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Implementing Quality Culture

Case Wärtsilä Finland Oy – Power Plants

Master's Thesis in
Management and Organization
International Management

VAASA 2007

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Year of Entering the University: 2002
Year of Completing the Thesis: 2007 **Pages:** 102

ABSTRACT

The theoretical part of this case study focuses on concepts of quality and organisational culture. Organisational culture manifests itself as the values and behaviour of individuals. Both of these themes have an increasingly important role inside companies, due to the continuous changes and intense competition in today's business world, putting challenges on organisations to maintain and develop their position in the market. Combining these two theoretical areas – quality and organisational culture, Total Quality Management (TQM) is discussed as a cultural phenomenon inside organisations.

The empirical part of this longitudinal case study researched the implementation of quality culture inside one unit of the case company – Wärtsilä Finland Oy, Power Plants. The implementation of quality culture was studied through the quality management development program used in the organisation: Quality Awareness Campaign (QAC). First, before executing the QAC, the level of values and behaviour, in other words the quality culture of the personnel on an individual and organisational level was surveyed. At the same time the respondents were asked to define quality inside the organisation. Then after the QAC, the level of values and behaviour were measured again to find out if there had been any change in the quality culture.

The study includes both qualitative and quantitative data, collected through the survey questionnaires conducted before and after the QAC. The results of the study showed that the quality culture did not change after the QAC. The responses specified the current experiences of good quality in everyday work and the appreciated values prevalent inside the case company's unit.

KEYWORDS: quality, TQM, organisational culture, values

1. INTRODUCTION

During the last few decades, the business environment has changed enormously and at the same time continuous change has become a permanent phenomenon. Organisational culture and society have changed from an era of industrialisation to one of information. Growing global competition, increases in product range and advanced product and process technologies have changed the terms of succeeding in business operations (Lynch & Cross, 1995: 63).

A company's quality of operations and products has become increasingly important as a crucial competitive factor in today's business world. Through high quality the company can achieve competitive advantages, which enable the growth of its market share and more open competition. The company's efficiency and profitability can be influenced also by developing quality, meaning it decreases the internal and external repair costs caused by poor quality. Therefore, quality is an efficient resort to achieve both customer satisfaction and lower costs at the same time.

As non-stop global competition is increasing continuously, companies are forced to satisfy the expectations and requirements of different consumer groups and customers. Additionally, the need of continuous improvement in quality is highlighted in objectives to lower the internal costs of companies and work dissatisfaction caused by poor quality. These internal and external requirements force the management to commit to quality. The challenge is – how to lead the quality from operational threat to strategic opportunity. Managers are in a significant position because achieving the quality requires cooperation

and the full involvement of all personnel – managing quality is a challenging task.

The concept of quality has changed from the origin of product quality towards the comprehensive concept of management. Nowadays, quality is understood to be the extensive development of companies to accomplish customer satisfaction, profitable business and the maintenance the competitiveness and growth. Companies trying to gain the competitive edge in today's global market place have to realise the importance of raising the quality of goods and services, and the need to implement programs as Total Quality Management (Tata & Prasad, 1998).

To accomplish the business goals every part of the company needs to operate in an excellent and efficient way. Every part of the organisation, function or person is affecting each other. Mistakes are multiplied easily and if some function or division doesn't live up the expectations, it can cause even more mistakes. Therefore, it is important to do it right first time, as correcting mistakes, searching items, clarifying the reasons for being late, repairing, remanufacturing and eventually poor quality burdens the organisation and creates unnecessary operations. The aim of Total Quality Management (TQM) is to eliminate existing problems and to prevent new problems.

The organisations need to change into market-led, innovative and adjustable systems to survive in the global business environment (Alpander & Lee, 1995: 5). The core of organisational culture is the values which become apparent in peoples behaviour (Hofstede 1997: 127; Schein 1987: 3). Organisational culture and the values of the employees are considered vital to organisational performance, but are difficult to come to grips with. Instead, it is more effective to

change behaviour first, and then the desired values and culture are likely to follow (Harrison, 2007).

There is a lot of previous research on quality management and organisational culture as separate topics. Especially in the area of quality, research has long roots and it is mainly focusing on managing quality or Total Quality Management (see Juran 1980; Garvin 1984, 1988; Brocka & Brocka 1992; Oakland 1992). Organisational culture has become a business phenomenon and also a research area starting from early 1980's (Schein 1980; Deal & Kennedy 1982; Gormann 1989; Hofstede 1991). At the same time, one field of research on organisational culture has focused on human values (Posner et al 1985; Wiener 1988; Deshpandé & Webster 1989; Schein 1992, O'Reilly & Chatman 1996) and behaviour (Judson 1991; Kotter & Heskett 1992; O'Reilly & Chatman 1996).

