non-routine systems. Spring 1998.

	Routine	Non-routine
Nature of Work	Defined	Undefined
	One right way	Many right ways
	Clear shared goals	Multiple competing goals
	Information available	Information hard to obtain
	Forecasting helpful	Forecasting difficult
Nature of the success	Efficiency	Effectiveness
	Technical perfection	Human perfection
	Productivity measurable	Productivity immeasurable
	Physical technology	Knowledge technology
	Standard information	Non-standard information
	Detail oriented	Completion oriented
Nature of decision making	Rules applicable	Rules inhibiting
	Experience counts	Experience may be irrelevant
	Authority based	Consensus based
	Complete operational specs	Incomplete operational specs
	Authority by position	Authority by expertise
Nature of context	Short time horizon	Long time horizon
	Stable environment	Unstable environment
	Predefined outcomes	Emergent outcomes
Nature of variances	Obvious	Hidden

Table 5-2: Characteristics of non-routine systems

One of the most widely recognized models used in analyzing the level of non-routine activities is Perrow's (1967) framework of technological dimension of work being performed. He suggests that two technology[157] dimensions, variety and analyzability, are the most relevant aspects of technology when studying organizations. Figure 5-1 illustrates technological dimensions with industry examples.

[157] "*By technology is meant the actions that an individual performs upon an object, with or without the aid of tools or mechanical devices, in order to make some change in that object. The object, or raw material may be a living being, human of otherwise, a symbol or an inanimate object*" (Perrow 1967:195)

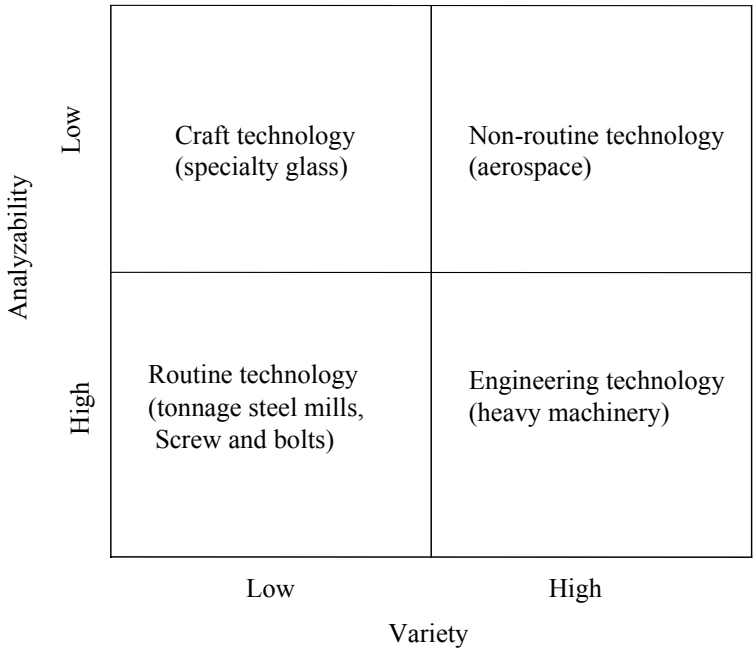

Figure 5-1: Perrow's framework of technology dimensions

The first dimension is related to a number of exceptional cases, which are perceived as unfamiliar, and a new approach must be created in order to complete the given task. The second dimension refers to the search process, which must be implemented in order to find a solution to a particular problem. In the routine system, the search process can be based on clear, pre-determined steps, which can be used logically to analyze a problem. The cases where formal methods cannot be used to solve a problem or the problem itself is vague and poorly conceptualized is the other extreme. The solution for these un-analyzable problems can be found in the in the implicit knowledge or experience of the worker. Management of this type of problem relies on intuition, change or guesswork (Perrow 1967).

The nature of a project-oriented organization as a non-routine system does not lead to the conclusion that they all have similar organizational cultures. There are also factors other than the level of non-routines, which have significant roles in shaping organizational culture. However, context dependent variables influence the selection and success of management practices, which slowly diffuse to deeper levels in organizational culture and eventually influence and change the organizational culture itself. As a result, organizational culture in any project-oriented organization is likely to be based on similar cultural assumptions in response to the non-routine characteristics of the system

5.1.4 Existing body of knowledge about TQM in project-organization

The current research concerning quality in a project-oriented organization has focused on the management of individual projects. Research into the general management of a project-oriented organization has paid little attention to quality management at an organizational level. This focus is obvious in the project management body of knowledge (PMBOK 1996), published by a leading organization in the field – Project Management Institute. It takes an internal perspective to the management of projects, and external stakeholders' needs and expectations are generally considered as an objective and explicitly defined set of requirements that a certain project must fulfill. Less emphasis is placed on the overall management within a project-based organization or how organizational objectives are transformed to project specific objectives. Consequently, most research on quality and quality management practices in project organizations are at the project level. Project quality management processes are the following(PMBOK 1996: 83):

- Quality Planning: Identifying which quality standards are relevant to the projects and determining how to satisfy them.

- Quality Assurance: Evaluating the overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

- Quality Control: Monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate the causes of unsatisfactory performance.

These processes are designed to comply with ISO 9001 based quality management systems and the 10006 series of standards and guidelines[158] as well as "*proprietary approaches to quality management recommended by Deming, Juran and Crosby and non-proprietary approaches such as TQM*" (PMBOK 1996: 83). However, PMBOK leaves this discussion open and does not define which practices and principles are included in TQM, or how they might be integrated with the project quality management processes. Orwig and Brennan (2000) present an integrated approach to quality and project management, and they come to the conclusion that TQM principles (customer orientation, teamwork and continuous improvement) are compatible with project management practices. They propose that by instituting a formal project management methodology and instituting basic project management techniques, project-based organizations are fulfilling the principles of quality.

Cicmil (2000) is less optimistic as to how well existing models of quality management are directly applicable in project-oriented organizations. She proposes that *"The meaning and aspects of quality in the project environments need to be based on unbounded inquiry rather than on a taken-for-granted adaptation of existing models from a quality management body of knowledge*." She views core problems in project management as being related to defining project success factors, balancing the expectation and requirements of project stakeholders, managing projects as temporary and divergent systems, and problems in project planning, monitoring and control during the implementation. However, she claims the most difficult problems are caused by uncertainty, which is contrary to traditional approaches, planning and control centered

[158] The international standard, ISO 10006 provides a general level of "*guidance on quality system elements, concept and practices which are important the achievement of quality in project management*."

approaches to project management. They require flexible, intuitive and context specific management approaches. Unique problems are a challenge to some of the assumptions made by traditional project management methodology as well as TQM, which is based on a planned and rational approach to management.

There are a few quality management models that have been specifically developed for a project-oriented industry. The most widely known is the Capability Maturity Model (Paulk, Curtis, Chrissis and Weber1993) and corresponding ISO quality standard for software development projects (ISO 15504)[159], which have been developed for the software engineering industry. The main focus on these standards is defined and repeatable processes. They share the same set of basic assumptions as CPE, and the main contribution of those models is the recognition of some management processes and practices specific to the project industry.

Kujala and Artto (2000) introduce a specific application of quality award criteria to be used in a project organization. This approach, criteria for project performance, involves employing management practices that operate on a wider scope. The focus of this model, which is based on CPE, is to integrate project quality management practices with the business management of the project-oriented organization.

A study on the use of TQM based approaches in the service industry by Reed and Lemak (2000) contributes to this discussion by identifying various types of service industries based on the intensity of the customer supplier relationship using Thomson's typology[160]. They conclude that using TQM for efficiency gains in reciprocal technology (high customer involvement) is problematic, because standardization or planning does not work that well. Additionally, it is often difficult to identify in advance, which services are less valuable to the consumer. Since project sales and deliveries generally include a high level of customer involvement, these research results challenge the applicability of TQM based management approaches in project-oriented organizations.

Silvestro (2001) explores different types of service processes using typology, which distinguishes between services positioned along the continua of volume and variety. His research proposes that the implementation process should vary depending on type of service process. In his study, he found service shop types of operations, positioned in the midway of the continua, most conductive for implementation of TQM[161]. The professional services industry, which is in the project-oriented industry end of the continua, was claimed to be most conducive to the managerial and cultural change.

In general, high customer involvement and multiple stakeholders participating in the production process in project delivery place additional importance on cultural-related issues. Project success is dependent on project leadership being established with a workable organization and proper lines of communication. In a project environment, this organization includes multiple stakeholders. Within this organization, may have different values, frames of references, standard, cultural norms, and even different languages, and

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[159] Metso Automation is using a Spice-assessment model, which is based on ISO 15504 standard, for improving an organization's performance in the research and development function. It is used to complement the ISO 9001 quality management standard and quality award criteria.

[160] Original work is published in Thomson (1967). For a short review and main evaluation of Thomson's contribution in defining technological uncertainty refer to Robbins (1990:188-191).

[161] Silversto (2001) provides a detailed analysis of the application of TQM precepts for various types of service processes.

these problems can quickly be magnified (Turner 1993:500). This argument is supported by Wikström's (1997) study, where he comes to the conclusion that one of the key problems in project implementation is a misunderstanding among parties involved due to cultural distance.

5.2 CASE STUDY: ANALYSIS OF TQM WITHIN CULTURE BASED FRAMEWORK

5.2.1 Brief business history of case organization

History, success stories and background of the organization are important sources of information in the cultural analysis. Organizational culture is based on the historical experience of successful actions or on the beliefs of the original founders of an organization. The culture naturally evolves over time as new procedures are proven to be continuously successful. The organization grows, its task environment (such as its competitive situation) changes and the organization is forced to adopt new practices. Thus, existing organizational culture is a result of its past successful actions.

The case unit was founded in 1985, when it was separated from a parent company to sell and deliver a custom tailored information system business in the Soviet Union. Since its foundation, the organization has engaged in multiple business sectors and has been able to create a reasonable consistent business volume in a changing market situation. The major change in the market area came in 1991, when the former Soviet Union was restructured and became the Commonwealth of Independent States (CIS) and contiguous countries, which did not join the new alliance (for example Baltic countries). The development in the region in the 1990s led to independent countries, each having its own legislation, bureaucracy and way of conducting business. This changed the business relationships for case unit, because they were forced to not only deal with multiple countries, but also to create a direct relationship with each customer[162]. Fortunately, management had predicted this change. A case unit had started building direct relationships a few years earlier, and it was ready for a new market situation. Since the year 1991, the organization has entered into new business areas (for example metallurgy and supervisory control and data acquisition systems for oil and gas pipelines), which have produced significant, but fluctuating business volume and revenue for the unit. Key milestones of the unit history are presented in Table 5-3.

[162] Business relationships in the era of Soviet Union were bilateral and all business relationships were managed though a single point of contact with government foreign trade organizations. Actual users of the product generally did not participate in the business meetings.

1985 Foundation of the company, business in information system markets

1988 First process control system was sold and delivered to process industry

1989 Pulp and paper industry segment was added to company, a strong focus on building customer relationships with main paper factories

1990 End of bilateral business between Finland and Soviet Union

1991 Collapse of Soviet Union, markets were redefined, case-unit were able to achieve leading position in pulp markets

1994 Metallurgy was added to business segment

1994 SCADA department was founded

Table 5-3: Key milestones in the history of case-organization

Currently, the case unit is the leading foreign supplier of the automation system supplier in the pulp and paper business industry segment. The organization is also engaged in oil and gas, chemical, metallurgy, and energy industries. In the parent corporate structure, organization is based on customer business and products; case unit has remained the only independent unit operating in all business segments. It has main offices in Helsinki and Tampere, but about 30% of employees are local workers in the Moscow and St. Petersburg offices. The total number of employees is less than fifty, and most of them are working in the pulp and paper business segment. The organization has been able to build deep customer relationships with all major pulp and paper factories in the market area.

What follows is a summary of issues that may impact the current organizational culture:

- The case units currently operate multiple automation and information technology business segments including pulp and paper, energy, metallurgy, oil and gas pipeline automation.
- The market situation in the Former Soviet Union has been very unstable. Business volume and the relative size of various business segments have been fluctuating.
- One of the key success factors in these market areas is being able to develop long-term relationships with key customers. These relationships are often personal in nature and they go beyond business matters.
- The organization is a market leader in the pulp and paper market segment, and it has created an extensive technological knowledge in this business segment.
- The company is defined as a project company, which applies projects as its major business vehicles and therefore has these projects in its production line. The number of significant projects and customers each year is less than 10-20, and these customers have diverse needs and expectations.

The case-unit participated actively in the Valmet Corporation quality management program. All senior and middle management of the organization participated in training workshops; it conducted internal assessments and presented cases in these workshops. It received ISO 9001 certification in 1995. The major reason for the certification was external pressure from the corporation, but a serious attempt was made to create a technically beneficial system. The size of the organization was rather small, but it did not accept the quality management system created by other units in the automation business.

At the same time, quality award criteria were applied to improve business practices. They were implemented in the form of self-assessment. Additionally, management meetings that included detailed discussion about the content of the criteria and the monthly management reporting was structured according to quality award criteria. The case unit also created a fact-book describing its quality management practices in the form of quality award application documents. Due the small size of the organization, it did not receive the external Valmet assessment before the program was discontinued in 1998. Even since 1998, some reporting practices according to quality award criteria were maintained although fewer resources were spent in the overall development of the quality management system. The case-unit has maintained ISO 9001 certification and is planning to develop the quality management system to meet the requirements of new ISO 9001:2000 quality management standards.

5.2.2 Data gathering and identification of TQM related cultural assumptions

The research approach used is mainly based on deep involvement with case organizations and data gathering is based on observations and interviews. Unlike general cultural research, the objective in this research is to study the role of predefined cultural assumptions in the implementation on specific management practice, which simplified the research approach.

Triangulation, a collection of multiple and complementary data collection methods, was used in the study:

- Observations: Action research – preliminary construction and hypothesis were created based on theoretical analysis and direct observations in the organization. Management action and responses to research findings were used to refine theories.
- Archives: Quality management system, training and presentation material, internal and external quality management system audits, quality records and other formal documents.
- Interviews: Interviews were conducted mainly informally and open-ended questions were used with discussion research findings within the organization. Especially important sources of information are stories about past successes and beliefs about why respondents believed that organizations were successful in those cases.
- Questionnaires: A case organization also participated in the empirical study reported in Appendix 1. The questionnaire about basic assumptions related to the implementation of a customer satisfaction measurement survey was also utilized in this case study as a starting point of discussion[163].

In addition, the researcher served as an official internal auditor of ISO 9001 quality management system in the case organization during the research process, which provided an opportunity for in-depth evaluation of the current status of the quality management system. The auditing process revealed significant problems with the implementation process. Some of the most visible and serious problems were as follows:

[163] Quantitative survey in this research serves also in the role of institutional practice. Quantitative data has a significant role in legitimating research approach and forcing management to comment on and participate in a discussion about survey results.

- The level of TQM implementation in the case organization is low, and it has barely met the minimum requirements for ISO 9000 certification. In the CPE scoring system, I would estimate that the organization is between 150-200 points.
- Employees do not feel that standard practices in the quality management system significantly contribute to organizational effectiveness. Each project seems to be different and requires unconventional approaches.
- There are significant difficulties in measuring process performance, demonstrating continuous improvement, and aligning organizational processes based on objective information.
- The Decision making process within the organization is based on a rather intuitive approach, which often leads to problems demonstrating that all the relevant information has been considered[164]. This is evident, for example, in the demonstration that quotation reviews are done according to procedures and all relevant information related to organization's ability to deliver projects has been considered (this specific practice is a mandatory requirement of ISO 9001).
- Detailed planning (for example project planning) is not considered useful because customer requirements change constantly. Such variations do not only occur at the project level, but the organizations general management is also distracted by continuous and unpredictable changes in the market place[165].

The problems at the visible level are just reflections of gaps between ideal quality culture and culture in the case organization. They provided some indication about the underlying organizational culture, which was used as a starting point in interviews and in-depth informal discussions with key members of the organization. The most significant discrepancies are identified in Table 5-4 and Table 5-5. The non-compatibility of organizational culture in the case organization with ideal quality culture can be identified as a source for many problems, which have been identified in the implementation of TQM based approaches.

[164] See Pashmore and Gurley's (1991) discussion about intuitive decision making process in non-routine systems.

[165] The nature of business environment was well described by managing director's statement that "not even past can be predicted in this market area" due new laws that are implemented retrospectively.

1. Organization's Mission and Relationship to Nature	
1.1 Proactive and passive relationship to environment	• The factors affecting competitiveness of an organization are often difficult to generalize, because they are customer specific. The determination of customer requirements and expectations must be tailored to fit needs of each customer. • Because external stakeholders have a direct impact on the quality of internal production processes, an active approach is required in the negotiation of project objectives with all its stakeholders[166].
1.2 Customer domination in the supplier chain	• The role of various stakeholders is likely to be more balanced, because there is a potential information asymmetry, and during the implementation phase, the switching cost is high.
2. The Nature of Reality and Truth	
2.1 Objective physical reality dominating	• Each customer has specific requirements and expectations, which are difficult to determine in advance and often change during the delivery process. • Objective measures of internal process efficiency are difficult to obtain. • Information is customer/project specific and cannot be easily generalized or analyzed independent of the context.
2.2 The truth is reached by continuously analyzing objective facts	• Unique situations in projects require an intuitive approach to management. There are not adequate objective facts upon which a decision can be based[167]. • Measurement of performance is difficult, because each project is unique. Causes of variation are difficult to analyze or even separate from natural variance caused by changing/vague project requirements. • Organizational level continuous improvement based on objective is difficult (to demonstrate), because knowledge from one project is difficult to apply in future projects.

Table 5-4: Comparing ideal quality culture and culture in the case organization (1/2)

[166] Based on empirical observations in the case organization, the customer's role of providing initial information, which final project design is based upon, is a focal point of for project success. This is confirmed by Järvinen's (1999) study on project quality in which he stresses the role of customer supplied information.

[167] Quality manager commented that the case organization "*is a group of independent artists, who take good care of projects and customers using their experience. They use urgency as an excuse not to follow common procedures* ".

3. The Nature of Human Nature and Relationships	
3.1 Basic nature of human good	• None specific to the case organization. In general, the practical validity of these assumptions can be easily challenged.
3.2 Teamwork is preferrable over individualism	• Mainly compatible, although the role of individual employees is emphasized due the diversity in business operations and multiple geographical locations.
3.3 Central role of senior management	• Individual employees are empowered to make significant decisions. The responsibility for delivering high quality products and services is placed on the organization (for example project managers have a responsibility to ensure project quality). • Project organization is a temporary organization with all project stakeholders having their values and norms, which makes it difficult for senior managers to influence the culture of the project teams.
4. The Nature of Time and Space	
4.1 Future orientation -there is time to wait for results	• If all projects are unique, planning for the future and estimating future performance based on past or current performance is difficult. • Market area is politically and economically relatively unstable, estimating the future is difficult and there is little information available for long-term planning.
4.2 Efficiency through co-ordination	• Organizational objectives should be reflected in project objectives, but may not always be fully aligned as project objectives must take into account customer specific characteristics. • Time related performance, communication and co-ordination between project stakeholders is important for project success, but it is often complicated by different cultural assumptions of project stakeholders (for example receiving customer provided information or formal acceptances according project plans)

Table 5-5: Comparing ideal quality culture and culture in the case organization (2/2)

5.2.3 Recommendations and resulting management actions

The explicit objective agreed upon by management of the organization was to increase understanding of current status and role of TQM practices. The research results were not normative in nature; rather, the objective was to present different alternatives. The role of the researcher in the final decision making process was that of an observer.

Analysis of current status and recommendations

At the moment, TQM based approaches are not producing any significant direct technical benefits for the case organization. In principle, the main production processes are described in ISO 9001 based quality systems, but they are difficult to apply in practice to non-routine operations. However, the fact that the organization has been maintaining its own quality management system may lead to tighter internal integration of the organization, because it demonstrates that this group is distinct when compared to other units in the corporation. The emphasis on customer-orientation is a well-accepted value within in the organization, which may have a positive impact in determining customer requirements. The practices used in the organization are informal, personal and often intuitive in nature. An example of this concept is a customer satisfaction measurement system, which is not based on traditional survey type questionnaires but on an open-ended analysis of the satisfaction level of each customer.

The case organization is gaining significant symbolic value by using an ISO 9001 based management system. These benefits come from demonstrating to the customer that the organization is following generally accepted production processes, which gives it access to the marketplace[168]. Also, following generally accepted management approaches in the corporation have also led to increased technical effectiveness by enabling the case organization to follow simpler internal production processes. As a matter of fact, the management justifies maintaining their own quality management system mainly because of the complexity of alternative systems, which have been developed for considerably larger units that have more standardized management practices. In Figure 5-2 role and benefits of ISO 9001 certification for case organization are analyzed.

[168] There have been several sales cases in which ISO 9001 has been requested and it has been a precondition for submitting a tender. In those cases just a reference that case unit is ISO certified has been adequate to demonstrate the commitment for high quality (based on discussion with president of the case unit).

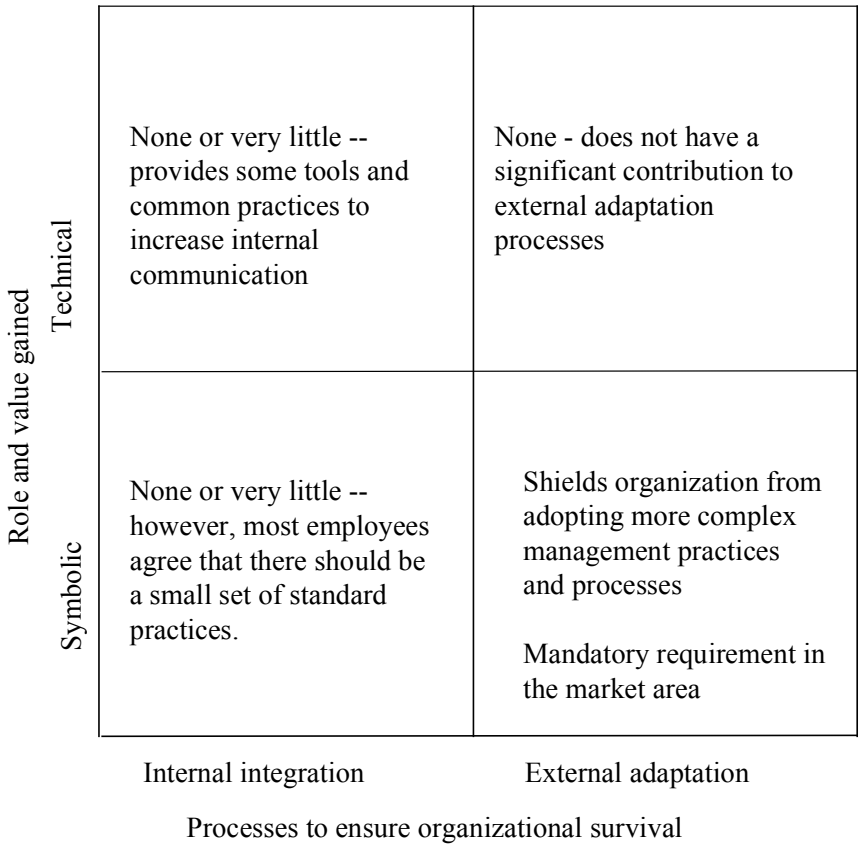

Figure 5-2: Role and benefits of ISO 9001 certification is case organization

Based on this study and analysis, it is proposed that organizations should maintain certification with the least amount of resources because even significant investments in improvement of the quality management system are unlikely to lead to improved organizational performance. Maintaining separate ISO certification is still favorable since it shields the organization from external pressure to follow more complex production processes and therefore indirectly increases technical effectiveness[169]. The organization should consider maintaining its own quality management system, and only shared practices with other business units in the corporation should be standardized. The case organization has a distinctive organizational culture, which is not compatible with an ideal quality culture. An attempt to change the organizational culture to one that is more supportive of TQM is not recommended. Not only is it a difficult process, but even if it would be possible, an ideal quality culture may not be applicable to ensure survival of the organization. The existing organizational culture has proven to be quite successful.

[169] The alternative solution for the case unit would have been to directly apply quality management system developed for significantly larger units in the corporation, which was also operating in more predictable and stable market segment. As a result, it had developed formalized and rather bureaucratic quality management systems, which was not seen fit for case organization.

Management actions and results

Management made a decision to maintain an ISO 9001 based quality management system and to renew it to comply with new 9000:2000 standard. The main justifications for having a certified system were as follows:

- A certified quality management system is a customer expectation and often includes this system as a requirement to be considered as a supplier.

- A company specific system can be made simple and suit specific needs of the organization. It also reduces pressure to adopt more complex management practices.

A new quality management system, which is considerably simpler than the previous version, addresses only the most relevant issues for the organization. The geographical scope of certification is operations in Tampere and Helsinki. The management did not perceive enough value at the moment for including Russian based operations in the scope of the certification, which facilitated the implementation process.

The implementation process was separated from the technical core of the organization. The quality manager and external consultant were responsible for the implementation process. They created the new quality management system independently and organization members were only required to give their comments and suggestions for draft-proposal. One-day training was organized for the whole organization to familiarize itself with the system before the system was taken into operations.

An external auditor, Den Norske Veritas, reviewed and accepted the new quality management system 7.5.2002.

5.3 DISCUSSION AND CONCLUSIONS

Existing models of TQM for project-organizations are mainly based on management approaches developed for repetitive manufacturing and service processes, and they rely on defined and controlled processes. They are best suited for an organization conducting similar and repetitive projects at the operational level, but these models don't provide a clear solution for managing uniqueness, which is a characterizing feature of a project-oriented organization. The existing research and theory development on quality in project-oriented organizations has been unable to make a significant contribution to generic quality management approaches in order to apply them more effective in a project-oriented organization. There is a need for additional research, which would focus on the development of quality management practices in these types of organizations.

The potential problem areas associated with applying TQM in the case organization are similar to those identified by existing research (Cicmil 2000; Reed and Lemak 2000). However, these research results are specific to case organization and they cannot be generalized to apply to project-oriented organizations. They may provide some insight into which type of difficulties other project-based organizations may expect in the TQM implementation process. I have observed other businesses that experience similar problems with their TQM implementation programs. This difficulty may demonstrate that they are relevant issues in the project-oriented industry in general. The fact that these problems are relatively severe in the case organization could be attributed to a considerably higher level of non-routines when compared to most other business units. Additionally, the small size of the organization enables it to be managed without standardized or well-defined processes

An emphasis on teamwork and information sharing across functional and organizational boundaries should theoretically be the main area where ideal quality culture in a project-oriented organization is based on similar assumptions. As project outcomes are customer-specific and often require customers to participate in the design process (for example by providing initial data and review of design output), the customer has to take multiple roles in customer-supplier relationship. Lenglick-Hall (1996) identifies five distinct roles the customer can take: as a buyer, user, co-producer, supplier of raw material, and product. This strong relationship with a customer should lead to long-term relationships, because both parties have invested a significant amount of time and resources into building the relationship. The major obstacle to overcome is the temporary nature of projects, which do not support the creation of long-term relationships. An organization must develop means to maintain this relationship beyond the actual project delivery process[170].

This analysis of cultural assumptions in a project-organization in relation to ideal quality culture demonstrates that implementation of TQM practices may be difficult. These research results suggest that the culture of a project-oriented organization is likely considerably different compared to ideal quality culture, which would make a TQM implementation project difficult. The optimum level of TQM implementation in project-oriented organizations would most likely be rather low[171]. A low level was clearly demonstrated in the case organization by the insignificant role of quality management system and TQM based management approaches. The fundamental reason is that, while the foundation of TQM is on the management of repetitive operations, in project organizations the degree of repetition is rather low and usually confined to support processes[172] while the actual value is created by unique applications.

Recommendations created based on application of the cultural framework were well accepted, which indicates that the proposed cultural framework has practical value. They also lead into simple and cost efficient implementation process, which enables the organization to continue operations without any disturbances. However, at this point of time it cannot be evaluated whether these recommendations lead to successful business operations and ultimately ensure the long-term survival of the case organization.

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[170] In the case organization, the concept of building a long-term relationship with customers is known as "Future Care". It aims at building long-term, mutually beneficial customer-supplier relationships with key customers.

[171] This brings us back to the question of why Valmet units were not able to reach the 700 level. In light of these research findings most units were probably close to the optimum level of TQM implementation which is considerably lower than the target of 700-points.

[172] In Valmet Corporation, those units employing rather standard and repetitive processes, such as car or tractor manufacturing units, gained the most benefits from TQM and were set as an example for the rest of the organization. Similarly, large project units are able to manage support function, such as purchasing, as a standard and repetitive process.

6 DISCUSSION

6.1 ROLE AND BENEFITS OF TQM IN VALMET CORPORATION

This research was originally undertaken to answer a specific research question about the role and benefits of TQM implementation in Valmet Corporation. Unfortunately, this research cannot provide a definite conclusion for this question, which served mainly as an initiative for detailed theoretical analysis. While it provides some analysis about the applicability of TQM in project-oriented organizations, the research work is geared toward theory development. Additionally, in this research, the level of analysis is the business unit while the original question was posed from a corporate level. However, to give a brief answer from my own perspective, I would like to conclude that TQM program in Valmet Corporation had a significant technical and symbolic role in the process of internal integration. It gave management a common frame of reference and language to communicate with each other. TQM values and principles, especially customer orientation, had an influence over what is considered proper behavior. Uncovering to which degree these values were institutionalized as a part of organizational culture in the corporation would require a detailed cultural analysis in each business unit. In the early and mid 1990s, ISO 9001 based quality management systems, the introduction of wide scope of management practices as part of Malcolm Baldrige quality training, and a corporate wide assessment program enabled most units to improve the scope and effectiveness of their management systems. In addition to its technical benefits, the use of ISO 9001 and CPE had the symbolic value of demonstrating the corporation's commitment to quality to external stakeholders.

By the late 1990s, the high costs involved with the documentation and assessment process and the management attention that was required for maintaining and improving TQM based approaches made many business units feel burdened by the program as opposed to seeing its potential benefits. Easy gains were realized, and business units should have invested considerably more of their resources for further improvements.

After the merge between Rauma and Valmet in 1998, the new management, led by the CEO of Rauma Corporation, did not have high priority in creating shared Metso way of (quality) management in business unit level. The role of corporation was more as a holding company. The new corporate senior management did not place any emphasis on continuing the quality management program, which is generally accepted as a precondition for successful TQM implementations. Many units in the new corporation had little knowledge or experience with the quality award programs, which diminished the value of CPE in providing common language and management framework across business units. Business units did not receive any symbolic benefits of compliance with the corporate standard way of management and technical benefits alone seemed not to justify continuing with TQM implementation process. As a result, most business units discontinued the use of Malcolm Baldrige (for example training workshops, maintaining documentation, or assessment process)[173].

[173] There is no single unit officially continuing the use CPE as to assess and improve its operations based on Valmet corporate assessment model. Even Metso Järvenpää unit, which won the Finnish Quality Award in 1998, is not actively pursuing further improvement through assessment process (Lagus et al. 2000:91).

In conclusion, the TQM program provided some benefits at the beginning. It was an important aspect of the internal integration of the organization and had symbolic value in demonstrating the corporation's commitment to quality. ISO 9001 certification, sharing of information and benchmarking brought management systems in all units to a minimum level. However, the slow TQM implementation process in most project business units indicates that optimum implementation level in project business is rather low and probably most units were close to optimum level of TQM implementation.