The success in quality management is fully dependent on the predominant organisational culture – there is a clear connection between quality management and organisational culture. Quality management can be seen as a tool on changing organisational culture, in other words – implementing the quality culture in everyday work in an organisation. Several researches have indicated that there is a connection between quality management and organisational culture (Kekäle 1998; Cameron & Barnett 2000). Additionally, according to Kim et al (1995) the organisational culture prevents the creation of quality or the implementation of the methods of total quality management (TQM). Therefore, surveying the organisational culture before implementing the quality management would be essential (Maull et al, 2001).

Even if there is large extent of studies covering the theoretical branch of both quality management and organisational culture, there is not so much research

on combining these two areas together. Mostly the approaches of these research studies concentrate on the formation of quality culture and TQM as a cultural phenomenon (Ghobadian et al 1998; Lundby et al 1999; Svensson & Klefsjö 2000; Kujala 2002; Kujala & Lillrank 2004), awareness of organisational values as implementation of quality policy (Van Donk & Sanders 1993), and cultural transformation in implementing TQM (Deming 1986; Atkinson 1990; Drummond 1992; Silén 1994).

In this study the TQM is studied as a cultural phenomenon, or more particularly – as a quality culture. Additionally, the challenges of implementation of the successful quality management, which require a change in organisational culture to be compatible with quality culture (Kujala & Lillrank, 2004) are discussed. This study is useful for companies, regardless of their size, degree of internationalisation or globalisation, who want to commit improving their business results by surveying, improving and implementing the quality culture inside their organisations.

1.1. Purpose of the study and research problem

The purpose of this study is to analyse the impact of the quality management development program of the case company – Quality Awareness Campaign – on the quality culture, more specifically – on the quality related values and behaviour of employees within Power Plant division of Wärtsilä Finland Oy. Additionally the employees' experience of quality inside the target organisation was explored.

Therefore, the problem of this study is:

- What kind of impact does the quality management development program have on quality related culture - on employees' values and behaviour?

1.2. Defining the key terms

There are defined the few essential key terms used frequently to further the appreciation of this study.

Organisational culture (OC): Organisational culture is a phenomenon which surrounds us dynamically all the time and it consists of three different levels: artefacts, values and basic assumptions (Schein 2004: 1; 1987: 32). The core of the culture is formed by values, which cannot be observed in isolation, but they show in group's members' behaviour.

Values: Schein (1987: 3) states that values are the reason why people act in certain way. As a deepest layer in the culture values are not visible but they are drawn into surface with individual's behaviour and attitudes (Briscoe et al 2004: 117).

Quality: In this study quality is defined as meeting the requirements of the internal and external customers (Crosby 1997: 73).

Total Quality Management (TQM): TQM is a structured attempt to re-focus the organisation's behaviour, planning and working practices towards a culture which is employee driven, problem solving, customer orientated, and open and fear-free.

1.3. Structure of the study

The study is divided into seven chapters. In the introduction chapter the main challenges the companies are facing in the changing business environment in the area of quality and organisational culture are introduced shortly. In the second chapter the theoretical background of organisational culture, with more specific levels of values and behaviour, is presented. Also, there is discussion about managing change in organisational culture.

Next, in third chapter the theoretical part concentrates on quality and quality management. Additionally, Total Quality Management is reviewed as cultural phenomenon and the challenges of implementing the quality culture are explained. In chapter four, the empirical data and methods of the study is introduced and in chapter five the empirical data analysis and results are presented. Finally, the last chapter goes through the conclusions and discusses future research suggestions. The structure of the study is showed in **Figure 1**.

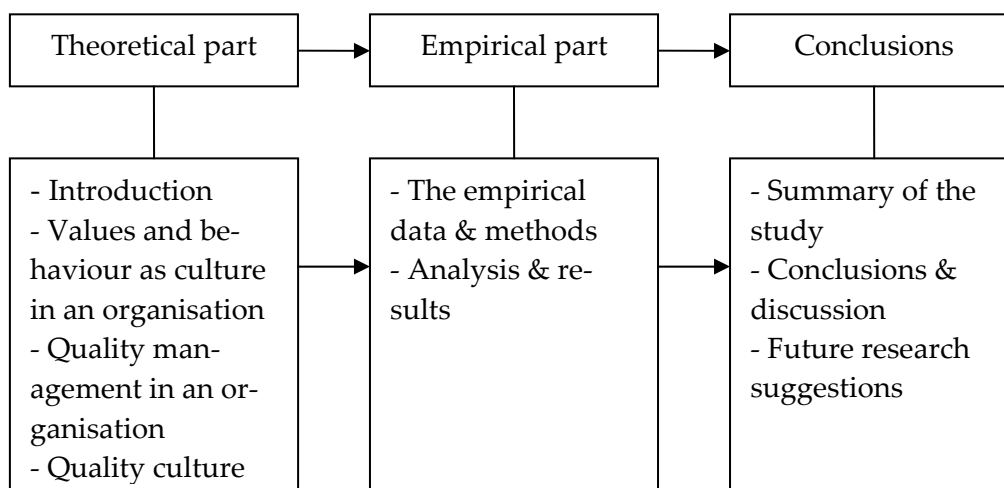


Figure 1. Structure of the study.

2. ORGANISATIONAL CULTURE

In this chapter the characteristics of organisational culture are described. The values and behaviour as levels in the organisational culture are emphasised. Additionally, the subject is deepened to consider challenges faced in changing the culture inside companies.

2.1. Characteristics of organisational culture

In literature organisational culture is defined in several different ways. Hofstede (2005: 3) sees organisational culture as mental software, which includes patterns of thinking, feeling, and acting mental programs. According to Hoeklin (1995: 24-25) the culture is first of all a system of common shared meanings; culture defines to what people pay attention to. The members of the group share similar manners, patterns and models, which enable them to see and understand the same things in a similar way and therefore bond with each other. Secondly, culture is relative as it is not possible to justify that one culture is better than the other. Thirdly, culture is something learnt and it belongs to groups.

Culture can also be seen as a way groups are organised over the years in order to solve the problems and challenges they are facing. Social interaction or significant communication needs a common shared method, which helps the interacting people to deal with the information. Culture is something created by individuals themselves, strengthened by other individuals and transferred to the younger generations. It offers people the appropriate and meaningful context, where they can meet, become aware of themselves and face the outside

world. Culture is a way of communicating, maintaining and developing the individuals' knowledge about their attitudes towards life. Cultures can change if people notice that old methods do not work any more. It is not difficult to change the culture when people are aware of that community's survival or subsistence is threatened. (Tompenaars 1994: 7, 22-26.)

Organisational culture means the basic assumptions and beliefs, which are taken for granted and which work often on an unconscious level, or in other words organisational culture is the way things are done within an organisation. Cartwright and Cooper (1992: 54-56) state that cultural assumptions and notions are socialised into members of organisation. During its existence every organisation develops its own culture. Values are the core of this culture and are affecting the other levels of culture. In managing organisations it is important to identify the values and culture, and their impact on the organisation, as both factors are connected to individual and organisational well-being and motivation. At the same time, they are seen to affect on organisation's performance, rationality, profitability and way of working. (Schein 2004: 19-29.)

As individuals are personalities, so too are organisations. Individuals have relatively enduring and stable characteristics that help to predict their attitudes and behaviours. Organisations, as people, can be characterised as inflexible, friendly, warm, innovative, or conservative. These characteristics can be again used to predict attitudes and behaviours of employees within these organisations. Organisational culture can be defined as systems variable which, despite of being difficult to define or describe precisely, exists and is generally described by employees in common terms. (Robbins 2003: 236-237.)

More precisely, organisational culture is a system of shared meaning, or in other words – a set of key characteristics that the organisation values – held by members that distinguishes the organisation from other organisations. Organisations have cultures that govern how their members behave. Organisational culture is derived from the founder’s philosophy, which influences strongly the criteria of hiring. The actions of the top management set the general climate of what is and is not acceptable behaviour. Employees are socialised to the organisation but how it succeeds depends on the degree of success in matching new employees’ values to those of the organisation in the selection process and top management’s preference for socialisation methods (**Figure 2.**) (Robbins 2003: 246.)