The TQM program was managed professionally, but there would have also been room for improvement in the implementation program. The process used in the corporation was rather straightforward and unintentionally stressed the standardization of approaches across business units, which had quite diverse business needs and requirements. This process, emphasizing conformity as compared to technical effectiveness, led in some cases to the adaptation of management approaches, which did not always provide much technical value for business units[174]. A more flexible approach allowing more diversity among business units and focusing more on the issues that the units themselves consider important[175] would potentially lead to better results.

However, this approach may be difficult to implement in practice, because institutional isomorphism is a strong force driving organizations in integrated networks to adopt legitimate rather than technically effective management practices[176]. There is no clear solution for the problem of implementing corporate wide management programs in a diversified corporation if there are significant differences among business units. A management approach for each unit should be tailored for optimum technical effectiveness, but any guidance from corporate level increases pressure to adopt similar corporate-wide approaches. One proposal how to better guide implementation program from corporate level would challenge each business units to explain "Why have they selected certain management approaches?" This question would lead into consideration of business benefits, as compared to traditional types of questions "What are the practices used and how they address different areas in the criteria?"[177]. Justification of any management practice should be pragmatic and based only on the business value of the specific management approach. This type of evaluation process would guide each unit to select approaches that are most applicable for the organization.

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[174] In a larger context, this discussion is related to management of highly diversified corporations. The question is whether corporate management is more capable of deciding, which management practices best suit individual business units.

[175] One problem with a corporate wide assessment program is that those features of TQM, which units do not consider important for doing business, are not implemented, and they are brought up in the assessment process as areas for improvement.

[176] See Mayer & Rowan's (1991:67) or Westphal's et al. (1997) relevant discussion about institutional isomorphism.

[177] This proposal also applies to the development of the quality award criteria, which should focus more on making organizations explain why they are using certain practices as compared to how they have implemented them.

6.2 IMPLICATIONS TO PRACTICE

6.2.1 Organizational culture as a key element in TQM implementation program

Organizational culture plays a key role in a successful TQM implementation program. This research agrees with the conclusion made by McNabb & Sepic (1995) that most TQM adaptation failures are not failures of management; instead they may be attributed to deeper, more critical sources: the fundamental, pervasive culture of the organization. Managers should be reluctant to adopt TQM, or any other management approach, without careful consideration of how it fits into organizational culture. Based on this examination, managers can, if there is good match between organizational culture and the change initiative such as TQM, choose to continue with implementation and they can expect favorable acceptance. In this research, a set of basic assumptions forming ideal quality culture is presented to assist managers in evaluating how a TQM program, or any specific TQM management approach, would fit existing organizational culture.

If differences exist between the organizational culture and TQM assumptions, the organization has several alternatives: change the organizational culture, modify the TQM approach, or select an alternative management approach. Organizations that choose the first option may expect a slow implementation process with only moderate results. Organizational culture is very difficult to change by controlled process to match ideal quality culture. In this case, the level of integration will probably remain quite low and new practices do not have a major influence on the behavior of employees in the organization. However, there may still be a significant symbolic value to implementing certain institutionalized management practices, which are required by internal or external stakeholders. The adaptation of TQM institutional practices does not actually require a change in the behavior of employees, and the level of integration does not have any significant effect on generated symbolic value.

The second approach to modify TQM based approaches disrupts the integrated and holistic approach to management; there is a limited amount of research into the process of partially implementing TQM or whether some of the approaches can be modified[178]. Here it is suggested that that the basic assumptions are interrelated, which complicates the task of partial implementation. This complication leads to a conclusion that if an organizational culture is considerably different from ideal quality culture, managers should consider the use of alternative management approaches[179]. However, the decision to implement a specific management approach should not be based only on the existing organizational culture, but also on whether there is a need to adjust the culture to suit new situational requirements[180]. TQM can be used as one tool to initiate change in the organizational culture. For example, success stories borrowed from limited applications of TQM are one tool to challenge organizations to try new approaches, which, if proved successful in wider scope, eventually may influence and change existing cultural assumptions.

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[178] Kekäle (1999) in his dissertation work proposes using three different approaches to TQM: soft methods, hard methods and a mixed approach.

[179] An example of alternative practices, not congruent with the core values of customer-orientation, would be to restrict competition (instead of providing high quality products for the customer) and force customers to use the services provided by the company.

[180] Managers should first question whether existing culture is better for the organization as compared to ideal quality culture.

For most practical managers, the examination of organizational culture may seem a rather difficult and abstract task. In practice they may have used a few simple questions, which may help to evaluate the difficulties in the implementation process and to understand the potential role and impact of a new management approach:

- What are the real problems we are trying to solve?
- Why it is important for this organization (technical and/or symbolic value)?
- What are the strengths and weaknesses of this approach (focus should be on how well the new practice would be accepted and implemented by employees – cultural fit)?
- If the acceptance and implementation is estimated to be difficult, are cultural assumptions functional in the current situation, or should we invest resource in an attempt to change it?
- Are there alternative management approaches, which would solve the same problem and provide similar benefits but be easier to implement?

These simple questions require managers to identify the basic assumptions underlying a new management approach and identify corresponding assumptions held in the organization. In this research the focus was on total quality management practices, but this methodology should be applicable to the evaluation of any type of management approach.

In this research, an assumption about integrated organization-wide quality culture was made. This assumption is a precondition for ideal quality management, but it may not be valid in most organizations whose various departments and sub-units potentially have diversified cultures. The organization is influenced by national[181] and occupational cultures, and the culture of a sub-unit has formed to match its specific contextual factors. The diversity in organizational culture makes the implementation process more difficult to accomplish, but it also may create opportunities for management to introduce new approaches in limited scope. Members of specific cultural groups within organization may be ready to accept cultural change and to employ TQM based approaches (Manley 1998). If these approaches implemented in limited scope prove useful for organization, they can initiate a change in organizational culture.

6.2.2 Role and benefits of a successful TQM implementation program

The main result from the analysis of the role and benefits of TQM based approaches is that managers can not focus only on technical benefits, but they also need to consider both the technical and institutional outcomes of any TQM practice. These gains are not necessarily exclusive, but they lead to a different type of implementation approach. In technical environments where competition is based mainly on technical effectiveness, organizations should tailor TQM practices to provide maximum technical value for the organization. In institutional environments, TQM practices lead to symbolic value. Managers need to demonstrate to external and internal stakeholders that they are using certain rational management approaches in order to gain legitimacy. If management practices are implemented only as an institutional practice to gain symbolic value, they

[181] For example, Kanji and Yui's (1997) study about differences in quality culture in TQM based Japanese and British organizations. They come to the conclusion that quality culture is influenced by national cultures.

should be separated from the organization's technical core and maintained with the smallest amount of resources. However, managers should continuously review this type of activity not directly related to technical task of the organization in order to evaluate whether they continue to be necessary for the organization and if they provide adequate symbolic value.

The analysis of whether TQM produces symbolic and technical value is dependent on scope of analysis. At the organizational unit level, ISO 9001 certification may produce mainly symbolic value for the organization. The situation may be different at the industry segment level as certification may remove trade barriers and ensure more effective standardized way of transactions between organizations. Similarly, a functional unit in the organization may be forced to follow standardized practices, which are not the most effective for them but are standardized ways of managing the organization and beneficial for the organization as whole.

In this research, a little emphasis was placed on understanding dynamic interplay of symbolic and technical benefits of TQM based management intervention. This aspect of the implementation program has not received much research attention. While many researchers have noticed the rhetorical form of TQM, it has usually treated only as an evidence of the failure of TQM implementation programs (see for example Hackman and Wageman 1995). Zbaracky's (1998) research on rhetoric and reality of TQM is the only study providing a detailed analysis of dynamics of symbolic (rhetorical) and technical value of TQM implementation program. In the case study unit, as well as in Valmet Corporation, TQM was initially adopted in the form of ISO 9001 standard mainly to gain external symbolic benefits. A similar process occurred in the corporate led process for the application of CPE in the Valmet Corporation. The main difference was that in the latter case, the external symbolic benefit for each business unit was a cost-effective method to demonstrate adherence to corporate way of management. The implementation of TQM based management approaches also allowed the management to gain some internal symbolic benefits by demonstrating to the organization that they are following generally accepted management methods. However, symbolic benefits cannot be easily used to change organizational culture to be more supportive for TQM, which is a precondition for using TQM for technical benefits. In the light of these research findings, I would propose that organizations, which seriously initiate TQM related practices to change organizational culture should initially focus on gaining only technical benefits from the implementation program[182]. As an organization gains more experience with TQM, some practices prove technically successful and there is a change in organizational culture; these changes can be communicated to internal and external stakeholders to demonstrate the effectiveness of an organization's management practices. These claims, which can be supported by evidence, could reinforce cultural change and acceptance of TQM in the organization.

This research suggests that there is an optimum level of TQM implementation for every organization. This level can be calculated based on cost involved in implementing and maintaining TQM based management approaches, which should be compensated by either technical or symbolic benefits of implementing those practices. If an organization

[182] In practice this would require management to keep a low profile with TQM initiatives. Those responsible for implementing new practices should be provided with adequate resources and authority to make changes. They should not have too much pressure to demonstrate quick results because that would result in a shift to symbolic form of TQM, where the main objective is to prove that implementation program has been successful.

is looking for mainly symbolic benefits, the optimum level of implementation is most likely to be rather low, because the organization is not looking for changes in the behavior (cultural change). The optimum level of TQM implementation has to be determined individually for each organization. Organizations close to optimum level should focus on developing alternative management approaches.

6.3 RESEARCH CONSIDERATIONS

From the perspective of academic research, one needs to ask whether TQM has a place in a special field of organizational research or if it is merely one practice-oriented management innovation among many[183]. Existing research has focused mainly on the latter and has not considered TQM to be a special field of organizational research or to uncover actual phenomena upon which to focus research. The main effort has been in the analysis of contemporary TQM management approaches and how these approaches could be implemented in the most effective manner. This type of analysis may be useful for the practical understanding and development of the discipline, but it does not build a solid foundation on which to build the theory of TQM. Senge (1999) in his analysis of lessons of the quality movement is concerned that without a unifying conceptual framework, the quality movement may fragment into isolated initiatives and slogans. This lack of theoretical basis may be one of the reasons that academic research has failed to benefit from the development of the discipline[184].

In this research it is proposed that TQM should be studied as a cultural phenomenon. From this perspective TQM itself is described as an organizational culture and consequently a TQM implementation program faces similar problems as changing organizational cultures. The similarities between organizational culture and TQM are obvious, and the claim that the essence of implementing TQM is a cultural change (Zeitz et al. 1999) is supported by these research findings. The true nature of the discipline can be understood only by revealing its deeper implicit assumptions and by focusing research on those assumptions. These assumptions can provide the connection to other fields of academic research, but can also be used as a tool for studying the practical application of TQM. These research results demonstrate that TQM is based on a mutually compatible set of basic assumptions, an ideal quality culture, which can be considered as a theoretical basis of TQM. As a specific field in organizational research, TQM should focus on research on deeper level assumptions in ideal quality culture, where the type of environment would be able to support such a culture and consequences of mismatch between ideal quality culture and organizational cultures.

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[183] Jackson (1999:100) analyzes similarly whether system thinking in general could be considered a discipline in its own right. He comes to the conclusion that the answer seems to be definitely no, because "it does not seek to delimit in particular reality for study, which it can call in its own." System thinkers can be found in a variety of disciplines. His conclusion is interesting for this research, because TQM is based on ideas brought forward in system thinking and it has been applied in all management areas.

[184] Many researchers have also noted that proponents of TQM have not applied the principle of continuous improvement in the development of the discipline itself (see for example Hackman and Wageman 1995, Pyzdek 1999b, Senge 1999).

6.3.1 Focus and level of analysis in TQM related research

TQM, as a research field, should focus on inter-disciplinary questions in order to identify the crucial aspects of various management practices in the context of overall management of an organization and its key stakeholders. It is not a discipline, which studies any specific management approach or how that approach can be implemented in the most effective way[185]. This research must be taken up by focused and established disciplines of organizational and management research. Thus, marketing research, for example, provides advice in measuring customer expectations and requirements but also how to influence customer behavior. The theories and practical approaches developed in marketing research are more insightful and effective for this specific task. The role of total quality research is to take those results and evaluate how they fit into quality culture.

The purpose of quality research is to determine the role and overall value of those practices and to determine whether they are compatible with ideal quality culture. As such a phenomenon does not exist, the main focus on research would be in identifying boundary conditions for quality management. These boundary conditions also identify topics that need to be excluded from the quality research agenda. Organizations may generate competitive advantage in perfect markets by using various methods, but research on quality management should focus only on practices compatible with ideal quality culture.

The level of analysis is an important issue to consider in any research related to social sciences, but the significance of this issue is emphasized in TQM related research. The concept of TQM is poorly defined and requires additional attention in describing the basis for the research. The level of analysis should include both scope of research and abstraction level (Figure 6-1). TQM research could potentially focus on covering quality management from a single firm point of view, but it should also focus on understanding the overall role of quality in economical development[186]. I propose that a multilevel analysis (industry, corporation, organizational unit, management area and/or function) should be used to understand the role and benefits of TQM. However, these different levels of analysis should not be studied in isolation because at any level unit of analysis is a part of the bigger system. The wider scope in the level of analysis recognizes the fact that an organization is an open system, which continuously interacts with its environment and cannot be managed without paying proper attention for understanding and/or managing its environment.

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[185] Waldman (1995) notes that TQM is inherently cross-functional in nature, which is a challenge to traditional functional academic research.

[186] ISO 9000 series quality systems and quality award criteria actually take this role. They are developed, not for the purpose of increasing competitiveness of individual firms, but to increase the effectiveness and competitiveness of industry segments.

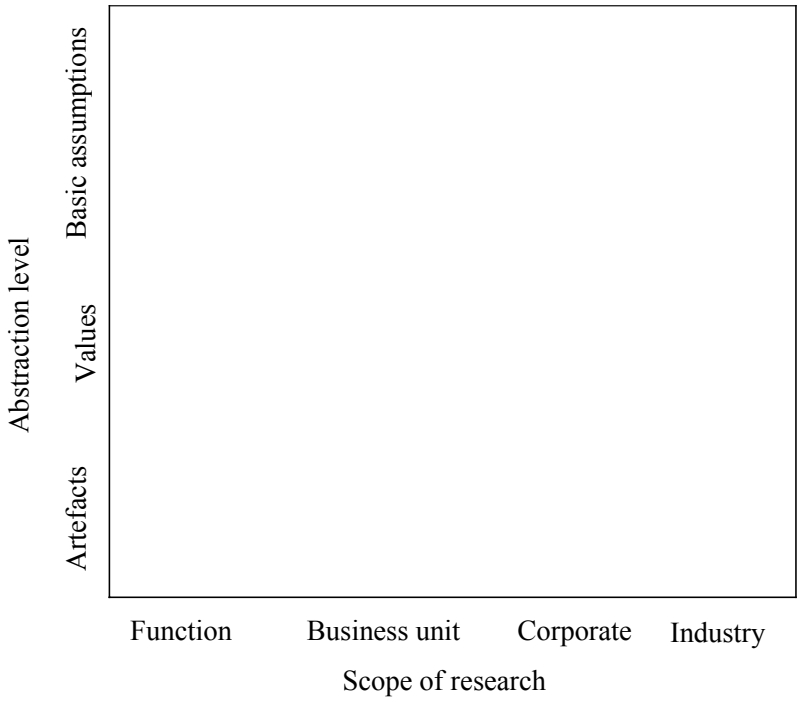

Figure 6-1: Level of analysis and scope in TQM related research

The focus on external environment is rather well accepted in TQM related research, but a lot less attention has been placed on understanding which type of environment is supportive for TQM based approaches. It can be claimed that at any level of analysis, TQM based approaches cannot succeed if the external environment (next wider unit of analysis) is not compatible with them. For example, if a business unit using TQM based approaches to build a strong culture for customer-orientation is measured in corporate level only based on short-term financial measures; this practice will decrease the value of satisfying customers to gain resources and financial support. Similarly, TQM value as building long-term customer-supplier relationships is dependent on having customers, which are co-operative and willing to invest in long-term mutually beneficial relationship. In both cases, if cultural assumptions of external stakeholders are not in line with those of ideal quality culture, the value of TQM based approaches and quality culture in ensuring survival of the business unit is decreased.

The level of analysis should also recognize various conceptual levels inherent in the discipline, which in this research were based on levels of organizational culture (Schein 1992). The major research effort has been placed in the lowest levels of abstraction, which is not adequate for full understanding of the complex nature of the discipline. Research on TQM practices and values is important for practical implementation programs, but research on gaining deeper understanding of TQM has to focus on those assumptions upon which the implementation of the discipline ultimately rests.

6.3.2 TQM as a research field in management theory

If total quality management were to be considered a management research field, it would require a definition of the exact phenomenon upon which research can focus. In this research, I presented the concept of "perfect quality competition", which focuses on the similarities between economic theory and total quality management. Economic theory is "*a general rule or principle that enables us to understand and predict the economic choices that people make*" (Parkin 1994:18). Economic focus on monetary issues and the corresponding theory of quality management should focus on quality as a competitive factor. This concept includes the quality of internal processes to increase production efficiency as well as the value of products and services for the customer. The main justification for extending research scope of TQM beyond individual firms is the recognition that value is often generated in the network of firms, and organizational learning and competence development is not limited to a single firm. The recognition that firms are open systems brings up the question whether TQM based approaches can be successful if external stakeholders of an organization are not sharing similar values and basic assumptions. This analysis suggests that ideal quality management can be accomplished only in the widest scope of analysis (in the industry level). The proposed research field for TQM converges with recent focus on strategic management to co-operation, rather than competition[187] among organizations in the same industry segment as the source of competitive advantage (Dyer and Singh 1998; Sanchez and Heene 1997). The major difference is that the focus on strategic management research is how to create competitive advantage and abnormal returns for stockholders[188]. From a quality management perspective, we should evaluate how customers could optimally benefit from these types of industry level arrangements. However, in longer-term time perspective, there is also a need to ensure fair share of return on resources invested for all participants.

6.4 CONTRIBUTION AND ASSESSMENT OF THE STUDY

The contribution and assessment of the study is based on two factors: importance of the field of study and special contribution of this study. In general, research on total quality management covers areas, which are central to most of the contemporary management approaches. Additionally, many organizations are still directly engaged in TQM based approaches such as implementation of ISO 9000 series quality system. With new ISO 9001:2000 quality management system organizations have to interpret quality management principles in a broader scope. At the same time TQM is being applied in new types of industries, which significantly differ from environments in which TQM was originally developed. All these factors require better understanding and continuous improvement of both theoretical foundations and practical applications of the discipline.

[187] Research on strategy has traditionally focused on competition and an organization has viewed all external players as forces working against the organization.

[188] Research on TQM has generally focused on whether it can provide a competitive advantage as opposed to advantage for customer and better life for employees (see for example Reed et al. 2000).

Contribution

In this type of qualitative and interpretative research approach, the contribution of the study and the validity of its results should be assessed by the scientific community as well as by practical managers who are using TQM based approaches. This analysis is not the task of the researcher, who is an integral part of the research design and cannot objectively evaluate the research results. For myself, this research report represents my individually created reality, which hopefully will have an influence on the socially constructed reality in the research community and among practicing managers in their organizations[189]. It brings forward those insights that I have gained during this research journey and I have intentionally included broad scope of issues that may be only loosely related to the main topic. However, to facilitate evaluation and learning process, I have brought a few issues, which I consider relevant in the assessment of this research. This research creates new scientific knowledge and makes a contribution in the following areas:

- Clarification of the definition of TQM and justification about the use of quality award criteria as a proxy for TQM
- Creation of a two dimensional framework to analyze the role and impact of TQM in organizational level
- The creation of conceptual model of TQM based on organizational cultural model
- Identification of TQM basic assumptions and ideal quality culture
- Analysis of application of TQM in project-oriented industry

Assessment of reliability and validity of research results

This research is qualitative and interpretative in nature, and the determination of the validity and reliability of the results should be based on the criteria developed for research in social sciences. The main focus of this research has been to create innovative and useful constructions for increasing our understanding of TQM and how it can be applied in the organizations. I have attempted to keep an open mind during my research journey, constantly challenging any explicit or implicit assumptions, especially those inherent in the total quality management discipline itself. An extensive literature review was conducted in order to link this work with existing theory and research, and the identification of TQM basic assumptions is supported by detailed references to contemporary quality management models as well as empirical observations in the case organization. However, in general, little emphasis has been placed on whether these frameworks and research results can be validated according to traditional scientific criteria of validity and reliability. This research has a focus on theory generation from one specific perspective, and I have intentionally excluded most issues related to the validation of the theory[190].

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[189] The phenomenological approach taken in this research is based on a broad scientific perspective, which claims that "social world has no external, objective, observable truth, but instead that our reality is socially constructed" (Buchanan 1991:27). Thus, these research results are not considered a representation of physical and objective reality.

[190] Theory development in applied sciences should focus on interesting and relevant theories, which quite often may not be easily validated. Weick (1989) is concerned about counterproductive effects in including theory validation as part of theory generation process.

The theory development was influenced by my observations and personal interpretation of the difficulties in implementing TQM based management system in the case organization. External validity, to which degree this theoretical framework is valid in other types of industries or even in project-oriented industry in general, must be verified by other researchers in subsequent studies. However, the nature of organizational culture would suggest that it is too complex of a phenomenon to make universal statements, which would be useful and applicable for all organizations. Rather, this research provides a starting point to study and analyze TQM implementation in various organizational settings, which can be used to create industry or organization specific local theories.

An important factor addressed while conducting this research is the recognition that one of the criteria for evaluating research contribution in social sciences is the applicability of methods in real world business practices. Accordingly, the success of this case study can be evaluated based on how it can be used to improve business practices in actual organizations. One method of evaluating the contribution of scientific work by market mechanism is based on weak and strong market tests (Kasanen et. a 1991). It is especially relevant to the constructive research approach to test the market value of the framework. The weak market test is based on whether economically responsible managers are ready to accept the model to support decision- making in real situations. During the research process, the model has been well received[191], which would indicate that this model leads to new insight into the implementation of TQM based management approaches. How much their decision making process has actually been influenced is difficult to measure[192], and it is too early to determine whether these actions have led to improved performance. The final assessment of the value of this work will be left to readers, who may find the new knowledge and concepts created in this research useful and practical.

Limitations of the study

The research phenomena and research questions in this study were broad. In order to limit extent of the work TQM is analyzed from a rather limited theory perspective. The major limitation in this work is the selection of Schein's integrated cultural model as the basis for the development of conceptual framework and analysis of TQM basic assumptions. It also makes a simplified assumption about survival as the ultimate shared objective for any organization. I'm aware of many limitations of my work, but we have to accept that "*any theory or perspective that we bring to the study of organization and management, while capable of creating valuable insights, is also incomplete, biased, and potentially misleading" (*Morgan 1997:5). This interpretative research provides a detailed analysis of TQM from one theory perspective, but it does not provide a complete answer for the research questions.

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[191] The model created is rather abstract in nature, and I have made an attempt to present theory for managers using practical examples.

[192] One example of the influence of the model in managerial decision making process was the selection of a new methodology to measure and determine customer satisfaction in the case organization after the introduction of this model (see appendix 1 – Case 2 for a more detailed description). Also, analysis of the role and impact of TQM proved to be insightful for defining scope and objectives for new quality management systems based on ISO 9001:2000 standard in the case organization (chapter 5 – empirical illustration).

7 CONCLUSION AND FUTURE RESEARCH

This research was undertaken to increase our understanding of the theoretical basis of TQM as well as its contemporary applications. The three research questions posed at the beginning of the research were the following:

- What is TQM (conceptually and/or in practice)?

- What are the limitations in applicability of TQM? What are the sources of variation of success among TQM implementation programs?

- How can we measure the benefits of successful implementation of total quality management program?

The practical definition of TQM is based on Malcolm Baldrige National Quality Award (CPE), which integrates various TQM approaches. It provides a generally accepted and validated framework, which could be used as the basic definition of TQM for future research. The ISO 9001:2000 quality management standard is used for practical purposes. It is based on a set of principles and assumptions similar to CPE and provides an alternative approach. This slightly more focused approach to TQM has the advantage of providing the status of a certified supplier, which is a requirement in doing business in many industry segments. Conceptually, TQM can be perceived as a cultural phenomenon. In this research, Schein's (1992) framework for organizational culture was used to analyze TQM and to create a culture based model of TQM. Ideal quality culture is a set of basic cultural assumptions, which support the perfect implementation of TQM program.

For the second research question it is proposed that organizational culture is a major variance-causing factor in TQM implementation programs. It also sets the limits for the applicability of TQM practices, which can be examined by identifying the differences in cultural assumptions between organizational culture and ideal quality culture.

The proposed model for measuring benefits from successful TQM implementation program is based on evaluation of role of TQM in enabling organization to survive and serve its customer as an ultimate long-term objective. A two dimensional model, which evaluates the role of TQM in the processes of internal integration and external adaptation and expected symbolic or technical value of implementation program, is used as the basis of this evaluation process.

The main focus has been on theory development although some analysis into the applicability of TQM in a project organization has been included in this report mainly to demonstrate the potential value of the framework in the analysis of practical problems. The analysis of the potential applicability of TQM in a project organization must be further examined by multiple case studies. A similar approach can be used to analyze the potential use of TQM in any other industry.

The research methodology and conceptual framework should also be applicable in studying any management innovation. This research could be extended by the application of this framework to another, non-TQM type of management innovation, which may be based on different set of assumptions.

8 FINAL REMARKS

My research journey into the world of TQM started when I had just graduated from the university as an engineer in computer sciences. Those problems I faced in my graduate studies and in my first work tasks were technical in nature and they could be solved using fact based logical reasoning. I was pleased that TQM took this familiar approach to management and at first I was rather impressed with it. However, quite soon it became obvious that reality did not match with the theory and rhetorical talk about success of TQM implementation programs.

During this research journey, my understanding about managerial work and the nature of an organization has changed, but those problems that I encountered during my first experiences with TQM are valid. I often refer back to my old papers, in which I made my original statements concerning some of the problems that I observed with a TQM implementation program. All those problems seem to be even more relevant now, but my focus has changed from symptoms to understanding underlying reasons, which are actually causing those difficulties. One of the most significant issues I have learned during these years is that one must look beyond the obvious in order to find the real causes for visible problems. One method for making sense of the environment and comprehending its visible events is the concept of organizational culture. The levels of organizational culture (artifacts, espoused values and basic assumptions) can be applied to achieve a better understanding of the behavior of any social system. In this research, my focus was on TQM, but a similar approach could potentially be used for analyzing other management disciplines. In fact, personally I often notice myself doing this type of analysis when encountering various management practices.

In one respect, this thesis is the story of how I have personally grown and become more aware of various aspects of life in social systems. If evaluated from this perspective, this research has had at least a significant contribution to my personal development. I have become increasingly critical towards many management approaches, many of which are directly associated with TQM. This development has certainly not made my work as a quality manager easier, because I often question the value of certain practices, which I'm expected to implement, and which, by conventional wisdom, are useful for the organization. The fact that the output of my work as quality manager does not always aim at directly increasing the technical efficiency of production processes has been difficult to accept. However, many of the practices I am supposed to implement may still be beneficial if they are perceived as a proper way to manage, and in this way they are legitimating role of management and integrating organizational effort towards common goals. This research journey has enabled me to make better sense of my work and role in the organization.

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APPENDIX 1: ANALYSIS OF CUSTOMER SATISFACTION MEASUREMENT SYSTEM

1 Introduction

These two case studies play an important role in demonstrating how to integrate the theoretical framework about the role and impact of TQM and an ideal quality culture. They demonstrate that if the existing organization culture is not compatible with ideal quality culture, quality management approaches are implemented mainly for symbolic gains, and they do not directly increase technical effectiveness. However, as the scope of these case studies is limited to a single management practice, they are included in this research report only as a background material.

2 Objectives for case study and research approach

This case study demonstrates the applicability of the ideal quality culture in understanding practical management problems and provides insight into understanding the reasons for success and problems associated with the implementation of customer satisfaction survey in project-oriented organizations. The intent is not to provide empirically rigorous construction or validate ideal quality culture or hypothesis presented in these studies. Rather, the purpose is to come up with a local "theory-of-a-case", which has practical value for management and can be used to generate action plans. The task of applying research results is left to the management of the organization and may include selecting alternative management practices or suggestions on how to improve the current approach. The latter may include an effort to change the existing organization culture to better support existing practices.

This research is exploratory in nature[193] as the fieldwork and data collection is carried out to gain a deeper understanding of the phenomenon (Yin 1993). The research approach is based primarily on qualitative and interpretative data gathering methods, but it takes advantage of quantitative survey data to initiate discussion in the direct interviews with the members of the case organizations. Although Schein claims that survey based data cannot be used to understand organizational culture in general applications, he approves the use of survey methodology to examine specific cultural assumptions, which have been identified using qualitative methods (Schein 1992:174).

[193] This research was carried out parallel with the creation of cultural framework and identification of TQM basic assumption.

3 Customer satisfaction measurement

3.1 Criteria for selection customer satisfaction measurement

The criteria for selecting quality management practices for the case study were the following: the management practices should be explicitly defined, generally accepted as part of TQM, widely used in the organizations, and have a significant role in the management of TQM based organizations. These criteria would ensure that not only would case study have theoretical interest, but also case organizations would see results useful and take an active role in the research. An action research type of approach was used, which is the most effective when there are known problems which need to be addressed [194]. In both units, there were serious defects in implementing customer surveys. Management was aware of the problems, but there was not a clear understanding of the root cause of the problems. Generally, the potential business value from surveys was not questioned and problems were addressed to inefficient implementation process.

Most managers regarded customer satisfaction to be an important factor to consider when doing business, but they also recognized that there are serious problems in implementing customer satisfaction surveys to measure that information. They were motivated to improve and change the system. The issues with customer satisfaction surveys were similar to those noticed by Dean (1994): "*experienced managers notice that current methods are naïve, but there is no theory to explain how to improve or change approaches*". This deficiency led to situations where improvement focused mainly on the implementation of the survey process and attention was not paid to the underlying reasons for failure. There is additional pressure to improve current practices that stems from the new ISO 9001:2000 based quality management system. This system has a mandatory requirement to determine level of customer satisfaction, demonstrate continuous improvement of satisfaction level, and to use customer related information to improve business processes. This demand forces organizations to develop a detailed evaluation of the existing system and its compatibility with new requirements.

3.2 Customer satisfaction measurement as TQM practice

One of the core issues in customer-orientation is measuring customer satisfaction of an organization's products and services. Customer-orientation is a strategic concept and the central theme in the total quality management discipline. This proactive approach is focused on understanding market changes: "*Customer satisfaction results provide vital information for understanding customers and the marketplace. In many cases, such results and trends provide the most meaningful information, not only on customers' views but also on their marketplace behaviors – repeat business and positive referrals."* (CPE 1999:32)

Customer satisfaction is generally perceived to be the main factor in developing long-term customer relationships. High customer satisfaction positively correlates with customer retention and the price a customer is willing to pay for products and services. Customer satisfaction is a result of the supplier exceeding customer expectations concerning overall product or service delivery. The most successful organizations are

[194] Schein 1992 uses the term clinical research. He differentiates it from action research approach if initiative for research comes from organization, and the objective of the research is to find a practical answer for the problems managers are facing. Using this criterion, this research meets the definition of clinical research.

expected to surprise customers by providing quality above the level of customer expectations, which requires detailed understanding customer needs and expectations. The impact of customer satisfaction on organizational financial performance is well covered[195], but less attention is placed on the impact of customer satisfaction on operational performance. In project deliveries, the customer has an important role in all project stages (sales-design-delivery-commissioning-service) and satisfied customer is more likely to co-operate with supplier.