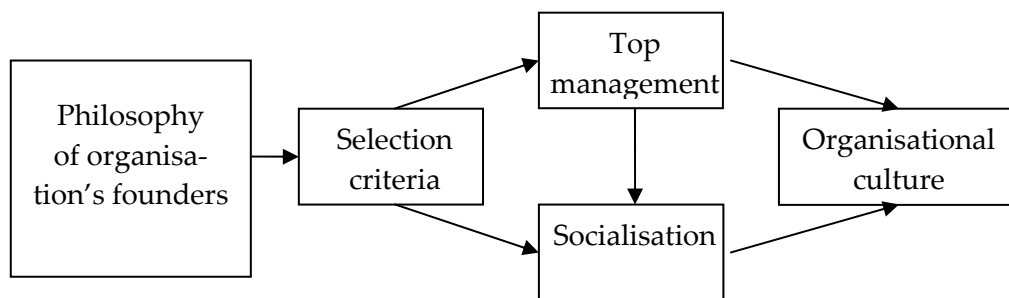


Figure 2. How organisational cultures form (Robbins 2004: 246).

According to Robbins (2003: 236-237) there are seven primary characteristics which, in aggregate, capture the essence of organisation’s culture: innovation and risk taking, attention to detail, outcome orientation, people orientation, team orientation, aggressiveness, and stability. Each of these characteristics exists on a range from low to high. Evaluating the organisation in these seven characteristics gives a composite picture of the organisation’s culture.

In innovative and risk-taking organisational cultures, employees are encouraged to be innovative and take risks. In attention-to-detail cultures, employees are expected to exhibit precision, analysis and attention to detail. Outcome orientation emphasises the degree of management focuses on results or outcomes rather than on the techniques and processes used to achieve those outcomes. In people-orientated cultures, management decisions take into consideration the effect of outcomes on people within the organisation, while in team orientated cultures, work activities are organised around teams rather than individuals. Aggressive organisational culture, typically have aggressive and competitive, rather than easygoing people; and in stable cultures, organisational activities emphasise the maintenance of the status quo rather than growth. (Robbins 2003: 236-237.)

2.2. Levels of culture

It is said that culture is impossible to study as it is difficult to measure and define. An individual can be part of many different cultures – such as families, regions, nations and organisations. Culture is a wide concept which needs to be divided into different levels. Values are the deepest level in the culture; they are not immediately evident but they come to the surface through behaviour and attitudes. (Briscoe et al 2004: 117.)

Cultural differences can manifest in several ways. Hofstede's (2005) concept of symbols, heroes, rituals and values shows rather well how culture becomes evident (**Figure 3**). The symbols are closest to the surface and values, are, on the deepest layer of culture. Between symbols and values are rituals and heroes. Symbols are pictures, objects, words or gestures which have particular meaning only for those sharing the culture. Heroes are persons, real or imaginary, alive

or dead, whose characteristics are highly appreciated in that culture and thereby serving as a models for behaviour.

Rituals work as collective activities, technically unnecessary for reaching desired outcomes, but socially they are considered essential within a culture. Rituals can be found in business or political meetings organised for seemingly rational reasons, often serving mainly ritual purposes, such as reinforcing group cohesion or allowing the leaders to assert themselves. In **Figure 3** all four levels: values, rituals, heroes and symbols, are placed under practices. They are visible to outside observers, but their cultural meaning is invisible and becomes apparent only when interpreted by insiders. (Hofstede 2005: 6-8.)

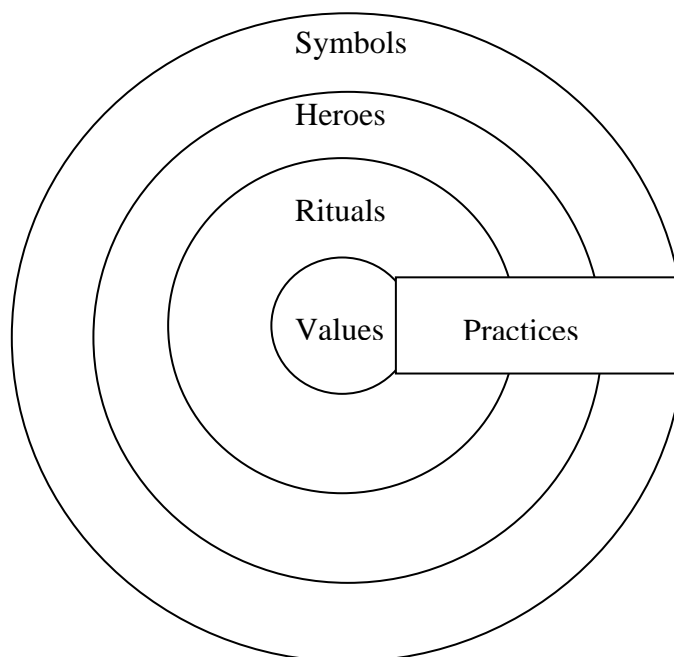


Figure 3. The “Onion”: Manifestations of Culture at Different Levels of Depth (Hofstede 2005: 7).