Customer surveys are one of the most commonly used tools by which to gather information about customer satisfaction, requirements, and future expectations. They provide a generally accepted approach used to meet mandatory requirements of ISO 9001:2000 quality standard and a method by which to monitor and measure customer satisfaction[196]. Similarly, CPE demands approaches, which ensure "*constant sensitivity to changing and emerging customer and market requirements, and the factors that drive customer satisfaction and retention*." Customer satisfaction related information is used in planning and continuous improvement of processes to ensure organizations are able to meet customer requirements and expectations. Customer satisfaction results are reported in category "7.1 Customer focused results."[197], where they have an important role in demonstrating that the organization has been able to fulfill its mission and shared goals.

3.3 Challenges in implementing customer satisfaction surveys

The importance and wide acceptance of this single quality management practice makes it ideal for a case study. We should expect that the organization implementing ideal quality management would be using a customer satisfaction survey as one method to determine the level of customer satisfaction. However, recent studies have identified major problems with effective implementation of customer surveys and the use of survey results to improve business operations[198]. Loomis (1999) presents several problems in customer surveying methodology, especially in industries having only a few customers. Customer satisfaction surveys were developed mainly for companies with large customer bases, which allow the statistical analysis of survey results.

Problems with implementing customer satisfaction surveys are confirmed by my empirical observations when implementing survey methodology in the case

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[195] See for example Rust (1994) for more detailed analysis of causes, measurement, and the impact of customer satisfaction on organizational financial performance.

[196] Sub-clause 8.2.1: "As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined."

[197] Previously (1998) the category was named "Customer Satisfaction Results". This change is intended to include all results that indicate the organization's success in all aspects of the customer's experience. These results include direct measures of satisfaction and dissatisfaction, indirect measures such as loyalty and positive referrals, and measures of product and service performance.

[198] Loomis (1999) notes that "A study by the Juran institute revealed that fewer than 30% of top managers of U.S. corporations believed their customer satisfaction efforts had contributed any economic value". He also refers to a study claiming that about 90% of organizations admitting that customer research is not used in any visible way. Loomis also refers to Michigan Manufacturing Technology Center study concluding that that "less than 10% of organizations are actually using survey finding to make management decisions".

organization[199]. They used customer satisfaction surveys as the main official practice by which to measure customer satisfaction, but most units have been experiencing problems related to reliability and validity of the results. There is a need for improving customer satisfaction measurement methodology, and I have selected the implementation and use of customer surveys as a total quality management practice to be analyzed in the case studies.

3.4 Role and impact of customer satisfaction surveys

The analysis of the role and impact of measuring customer satisfaction is based on how the analysis contributes into ensuring organizational survival. In figure A1-1 potential benefits from customer satisfaction survey are examined along dimension: processes of internal integration or external adaptation, and institutional or technical benefits.

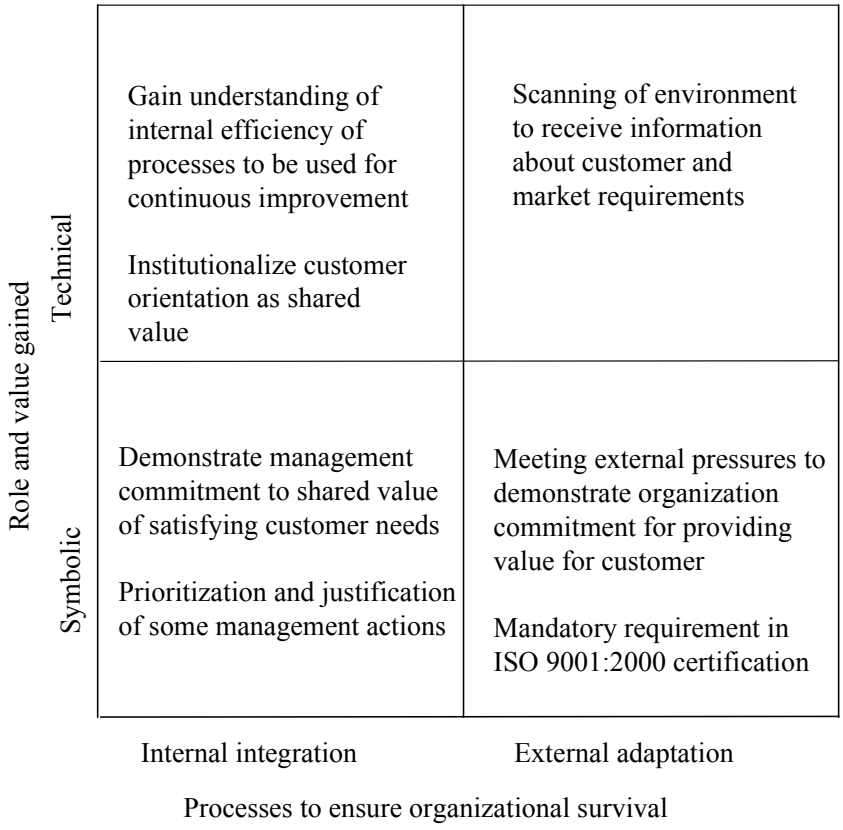

Figure A1-1: Role and impact of customer satisfaction survey methodology

The customer satisfaction survey has symbolic value. Sending a survey to a customer is an indication that an organization is customer-oriented and interested in meeting customer requirements and expectations. It legitimates its actions not only in the eyes of customer but for other stakeholders of the organization (customer-orientation is considered generally as the accepted way of doing business). Internally, surveys are a tool for enhancing customer-orientation by demonstrating that customer satisfaction is important for management. In this role, surveys are used to integrate and align

[199] The problems related to the implementation and use of results from customer satisfaction surveys were continuously brought up in management meetings and by the external auditor of the quality management system.

organizational activities, which will lead to real technical benefits. Survey results can be also used to legitimate management decisions by enabling them to use management rhetoric about how management decisions are guided by shared value of customer-orientation and customer-defined quality. Customer surveys can be claimed to give management information about customer requirements and expectations, and decisions are based on that information. If that is really the case and managers are using survey information, they are additionally providing direct technical benefits by enabling the organization to respond to changing customer and market requirements.

3.5 Basic assumptions inherent in customer satisfaction survey methodology

The implementation of customer surveys is affected by organizational culture. The significance of using customer surveys as a management practice is clearly shown by the fact that the preliminary analysis identified six basic assumptions behind successful customer survey implementation (table A2-1). This set of assumptions provides a basis upon which to make a decision to implement customer surveys, how surveys can be implemented, and ultimately which type of benefits are gained and actions are taken as a result of the of these surveys.

1. Organizations' mission and relationship with environment

- Proactive and passive relationship to environment
- Customer dominating in the supplier chain relationship

2. The nature of reality and truth

- Objective physical reality dominating (customer defines product and service quality, information and knowledge can be generalized)
- Continuous improvement by analyzing objective facts

3. The nature of human nature and relationship

- Basic human nature is good (human behavior is based on rationality)
- Team orientation (inclusion of external stakeholders in the form of partnerships)

3. **The nature of time and space**

- Future orientation, there is time to wait for results (the future can be determined based on the past)

Table A2-1: Basic assumptions supporting implementation and use of customer surveys

The implementation of customer surveys is influenced by several basic assumptions in the ideal quality culture, which are located in all four dimensions of ideal quality culture. The central issue in customer surveys is the validity and reliability of obtained information. The assumption is that objective, valid and reliable information can be collected regarding customer preferences, and a decision making process is in place to take full advantage of that information. Reliability of information is based on rational behavior of human beings and collective goals of customer-supplier based cross-functional teams. The validity issues deals with whether customer surveys provide information, which is usable in the organization.

There are alternative methods for collecting and analyzing customer satisfaction related information, which are not based on assumptions about objective and reliable

information. They are based on more intensive personal relationships such as meetings with customers, interviews, and focus groups. The major problem with these alternative approaches is that they are not fully compatible with an ideal quality culture. According to TQM principles, the organizational decision-making process cannot rely on potentially biased, personal and/or socially constructed reality about customer preferences.

3.6 Formalizing hypothesis

The customer satisfaction survey is based on a set of basic assumptions (table A2-1). The case study research begins with the hypothesis that the success of customer survey methodology in the case organizations depends on the compatibility of these basic assumptions with organizational culture. To analyze and measure the success of customer satisfaction survey methodology, we need to understand factors related to implementation of survey and potential results received from conducting those surveys.

This analysis is broken into four parts, which answer the following questions:

- Why has the organization decided to implement customer satisfaction survey?

- Is it possible to gain valid, useful, and reliable information using survey methodology?

- Does the organization have a decision making process, which can use obtained information?

The answers for these questions are influenced by the existing organizational culture. If survey methodology is compatible with existing organizational culture, it will more likely be accepted as a part of technical core of the organization. On the other hand, if it violates some of the assumptions in the existing organizational culture, it will have only a symbolic role and it will be separated from the technical core of the organization. For managers, it is important to be aware of the role in which new practices will be used and consciously plan the implementation accordingly. For example, if a customer satisfaction survey does not fit into organizational culture but is required to gain external certification, managers should consider how to implement the survey in the most cost-effective manner. In this case, implementation should be also done in such a way that it does not cause any disruption to activities in the technical core or require much effort from customers.

A decision to implement survey methodology

The first steps are to understand the reasons for the survey and then to consider and proceed with the implementation process. At this point, the organization does not necessarily have a good understanding of how the survey methodology can actually work in organization specific context. Basic assumptions having a key role in this phase of the decision making process are “proactive but have a passive relationship with environment” and are “customer dominating in the supplier chain”. These two assumptions create a need to better understand the current level and factors affecting customer satisfaction. The success in the competitive marketplace is assumed to depend on providing customers with products and services, which meet customer requirements and expectations. On the other hand, if organizational culture includes assumptions about the “good nature of humans” and the mission of organizations to provide good products and services for the

customer, it creates a moral obligation to help, and understand customer needs independent of the market situation[200].

If the organizational culture is supportive for the implementation of the customer satisfaction survey, the implementation process will increase the legitimacy of management. Managers are perceived to understand what is important for the organization and to make rational management decisions. An organization may be forced to implement survey to gain legitimacy to operate in the eyes of the external stakeholders independent of the cultural fit of the survey methodology. In this case, an organization has to demonstrate to customers that it is customer-oriented or to stockholders that it has implemented rational and generally accepted management methods.

Proposal 1

The decision to implement survey methodology is positively correlated to which degree organizational culture comply with dimension "An organization's mission and relationship to external environment" in the ideal quality culture. This positive correlation is increased if organizational members share the assumptions that they are morally obligate to provide good products and services to customer.

Proposal 2

An implementation of customer survey methodology increases the legitimacy of the management if it fits into existing cultural assumptions of the organization.

Proposal 3

If organization is externally forced to implement a survey, it will increase its legitimacy to exist and operate in the marketplace.

The validity and reliability of customer satisfaction survey data

After a decision to implement a survey is made, the organization has to create a process for the implementation of a survey. The process has to be tailored to the specific needs of the organization. It includes the creation of survey questions, what criteria is used to select respondents, how surveys are delivered, when and how often surveys are made, and who will get results. The survey process is designed to increase validity and reliability of the obtained information[201] and to control the total costs of implementing a survey. The total cost includes time and resources spent for the survey process in both supplier and customer organizations[202].

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[200] Assumptions about the good nature of human beings and a mission to help customer may sound naïve for most business organizations, but they may have an important role for example in missionary organizations. The major concern with these organizations is that it may not be the will of individual employees to help customers, but that organization and its key stakeholders do not provide resources to meet this target (for example in hospitals there is not enough personnel to take proper care of patients).

[201] The process is not sequential. A management decision to implement survey methodology takes into account problems related to validity and reliability of information prior to implementation. One objective for this research work is to provide better tools for overall evaluation of the new management methodology.

[202] The objective is to optimize the performance of the customer-supplier chain. Total performance includes the cost incurred by both parties in the determination of customer expectations.

The customer satisfaction surveys rely on the perception that the customer defines quality and customer satisfaction measures the level of how well an organization is able to meet customer requirements and expectations. Indirectly, the survey provides information about specific customer needs and requirements because they include questions such as "How satisfied are you with our product feature X and how important is that feature for you?" Additionally, customer satisfaction surveys can include questions related to competitors and produce comparative information about organizational performance relative to main competitors. With regard to customer requirements and expectation, customer surveys are based on assumptions about the nature of reality and truth. The underlying assumption is that customer requirements, expectations and satisfaction levels are real and measurable according to ideal quality culture.

Surveys are answered by human beings, and rational relationships are necessary to guarantee the reliability of the results. Here, the organization is dependent on cultural assumptions of customer organization. Does the customer feel that it has a responsibility to assist the supplier? The perceived reliability of the information is also positively correlated with assumptions that human behavior and relationships are rational.

Proposal 4

The perceived validity of the information obtained using customer satisfaction surveys is positively correlated to which degree the organizational culture complies with dimensions of "Nature of reality and truth" and "Nature of time" in the ideal quality culture.

Proposal 5

The perceived reliability of the information obtained using customer satisfaction survey is positively correlated to which degree the organizational culture complies with the dimension "Nature of human being and relationship" in the ideal quality culture.

Proposal 6

The symbolic value of a customer survey is relatively independent of the reliability and validity of the obtained information. It is negatively correlated only if external or internal stakeholders are familiar with the methodology and they perceive the information to be invalid or unreliable.

Use of information in decision making process

If the organization feels that the future cannot be predicted based on current information, it is not likely to place much effort in planning for the future using information about current or past performance. An environment has to be predictable and continuous for any measurement of past performance to be useful in the planning process. Finally, for a customer survey to have any impact on an organization, the decision making process in the organization has to be based on mainly analyzing objective facts rather than on the intuition and personal opinions of strong leaders. How survey information is actually used in the organization depends on the assumption about whether the future can be predicted and about the nature of decision-making process. Organizational culture should be based on assumptions about "future orientation" and "continuous improvement based on

objective fact" in the ideal quality culture for information gathered using survey methodology to be used effectively in the organizational decision making process.

For example, if an organization has a basic assumption that an effective decision making process in an organization is based on intuitive decision made by senior management, we could expect that fewer resources are spent on the implementation process. Similarly, results from customer surveys are not likely to be used as an input for the decision making process. However, this does not mean that surveys are not useful for the organization. They can still have a valuable role as demonstrating an organization's commitment to quality, legitimating management action, or even contributing technically to the process of internal integration.

Proposal 7

Information gathered using the customer satisfaction survey is used for the decision making process, organizations hold a cultural assumption that the future can be predicted and the decision making process is based on fact based management.

Customer satisfaction survey in project-organization

A set of hypotheses has been created with a specific focus on the role and impact of the customer survey in a project-oriented organization. In the following, the level of non-routines of the system is considered as being the main characteristic of the project-oriented organization. All hypotheses are expected to correlate positively with level of non-routines.

Hypothesis 1

Information obtained using the customer satisfaction survey in a project-oriented organization is perceived generally as being invalid and unreliable. This perception is stronger if information is taken out of project context and used to improve overall effectiveness of an organization.

Hypothesis 2

Information obtained using the customer satisfaction survey has a very limited role in the decision making process in project-oriented organization.

Hypothesis 3

If there are no external pressures to implement customer satisfaction surveys, a project-oriented organization will eventually abandon survey methodology.

This set of hypotheses is directly drawn from the analysis of ideal quality culture in project oriented organization. In practice, they are always moderated by other contextual factors making the validation of these hypotheses difficult. On the other hand, although these hypotheses are drawn from cultural assumptions, the research on the implementation of customer satisfaction surveys and validation of these hypotheses

would be considerably simpler than research on an organizational culture in the general sense. It could focus on a few specific cultural assumptions, which have been identified in this analysis.

3 Selection and background of the case-organizations

An inductive approach was used in case studies. This research approach is based on the selection of case organizations, which are to a certain extent similar to each other. Results from first case are verified in subsequent cases, which are expected to lead into same type of results. Both case organizations were non-routine in nature. The level of non-routines was not studied using objective measures; rather, perceived non-routines were used to get estimation about the level of non-routines. Based on interviews and my personal perception, both case organizations consider themselves to be non-routine systems.

The main criterion for selection of case organizations was the level of non-routines. There are significant differences, such as size and environment (market area), among case organizations. These differences potentially have an impact on the results. In cultural research it is difficult to compare organizations (Denison 1996), and cross-case analysis was not used in this study. The difficulties in cross-case analysis are due to the complex nature of organizational culture and research methods, which require extensive and long-term involvement of the researcher to comprehend organizational culture. There are multiple factors affecting organizational culture, and some factors are likely to be different even in similar type of organizations. The common set of factors, which could be used for comparative analysis, would be too simplified a description of any case unit. Research results from the first case study were confirmed by subsequent cases to increase reliability of the research methodology and the results. In those areas, there are major differences between units; these differences are analyzed in discussion section.

Initially, two units in the corporation were selected for the case study. Both of these units operate in automation business technology segment, and they are project-based organizations. In the following chapter, a short description of history and current status of both case organizations is presented. Those factors, which are significant from the cultural perspective, are emphasized.

3.1 Case organization 1

Valmet Corporation acquired the case unit in 1986, but it was originally founded in 1971 to supply process control and SCADA to the energy industry. Valmet Corporation recognized the opportunity for growth and provided funding to allow the unit to expand its operations through acquisitions and investment in R&D. The parent organization focused on the pulp and paper business, and the case unit was allowed to develop its business relatively independently. In 1990, the introduction of the first Unix-based platform for SCADA systems gave the organization the position of technological leader in the industry. This advance was followed by a sharp increase in business and market share, first in North America and later in international markets. By 1995, the organization was a market leader in the oil and gas industry segment in North America and had a significant market share in major SCADA projects worldwide. In the late 1990s, business growth was modest and technology trends indicated that the size of the market segment might decrease. Currently, the organization is actively looking for opportunities to expand business with existing customers and branch out into other market segments. Key milestones in organization history are presented in table A2-2.

1971	Foundation of the company
1986	Valmet Corporation acquired CDC for technology use in pulp and paper
	Funding to expand operations through R&D and acquisitions
1987	Remote systems were purchased
1988	Tejas Controls was purchased giving access to electrical markets.
1990	Introduction of the first SCADA system based on Unix-platform.
	First system sold to operator of major pipeline from Houston to New York
	Rapid business and market share growth, technology leader in industry
1995	Over 50% market share in North America, Growing international Business
1997	ISO 9001 certification
1998	Introduction of Windows based SCADA system

Table A2-2: Key milestones in the history of case-organization 1

At the moment, the case organization is a market-leader in the development and turnkey supply of real-time automation control and information management systems for the oil and gas industry and also has significant market in the electricity and water utility industry. The major offices are located in Calgary and Houston. This research focused only on the organization located in Calgary. The following summary outlines issues that might have an impact on the current organizational culture:

- Most senior managers have been in the organization since the development of SCADA system. Although the organization is a unit in corporation, these persons have a similar role as founders of a family organization. They have been given a freedom to operate relatively independently from the rest of the organization.
- The organization has grown in a decade to a major player in the oil and gas pipeline automation business. This has been accomplished mainly by the introduction of a new technological platform, which redefined markets and made old technology obsolete.
- The new technology was the key success factor in making the organization a market leader in its market segment. At the moment the organization has more experience than any other competitor this industry segment.
- Current business environments are characterized by quickly changing technology. There are multiple competing technologies, and the success in future depends on the right technological choices.
- The company is defined as a project company, which applies projects as its major business vehicles and therefore has these projects in its production line. Most of the employees work directly in the project teams. The number of customers each year is less than a hundred and these customers have diverse needs and expectations.
- The organization is looking for new potential market segments and ways to operate within these segments.
- The organization has a strong (stated) emphasis on providing value for customers.

The Case-unit did not actively participate in Valmet Corporation's quality management program. The only exposure to the program was a management meeting in Finland, but there was no official request made by the parent company to participate in a training or assessment program. The case-unit received its ISO 9001 certification in 1997. The major reason for certification was anticipated customer requirements and a need to improve internal processes. Quality management system was not perceived as the major competitive factor, and by the late 1990s, resources spent on the improvement of quality management system were reduced to a minimum level. However, the case-unit has maintained ISO 9001 certification and is planning to develop quality management system to meet the requirements of new ISO 9001:2000 quality management standard.

3.2 Case organization 2

The case unit was founded in 1985, when it was separated from a parent company to sell and deliver a custom tailored information system business in the Soviet Union. Since its foundation, the organization has engaged in multiple business sectors and has been able to create a reasonably consistent business volume in a changing market situation. The major change in the market area came in 1991, when the former Soviet Union was restructured and became the Commonwealth of Independent States (CIS) and contiguous countries, which did not join the new alliance (for example Baltic countries). The development in the region in the 1990s led into independent countries, each having its own legislation, bureaucracy and way of conducting business. This changed the business relationships for case unit because they were not only forced to deal with multiple countries, but also had to create a direct relationship with each customer[203]. Fortunately, management had predicted this change; a case unit had started building direct relationships a few years earlier, and it was ready for a new market situation. Since 1991, the organization has integrated new business areas (for example metallurgy and supervisory control and data acquisition systems for oil and gas pipelines), which have produced significant, but fluctuating business volume and revenue for the unit. Key milestones of the unit history are presented in table A2-3.

[203] Business relationships in the era of the Soviet Union were bilateral and all business relationships were managed though a single point of contact with government foreign trade organizations. Actual users of the product generally did not participate in the business meetings.

1985 Foundation of the company, business in information system markets

1988 First process control system was sold and delivered to process industry

1989 Pulp and paper industry segment was added to company, a strong focus on building customer relationships with main paper factories

1990 End of bilateral business between Finland and Soviet Union

1991 Collapse of Soviet Union, markets were redefined, case-units were able to achieve leading position in pulp markets

1994 Metallurgy was added to business segment

1994 SCADA department was founded

Table A2-3: Key milestones in the history of case-organization 2

Currently, the case unit is the leading foreign supplier of the automation system supplier in the pulp and paper business industry segment. The organization is also engaged in oil and gas, chemical, metallurgy, and energy industries. The parent corporate structure divisions are based on divisions according to customer business and products; it has remained the only independent unit operating in all business segments. It has main offices in Helsinki and Tampere, but about 30% of employees are local workers in the Moscow and St. Petersburg offices. The total number of employees is less than fifty, and most of them are working in the pulp and paper business segment. The organization has been able to build deep customer relationships with all major pulp and paper factories in the market area.

A summary of issues that may impact the current organizational culture:

- The case units currently operate multiple automation and information technology business segments including pulp and paper, energy, metallurgy, oil and gas pipeline automation.
- The market situation in the Former Soviet Union has been very unstable. Business volume and the relative size of various business segments have been fluctuating.
- One of the key success factors in these market areas is being able to develop long-term relationships with key customers. These relationships are personal in nature and go beyond business matters.
- The organization is a market leader in the pulp and paper market segment, and it has created an extensive technological knowledge in this business segment.
- The company is defined as a project company, which applies projects as its major business vehicles and therefore has these projects in its production line. The number of significant projects and customers each year is less than 10-20, and these customers have diverse needs and expectations.

The case-unit participated actively in the Valmet Corporation's quality management program. All senior and middle management of the organization participated in training workshops; they conducted internal assessments and presented cases in these workshops. The case unit received ISO 9001 certification in 1995. The major reason for the certification was external pressure from the corporation, but a serious attempt was made to create a technically beneficial system. The size of the organization was rather small,

but it did not accept the quality management system created by other units in the automation business. At the same time, quality award criteria were applied to improve business practices. They were implemented in the form of self-assessment and management meetings that included detailed discussion about the content of the criteria. The monthly management reporting was structured according to quality award criteria, and units also created fact-book describing unit's quality management practices in the form of a quality award application document. Due the small size of the organization, it did not receive the external Valmet assessment before the program was discontinued in 1998. Even since 1998, some reporting practices according to quality award criteria were maintained although fewer resources were spent in the overall development of the quality management system. The case-unit has maintained ISO 9001 certification and is planning to develop a quality management system to meet the requirements of new ISO 9001:2000 quality management standards.

4 Research design

I was working for, or employed by, the case organizations during the research[204], but my direct responsibilities did not include implementing customer surveys. This field role allowed me to become a member of the group while still maintaining some distance and objectivity. I was also able to use multiple data gathering methods including the use of long-term observations. Concerns regarding ethics and confidentiality were addressed as my role as a researcher was explicit and questionnaires and interviews were conducted anonymously. I was given a free access to any information required to conduct this research.

Although multiple data collection methods were used, the preferred method was personal interviews and discussion with key personnel in the case organization. These interviews were supported by the surveys, which were implemented prior to interviews. Survey results were not considered to be reliable on their own, and they were used mainly to facilitate and structure discussion[205]. A short questionnaire containing questions about basic assumptions related to customer satisfaction measurement was created to study whether these assumptions exist in the organization. The interrelationships among various basic assumptions made it difficult to create single questions to measure each dimension. Some survey questions are combinations of assumptions in various dimensions. Answers for each question were provided on a scale of 1 to 10 as shown in the following example:

1. *The success of this organization in the future is perceived to depend upon the following:*

   Responding to existing customer needs *Anticipating new customer needs*

   1 2 3 4 5 6 7 8 9 10

[204] Periods for direct employment were: case 1: 1994-1998, case 2: 1998-2000.

[205] Quantitative surveys in this research serves also in the role of institutional practice. Quantitative data has a significant role in legitimating research approach and enforcing management to comment and participate in a discussion about survey results.

Responses from customers who choose the lower values are, in general, expected to correlate with effective implementation of customer surveys. The complete questionnaire is included in chapter 8. In addition to questions relating to basic assumptions, one question remains about the perception of respondents. The survey includes a question about whether customer surveys have a positive impact on the operations of this company. This question was included mainly to provide the current perception about the effectiveness of this specific practice, which would be one factor in the analysis of the role and benefits of current approach. Additionally, it provided some indication as to whether a focus should be placed on the improvement of current practice or on the introduction of new methodology to measure customer satisfaction[206].

5 Entering the field and data collection

The research approach used is mainly based on intense involvement with case organizations and data gathering is based on observations and interviews. Unlike general cultural research, the objective in this research is to study the role of predefined cultural assumptions in the implementation on specific management practice, which simplified the research approach.

Triangulation, a collection of multiple and complementary data collection methods was used in the study:

- Observations: Action research – preliminary construction and hypotheses were created based on theoretical analysis and direct observations in the organization
- Archives: Customer surveys, analysis of results, any action plans based on results
- Interviews: Multiple investigators to increase creative potential of the study and to enhance confidence in the results. Open-ended questions were used when interviewing within the organization.
- Questionnaires: questionnaires were sent prior to interviews and some individuals were asked to identify themselves for later interviews. These subsequent interviews included deeper level discussions about TQM practice and cultural assumptions.

An important part of this case study is selecting and testing multiple data collection methods to be used in actual case studies. Also, special emphasis was placed on creating methods, which could be easily duplicated and do not necessarily require a deep theoretical knowledge or long-term observations. The ultimate goal, which goes beyond the scope of this report, is to create a practical method for managers and process analysts to be used in organizations.

[206] Past performance is an important factor the implementation of TQM practices, because manager views of ideal quality management for the organization are influenced by the past success of those practices (Benson, Saraph and Schroeder 1991). Those practices, which are perceived as being a failure, will have a negative influence on the implementation of any similar practices in future. In this case, past performance was mainly based on conception, which could have been impacted by numerous factors, including management rhetoric about the success of customer surveys. During the interview, it became evident that employees in case 1 did not know about the actual results from surveys, but they associated survey process directly with the stated value of customer-orientation.

The experience and participation of the researcher in the case company was utilized in both data collection and analysis of the results. Research extends over a long period of time and some activities were carried in parallel, but the main steps in data collection were as follows:

- Observations and preliminary reviews to gain an initial understanding of the problem
- A questionnaire was delivered to selected members of the case organizations
- In dept interviews which were based on mainly open ended questions, but results from the questionnaire were used to initiate discussion
- Reviews of any relevant company material, such as customer satisfaction survey results and actions made based on these survey results
- Research results were jointly used to analyze value which the organization is gaining from customer surveys and what alternative methods should be used if any
- Observation of any decisions the management in the case organization made during and after case study

Some preliminary interviews were conducted prior to the survey. These interviews were completed to gain an initial understanding of the current state of the implementation of customer surveys and to gain knowledge of how feedback from customer surveys has been used constructively in the decision making process. They were useful also to reformulate some research questions and to identify areas in which some clarification for survey respondents should be given.

In this survey, thirty-five copies of the questionnaire were delivered in case 1 and seventeen in case 2. The delivery process included personally delivering the questionnaires and answering any immediate questions regarding the purpose of the survey. Results were anonymous and due to the limited amount of surveys, no demographic data was collected[207]. The analysis of survey results is based on thirty completed surveys in Case 1 and fifteen in Case 2. There was a high response rate, which can be attributed to the method of implementation. Each participant was carefully selected and the questionnaire was personally given to the person along with brief instructions. Participants for this survey were not selected randomly; they were mostly selected as opinion leaders and/or persons with a thorough understanding of how the organization functions. The selection of survey participants was geared toward middle management, but included respondents from all organizational levels.

Research results were analyzed jointly with the case organizations' middle and senior level managers. At this phase, not only was the value of the existing survey methodology being analyzed, but also much of emphasis was placed on identifying alternative methods for obtaining customer related information. A preliminary research report was delivered to both case organizations for any comments, which are included in the discussion section of the final report.

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[207] Some survey respondents expressed a concern that cultural assumptions are significantly different in various departments. From a theory standpoint, this is an important perspective in this research, which is based on assumptions of integrated culture. During the research, I observed some minor differences about cultural assumptions between various departments, but they do not warrant further investigation.

6 Results and recommendations

The research results are qualitative and interpretative in nature. They were collectively formed during my interviews with organizational members, but ultimately all research results are based on my interpretation of the cultural assumptions in the case organization. The quantitative survey data is included in this report, because it can not be considered an independent research finding that has its own value. In the research process these surveys were used mainly as a starting point for discussion, because most employees and managers were reluctant to accept my personal observations and opinions. The rational model of management is based on an analysis of objective information, such as data provided by surveys.

Based on research results, areas for improvement were identified during the interviews. These recommendations on how to improve customer satisfaction methodology are summarized in this chapter. Any actions based on those recommendations have been considered as a research finding.

6.1 Case 1

The organization implemented several types of surveys for gathering customer-related information. They included phone surveys where data was entered for future analysis, but this practice had been tried only once and results had not been used effectively to make any changes in the organization. The project and service department had independent processes to measure customer satisfaction after product or service delivery. The customer satisfaction measurement was not officially part of quality management system, each department had its own survey process, and the analysis of information was not done effectively in business unit level.

Survey results and stated objectives of the organization would indicate that the organization is customer-oriented, having a strong belief that customer is dominating the supplier chain and that the mission of the organization is to make customers successful. The interviews and observations show a slightly different image of the organization. Organizational culture may be not as customer-oriented as claimed but based on the belief that the organization is a technology leader and the most experienced supplier in the market. The success of the organization is believed to depend on anticipating emergent customer needs of which management might not yet be aware. The assumption in the organization about the validity of the survey information to improve future performance may be decreased. Additionally, even thought the customer was perceived as important for business, the focus on development of the operations was to increase internal effectiveness leading to better financial performance as compared to customer success.