Also, according to Schein (1992: 16-17), culture can be analysed in different levels (**Figure 4**). He divides culture into three levels, and each of these levels

represents the visibility or authentication of the phenomenon by the observer. Schein also states that part of the reason for the problematic nature of defining culture is the fact that has not been divided into levels in which culture manifests itself.

Under the surface of culture there is the artefact level, which includes all phenomena one can see, hear and feel when one faces a new and foreign culture. Artefacts are such things as language, architecture, technology, emotional expressions, behaviour and visible organisational structures and processes. The main characteristic of this level is clear visibility but difficult of interpretation. (Schein 1992: 16-18.)

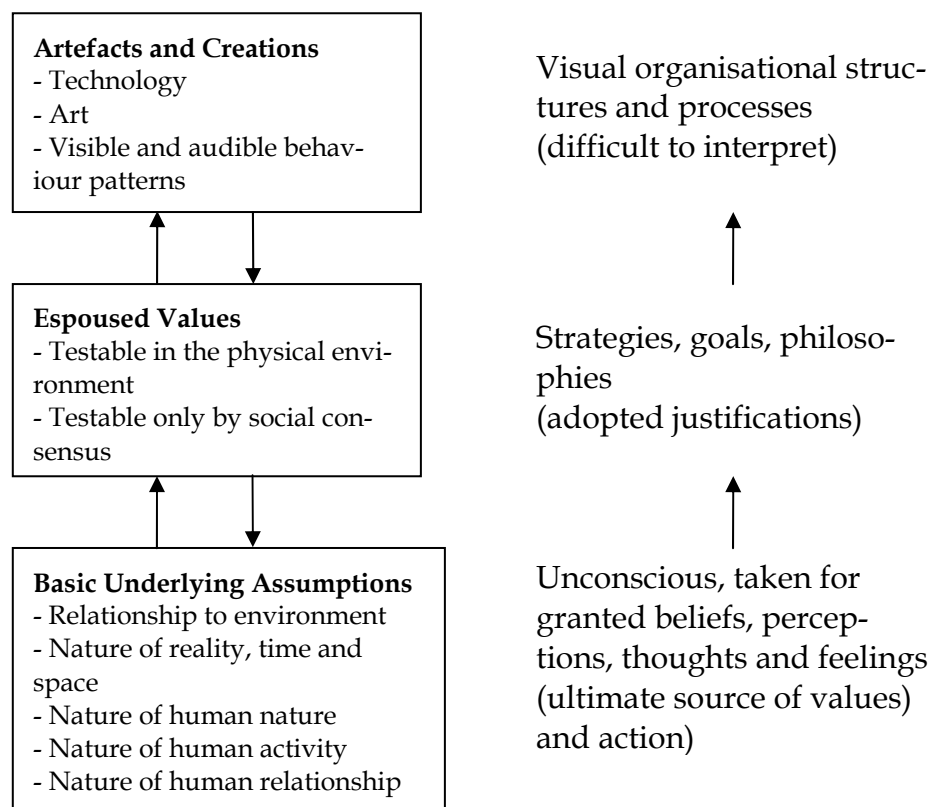


Figure 4. Levels of culture (Schein 1992:17).

Beneath artefacts there are espoused values, which are conscious strategies, goals and philosophies. If the functionality of the values is continuous, the values become shared values in the process called cognitive transformation. In this process the leader convinces the group of people to behave according to his beliefs and if the group experiences those beliefs continuously reliable in different situations, they become the shared values and beliefs. When the way of thinking or operational model works continuously, it becomes an unquestioned assumption which is supported by clear range of beliefs, norms and operational behavioural rules. (Schein 1992: 19-21.)

When a way of action or problem solving is repeated continuously, individuals start to take it as granted. People do not question or be consciously aware of the belief any further. The core of culture is represented by the basic underlying assumptions and values which are difficult to recognise because they exist at a largely unconscious level. Yet, they provide the key to understanding why things happen in particular way. These basic assumptions form around deeper dimensions of human existence as the nature of a person, human relationships and activity, reality and truth. The basic assumptions are difficult to change as they are not faced and they are not argued about because they are considered as absolute truth. Human mind needs the cognitive stability which leads into great anxiety and taking up a defensive position if individual's basic assumptions are challenged. (Schein 1992: 19-24.)