There were serious concerns with the objectivity and reliability of the information. Initially, these surveys had an important role in the compensation system, but the focus on performance measurement had shifted to financial measures, because customer satisfaction measurement was not perceived as being reliable for the task. There were also concerns about the external validity of the information when it is taken out of project specific context. However, some project managers expressed concern that it was not very useful for project leadership either, because it usually came too late for any action to be taken in the project. The organization gains some benefit from customer surveys whereby the focus of organizational effort is to provide better customer service. These benefits do not depend on whether customer surveys are providing any useful information' rather, they act as a management tool to demonstrate commitment to customer-orientation.

There is a strong belief in the organization that decision-making processes are based on an individual leader's intuition and opinion. This presumption may be based on the successful history of the organization. The organization was able to achieve the current position as leader in its field of business by wise decision-making by management, which enabled it to develop technology to meet emerging and unforeseen customer and market requirements. The nature of the decision-making process, and an assumption that an organization is now in a situation where future success depends on a change in the organizational direction, decreases the role of customer surveys in organizational decision-making processes.

It supported the fact that they had very little technical impact on the operations of the case organization. Only a few surveys were conducted during the last two years; thus, responses to this question were based on preconceptions or respondents were referring to informal mechanisms to collect customer-related information. The positive attitude about the effectiveness of the survey process demonstrates that surveys are still useful in integrating and providing focus for the organization and demonstrating senior management commitment to customers. For example, survey results were published along with financial results and they were presented in the yearly performance review meetings.

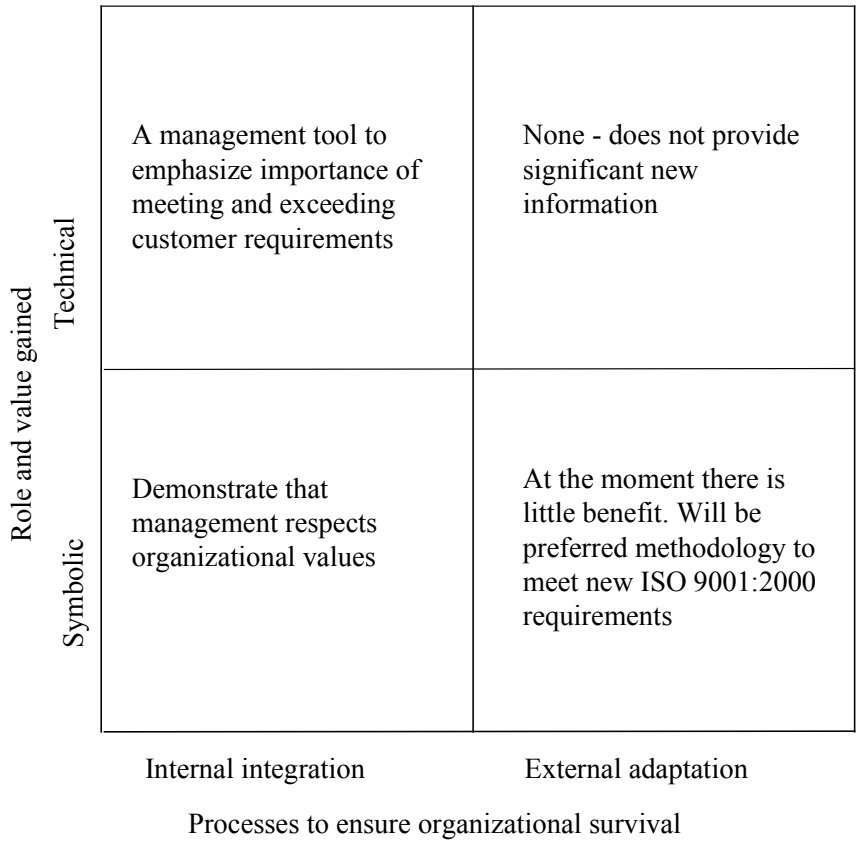


Figure A2-2: Role and benefits of customer satisfaction survey in case 1

The recommendation to the organization is to continue the use of customer surveys even though they are not used in the decision making process. These surveys benefit the organization by focusing efforts on providing effective customer service. Even this perception was decreasing as middle management has noticed that customer satisfaction

related information did not have any influence on management decisions. Additionally, the technical value of survey methodology to focus organizational efforts declined when it was no longer used as one factor in the employee compensation system. Internally, use of customer satisfaction survey still has a symbolic value as a demonstration about management using practices, which support organizations legitimated value of being customer-oriented. Additional benefits come from the organization maintaining an external certification for the ISO 9000 quality management system, which is a mandatory requirement for suppliers in this business segment. Customer satisfaction surveys did not have any technical role in the adaptation to the external environment.

Implementing surveys should be done in such a way that they neither distract the operations of the organization nor provoke concerns that may question the validity of the surveys. The suggested method would include the use of an external or independent internal consultant to organize the process for implementing customer surveys. Focus should be placed upon not assigning too much stress on the customer, who may be receiving similar surveys from multiple suppliers. Permission to conduct the survey should always be obtained from project leadership (sales and project managers) in order to avoid any disruption in sensitive customer relationships. This caution is especially true in situations where cultural differences exist or with those projects where both parties know in advance that satisfaction level is extremely low. When satisfaction levels are low, customer surveys are not adequate methods for gathering reliable information in this type of business and for this organization.

Because there is a strong basic assumption that creating customer satisfaction by meeting customer requirements and expectations is an important competitive factor, there should be alternative methods to gather information to be used in the decision-making process. Some of the practices that are already used in the organization are direct contact with customers or customer focus groups. This type of qualitative and informal practices should be emphasized as a method for collecting customer related information. They would allow management to evaluate reliability of the information and use that information as a basis for the individual decision making process. These types of practices do not fit into ideal quality culture, but they are appropriate for the case organization.

6.2 Case 2

Several types of surveys, including both internal surveys sent by project and sales employees and external surveys conducted by independent consultants, were used to gather information related to customer satisfaction and the organization's position relative to its competitors. The latter objective turned out to be a major setback because customers in the market region did not feel that asking questions related to competitor's performance was proper business practice. External surveys provided some information about the organization's performance, but the technical value of that information did not suggest continuing external surveys. Internally, there was a major effort to implement survey process, but, for example, in year 2000, only four customer satisfaction surveys were completed.

The personal relationships with customers had not changed the assumption that the most significant reason for doing business is to make financial profit, not to help the customer beyond immediate business benefits. Also, the relationship with customers was perceived as balanced, not dominated by the customer. The initial reasons for conducting customer

satisfaction surveys were mainly because of pressure from the corporation. The business managers did not have any immediate reasons for starting surveys, but at that time, it was perceived as a legitimate management practice and the proper thing to do in the organization. The case unit participated actively in the corporate quality program and gave presentations about managing customer relationships in training workshops.

The value of information related to customer satisfaction and expectations is extremely important in the market area, where business decisions are not based on rational comparisons of technical features of products and services. However, this information is often difficult to express, personal and biased in nature, or even confidential. Survey methodology was not an appropriate method for collecting such information, and this information was not perceived to be reliable or valid. Instead, organizations have created close relationships with each major customer. They are go beyond direct business issues and are personal in nature. These close relationships with customers, combined with good technical know-how, were perceived as the key competitive advantage for the organization. Additionally, during the interview it became evident that it was assumed that most information is customer specific and cannot be applied to make general level conclusions.

The decision making process in the organization was decentralized and based on intuitive decisions of business managers. Because of fast changing business environment, innovative management practices and flexibility to respond to changing conditions were the guiding principles in managerial decision making process. The difficulty in predicting the future was expressed in the managing director's statement that "in the market area even forecasting past is impossible", because often even official regulations were changed retrospectively. Customer surveys did not have a role in the organizational decision making process and the overall value and role of them at the moment was non-existent.

The case organization has not gained any technical or symbolic value in implementing customer satisfaction survey methodology during the last year. The case organization is rather small and most employees are aware of difficulties in implementation of customer satisfaction surveys and the validity and reliability of the information obtained when using the customer survey. If management will force this practice to continue, it will decrease its legitimacy.

As the corporate level program for quality management (CPE) has been discontinued, the only external requirement for TQM approach is ISO 9001 certification. All significant units in the division are expected to have a certificate, and it is also a requirement with some customer relationships. However, due the inadequate implementation of customer satisfaction surveys, survey process cannot be used to comply with the requirement to measure customer satisfaction in the ISO 9001:2000 standard. The customer survey methodology has been discontinued[208]. The initiative to change the process was made during the case study as a part of detailed discussions and analysis of the situation with president of the company.

[208] The decision was made in Management meeting, January 2, 2001.

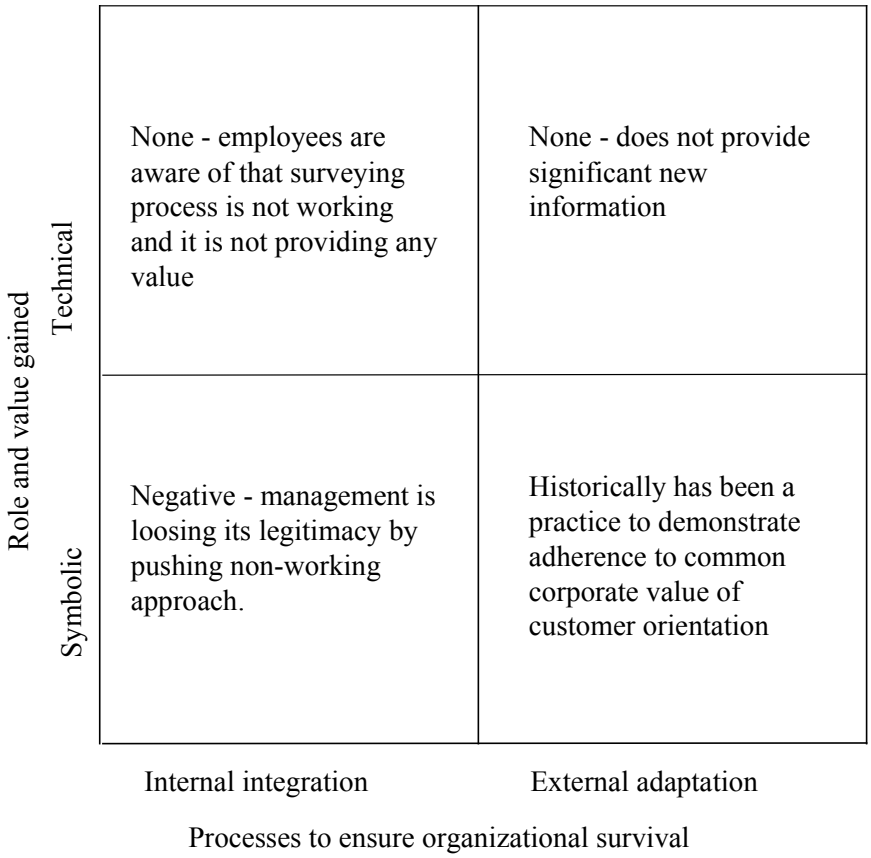


Figure A2-3: Role and benefits of customer satisfaction survey in case 2

An alternative approach based on subjective analysis of customer satisfaction was introduced in a management meeting in fall 2001. In the new approach, the management team evaluates customer satisfaction two times a year based on personal contacts and other available information. The main justifications for the new practice were as follows:

- Alternative practices such as surveys done internally or externally have proved not to work in the market area.
- A formal method for measuring customer satisfaction is a mandatory requirement in new ISO 9001:2000 quality management system (the target is certification by November 2001 according new standard).
- Organizational members have close relationships with key customers, and these personal relationships provide a good basis for evaluation customer satisfaction.
- Using this methodology, each customer is evaluated individually, which more likely leads to customer specific action plans to improve satisfaction.

The new methodology for measuring customer satisfaction has been implemented, but at this point of time it is too early to make conclusions its effectiveness.

7 Discussion and conclusions

The business area for this case study survey was a project-oriented business, which is characterized by relatively few customers who have different needs and requirements. This fact makes the use of a survey type of methodology difficult, because answers are context dependent and reflect only one specific situation. The validity and reliability of the result cannot be increased by statistical analysis, because information cannot be taken out of the context for general level analysis. Neither of the case organizations experienced significant technical benefits from customer satisfaction measurement surveys. These research findings do not support the use of customer surveys to gain technical benefits in project-oriented organizations, but they may provide some symbolic value. Organizational environmental (internal and external) pressures allow organizations to show due diligence in demonstrating customer orientation. From an institutional perspective, the role of the customer survey serves as an adaptation to the environment rather than gaining improved technical effectiveness of the organization.

This empirical part of the case-study research was limited to two case studies of rather similar organizations and one specific management practice. These two case studies are not adequate to validate formal proposals made about implementing customer satisfaction surveys, but they proved to be useful in the analysis of these case studies. None of the findings were contradictory to the proposals, which supports that they are valid within these two cases. Similarly, hypotheses about the use of customer satisfaction survey methodology in project-oriented business are in line with the research findings. Both case organizations were considered as non-routine systems, which would indicate that research finding should correlate with all hypotheses. According to hypothesis 1, information gathered using customer surveys was perceived to be invalid and unreliable in both case organizations. Customer survey information had an insignificant role in organizational decision making process, which is in line with hypothesis 1. After the external pressure to conduct surveys decreased, the case 2 organization abandoned survey methodology, which is similar to hypothesis 3. In the case 1, the survey methodology is still used, but the resources used for the development of the system are rather limited.

An inductive research approach was used in the case studies, which includes the modification of theory until it fits with case data. From this perspective, this research is only about theory generation. The value of the proposed theory in other contexts (different researcher, management practice, and case organization) cannot be evaluated based on this research work.

The research results and especially recommendations for future action were quite different compared to the improvement actions, which had been given previously in the review of the quality management system. These actions, following the standard methodology for continuous improvement, have mainly focused on identifying technical factors prohibiting the effective implementation of the surveys. Redesign of the survey to simplify questions is one example of such an improvement action. This analysis suggests that minor technical improvements or additional resources would not significantly improve the implementation process or use of results in neither case organization.

The recommendations given for the case organizations do not include cultural change. Not only is culture change a difficult process, but even if it would be possible, ideal quality culture would not be applicable for case organizations. The creation of a specific culture by such organizations in an attempt to survive in the organizational environment has proven quite successful. In the case organizations, an attempt to change the organizational culture most likely would fail, because culture is “a pattern of shared basic

assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid." These organizations have survived to create a distinctive organizational culture. This research does not suggest that there are significant changes in the environment requiring cultural change. For example, the attempted cultural change to a fact-based decision making process fails if there is not adequate information available and a fast changing environment forces decision making process based on intuition and soft, tacit information.

8 Survey on basic assumptions about organizational culture

This questionnaire focuses on gaining a better understanding of factors that impact the success of certain quality management practices. The detailed results of this survey are used for academic purposes. Only a summary of the results and conclusions are released for company use. Please answer these questions based on your personal opinion of the current state of the organization rather than its official policy.

1. The success of this organization in the future is perceived to depend upon
   Responding to customer needs — Creating new customer needs

   1 2 3 4 5 6 7 8 9 10

2. How is the bargaining power distributed in the supplier chain of our business?

   Customer dominating — Supplier dominating

   1 2 3 4 5 6 7 8 9 10

3. Is competition in our business based on customer perceived quality?
   Yes, it provides the competitive advantage. — No, other factors dominate.

   1 2 3 4 5 6 7 8 9 10

4. Does our obligation to help the customer go beyond gaining business benefits?
   Yes, it is our moral obligations. — No, business is business.

   1 2 3 4 5 6 7 8 9 10

5. Decisions in this organization are facilitated by:
   Analyzing objective facts — Intuition and opinions of strong leaders

   1 2 3 4 5 6 7 8 9 10

6. Who has the best knowledge of the quality of our product and processes?
   The customer has the best knowledge. — We have the best knowledge.

   1 2 3 4 5 6 7 8 9 10

7. Our customers want us to be successful and they are willing to assist in our prosperity.
   Yes, they want us to succeed. — No, they don't really care.

   1 2 3 4 5 6 7 8 9 10

8. Can we predict and/or develop our future performance based on current performance levels?
   Yes, changes are predictable and continuous. — No, changes are erratic.

   1 2 3 4 5 6 7 8 9 10

9. The information provided by the customer is objective and it is not biased.
   Yes, it is always objective. — No, it is purpose-oriented.

   1 2 3 4 5 6 7 8 9 10

   ****

10. Customer surveys have a positive impact on the operations of this company
    Yes, they are valuable to this organization. — No, they don't have any impact.

    1 2 3 4 5 6 7 8 9 10

APPENDIX 2: TQM CONSTRUCTS

The following list includes a set of TQM constructs, which have been created based on empirical research or literature review and used as a definition of TQM in those studies. In addition, there are multiple studies, which have accepted quality award criteria or ISO 9001 certification as a proxy for TQM.

Ahire, Golhar and Waller (1996): Initial construct is identified based on literature, and it is empirically tested and validated using survey of 371 manufacturing firms.

- Top management commitment
- Supplier quality management, supplier performance
- Customer focus
- Use of statistical process control
- Benchmarking
- Internal quality information usage
- Employee involvement
- Design quality management
- Employee empowerment
- Product quality

Black and Porter (1995): The research extracts a series of items from CPE and established literature, which formed the basis of questionnaire sent to over 200 managers. Data was examined using several analytical techniques to identify 10 critical factors of TQM.

- Corporate quality culture
- Strategic quality management
- Quality improvement measurement system
- People and customer management
- Operational quality planning
- External interface management
- Supplier partnership
- Teamwork structures
- Customer satisfaction orientation
- Communication of improvement information

Dow, Samson, and Fort (1999): The research focus on quality management practices at manufacturing sites and construct is based on 698 surveys to site managers, which are analyzed to identify TQM practices contributing to quality performance.

- Employee commitment
- Shared vision
- Customer focus
- Benchmarking
- Cellular work teams
- Advanced manufacturing technologies
- Close supplier relations

Flynn, Schroeder, and Sakakibara (1994): Focus on the practitioner and empirical literature, which reports on practice in actual use of TQM practices in the U.S. and Japan at plant level. The constructs were assessed for reliability and validity with a sample of 716 respondents at 42 plants in U.S. transportation components, electronics and machinery industries.

- Top management support (leadership, improvement rewards)
- Quality information (process control, feedback)
- Process management (maintenance, cleanliness and organization)
- Product design (product quality, simplicity, inter-functional design process)
- Workforce management (labor skills, selection for team potential, teamwork)
- Supplier involvement (supplier relationships)
- Customer involvement (customer interaction)

Flynn, Schroeder, and Sakakibara (1995). Framework of quality management based on synthesizes of findings from the literature and discussions with managers. The objective of this study was to create a model demonstrating relationship between quality management practices and performance at plant level.

- Process flow management
- Supplier relationships
- Customer relationships
- Top management support
- Work force management
- Work attitudes
- Statistical control and feedback

Grandzol and Gershon (1997): Construct based on review of previous constructs, which was analyzed based on survey responses of 275 senior managers in aerospace, tooling, and engineering industries.

- Leadership
- Continuous improvement
- Employee fulfillment
- Learning
- Process management
- Co-operation
- Customer focus

Hackman and Wageman (1995): A conceptual framework based on review and analysis of the original work of Juran, Deming and Ishikawa.

- Assumptions:
    - Quality is assumed to be less costly than poor workmanship.
    - Employees natural care about the quality of their work and take initiative to improve it.
    - Organizations are systems of interdependent parts.
    - Quality is ultimately top management responsibility.
- Change principles:
    - Quality of products and services: employees need to be trained to assess, analyzed and improve work processes
    - Analysis of variability: uncontrolled variance primary cause of quality problems
    - Management by fact
    - Learning and continuous improvement

TQM interventions:

- Explicit identification and measurement of customer requirements
- Creation of supplier partnerships based on quality
- Use of cross-functional teams
- Use of scientific methods (for example cost-of-quality analysis, pareto analysis)
- Use of process-management heuristics (for example flowcharts, brainstorming)

Saraph, Benson and Schroeder (1989): Initial construct based on the review of the work of Juran, Deming, Garvin, Grosby, Ishikawa, and a selected literature. Operational measures of these factors were developed based on data collected from 162 general managers and quality managers in 89 divisions of 20 companies.

- The role of management leadership and quality policy
- Role of the quality department
- Training
- Products and service design
- Supplier quality management
- Process management
- Quality data and reporting
- Employee relations

Zhang (2000): Construct based on quality gurus, existing literature, and quality award model. Empirical data to study model were based on structure interviews in 10 manufacturing sites in Netherlands.

- Supplier quality management
- Process control and improvement
- Product design
- Quality system improvement
- Leadership
- Vision and mission plan statement
- Evaluation
- Participation
- Education and training
- Customer focus

Kanji and Yui (1997): Study on quality cultures in UK and Japan. The model of TQM used in this study is based on author's own work, but similar to European Quality Award Model.

- Delight the customer (customer satisfaction, internal customers)
- Continuous improvement (continuous improvement cycle, prevention)
- Management by fact (all work is process, measurement)
- People-based management (teamwork, people make quality)

Zeitz, Johannesson and Ritchie (1997): Initial construct of thirteen dimensions based on existing research and which are refined using analysis of survey results from 886 respondents to identify seven TQM dimension.

- Management support
- Employee suggestions
- Use of data
- Supplier relationships
- Supervision
- Improvement
- Customers

Douglas and Judge (2001): Drawing from recent literature, an identification of seven key practices to support TQM philosophy.

- Top management support
- Team involvement
- Adaptation of quality philosophy
- Emphasis on TQM-oriented training
- Focus on the customer
- Continuous improvement of processes
- Management by fact
- Use of TQM methods

Easton and Jarrel (1999): Authors define a list of most important characteristics of TQM in their research on the link between total quality management and corporate financial performance.

- Process concept
- Organization-wide improvement of quality
- Emphasis on customer
- Fact-based decision making
- Employee involvement
- Cross-functional management
- Supplier quality
- Recognition of TQM critical in competitive strategy

Powell (1995): The twelve TQM factors were identified based on existing literature and research by Powell in his study about whether TQM can produce a competitive advantage.

- Committed leadership (long-term commitment of top management)
- Adaptation and communication of TQM (mission statement, slogans, and themes)
- Customer relationships (working closely and cooperatively to meet requirements)
- Supplier relationships (working closely and cooperatively with suppliers)
- Benchmarking (researching and observing best competitive practices)
- Training (TQM principles, team skills, and problem solving)
- Open organization (lean, empowered work teams, horizontal communication)
- Employee empowerment (involvement in design and planning, autonomy)
- Zero-defect mentality (a system to spot defects where they occur)
- Process improvement (reduced waste and cycle time, cross-departmental analysis)
- Measurement (goal orientation, performance measurement, use of statistical methods)

Westphal, Gulati and Shortell (1997): A definition of four basic aspects of TQM based on the work of Anderson, Rungtusanatham, and Schroeder (1994) and Waldman (1994). These basic aspects were used as definition of TQM to study it in hospital environment.

- Customer focus
- Continuous improvement
- Structured problem-solving processes
- Employee empowerment

Zbaracki (1998): Classification of TQM tools into four categories from the least technical (principles) to the most technical (statistical techniques).

- Principles (PDCA-cycle, customer surveys, brainstorming, benchmarking)
- New seven tools (tools used when problem solving requires generating data)
- Seven tools (tools that are used to interpret data)
- Statistical techniques (statistical test and experimental design techniques)

Dean and Bowen (1994): Creation of multilevel framework based on CPE. The core elements of TQM are customer focus, continuous improvement and teamwork, which each are divided into principles, practices and techniques.

- Customer focus: paramount importance of providing service that fulfills customer needs
    - Practices: direct contacts, information collection and use of that information
    - Techniques: customer surveys, focus groups, quality function deployment (QFD)
- Continuous improvement (CI): consistent customer satisfaction requires CI
    - Practices: process analysis, reengineering, problem solving, PDCA-cycle
    - Techniques: flowcharts, pareto analysis, and statistical process control
- Teamwork: CI is best achieved by collaboration (also with external customers)
    - Practices: search for mutually beneficial arrangements, teams, and training
    - Techniques: organizational development and team building methods

Sitkin, Sutcliffe and Schroeder (1994): In their work on TQM from contingency perspective, authors identify of clusters of TQM precepts based on previous research.

- Focusing on customer satisfaction
- Stressing continuous improvement
- Treating organization as a total system

Waldman (1994): An identification of elements key to TQM based on review of existing literature in his study on the contributions of TQM to a theory of work performance.

- Upper management commitment
- A broad definition of quality as meeting customer expectations
- Leadership practices oriented toward TQM values and vision
- The development of quality culture
- Involvement and empowerment of employees
- Management by fact

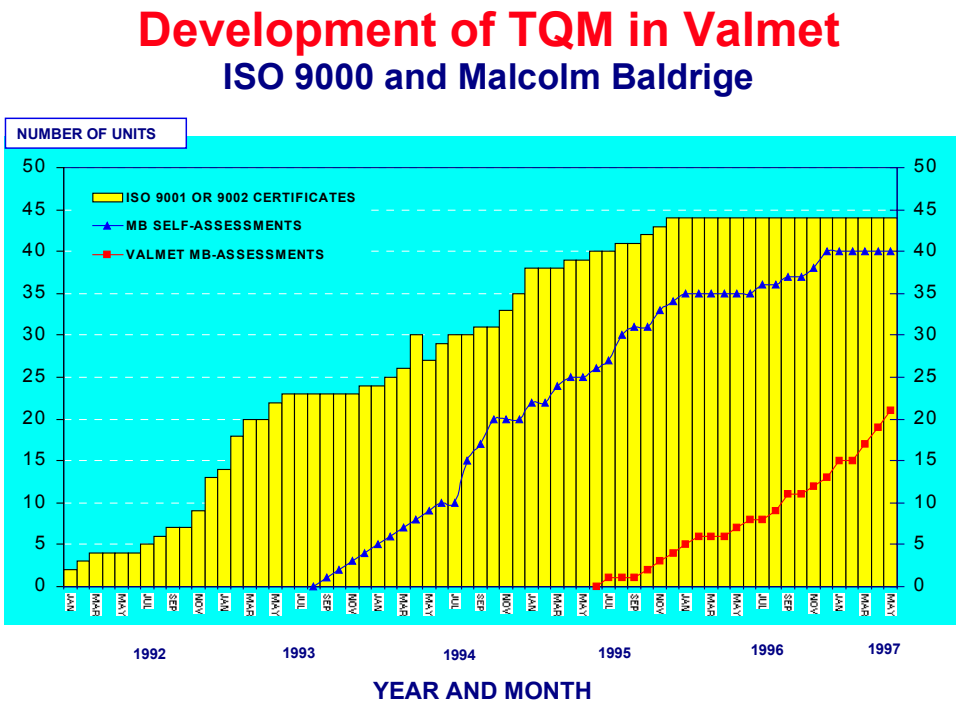
Waldman (1994): An identification of elements key to TQM based on review of existing literature.

- A broad definition of quality as meeting customer expectations with least cost
- Upper management commitment to place quality as a top priority
- This institution of leadership practices oriented toward TQM values and vision
- Orientation towards managing-by-facts, use of scientific problem solving techniques
- Involvement of all organizational members in cooperative, team based improvement
- A prominent role for the quality department
- Attempts to get external suppliers and customer involved in TQM efforts
- Development of quality culture

APPENDIX 3: TQM IMPLEMENTATION PROGRAM IN VALMET

In the following graph, some general measures of TQM program in Valmet Corporation between years 1992-1997 are shown.

VALMET



APPENDIX 4: QUALITY AWARD CRITERIA AS A SYSTEM

"The Baldrige criteria are made up of seven categories, which are further divided into 20 examination items and 30 areas to address. While each of the seven categories is evaluated separately, there are relationships between the seven and together they function as a system" (Brown 1999: 52). The illustration of CPE as a system is given in Figure 4-A. For more detailed information see Blazey (1999) about detailed linkages between categories in the criteria.

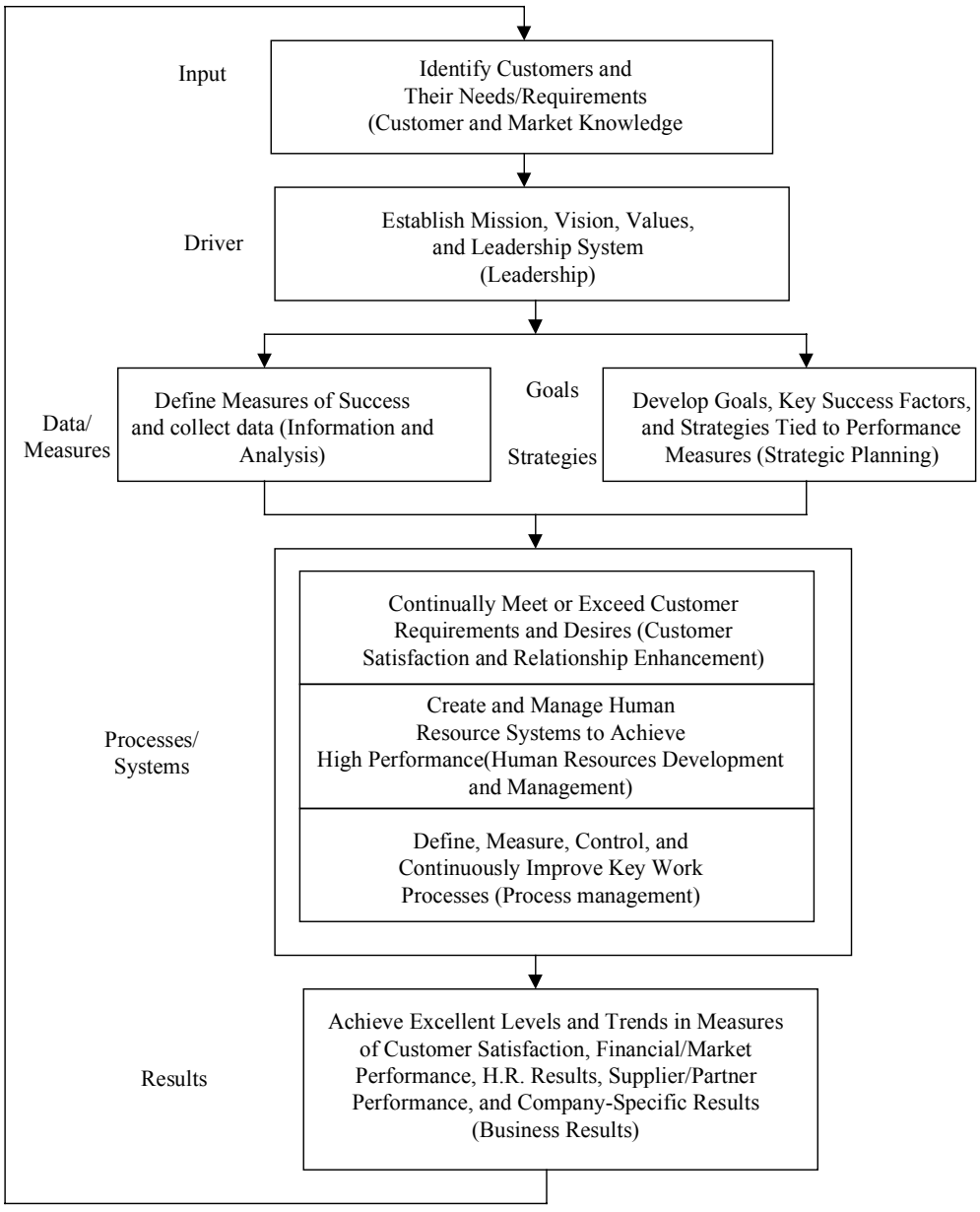


Figure A-4: The Baldrige Criteria as system