Organisations are made up of people whose values and beliefs undeniably influence their thoughts and actions. In next chapter these values in organisation are explored more specifically.

2.2.1. Values in an organisation

Organisations of companies have histories, which derive from peoples' actions and words, and at the same time express the corporate values and beliefs. During its existence, every organisation develops its own culture. Values are the core of this culture and affect on the other levels of culture. In managing organisations, it is important to identify the values and culture, and their impact on the organisation, as both factors are connected to individual and organisational well-being and motivation. (Davenport & Prusak 1998: 11-12.)

At the same time, values are seen to affect an organisation's performance, rationality, profitability and way of working. They deal with evil versus good, dangerous versus safe, forbidden versus permitted, decent versus indecent, moral versus immoral, abnormal versus normal, irrational versus rational, paradoxical versus logical etc. Values are absorbed early in our lives, during the first ten to twelve years, from the environment, including symbols, heroes, rituals and, most importantly, our basic values. Later on, we start to learn consciously and focus primarily on new practices (see **Figure 5**). ((Hofstede 1997: 127; 2005: 8; Schein 1987: 3; 2004:19-29.)

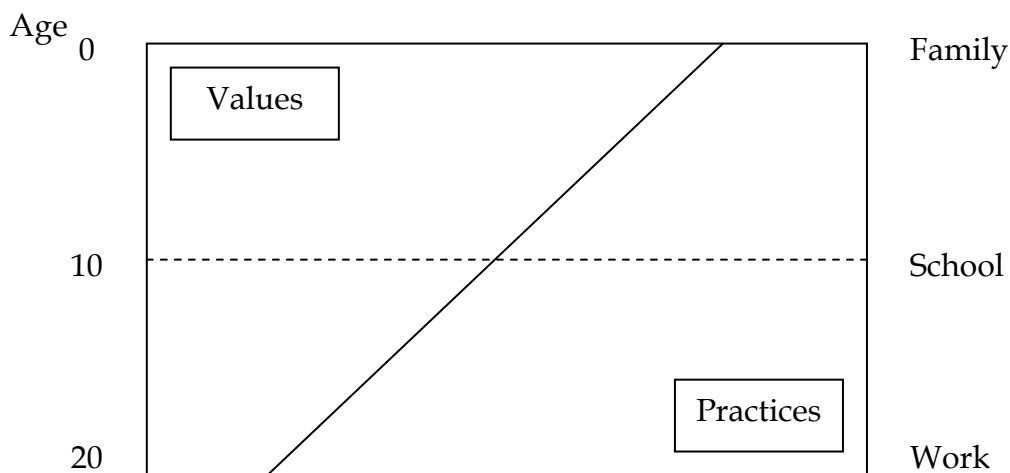


Figure 5. The learning of Values and Practices (Hofstede 2005: 9).

Values affect individuals deeply and they are hidden behind people's behaviour. During its lifetime, every organisation develops its own hierarchy of values. Managers should be aware of the dominating values inside the organisation and they should aspire to change those values if needed. Some of the values of an organisation might be even harmful to the company's future and it is management's task to change them. The organisation's values affect every operation of the company, starting from the manufacturing the product to treating the employees. Companies having shared strong values easily reflect these values in their official organisation. Organisational values and beliefs indicate which issues in organisation are emphasised the most. (Deal & Kennedy 1982: 36-37.)

Implementation of values presumes that individuals know what their role in the work community is and how he or she can implement the values in their own work. The high quality of work or services presumes the strong expertise of employees and leadership skills of the management. The values each function has direct its action and, in case of conflicts, those values overtake the individual values. When values are internalised and are directing the behaviour, the operation is fulfilling a high ethical level.

Organisational values largely set the culture which will drive management and staff behaviour in pursuing an organisation's mission, and achieving high levels of organisational performance for the longer term. The personal values of employees are widely considered to influence their workplace behaviour. Values are the conscious, emotional desires or wants of people that guide their behaviour. Most employees' values are generally consistent with the values of their peers.

Organisational culture usually contains the values, beliefs and customs of the organisation, including the vision shared by employees. The organisational culture largely influences the way most employees consistently behave, 'the way we do things around here', including decision-making, how the organisation competes, how much risk it tolerates, the emphasis placed on ethics and fairness in its transactions and how people treat or evaluate one another's actions and contributions to the organisation. The next section discusses the behaviour of individuals in organisations further.

2.2.2. Behaviour of individuals

Elements of organisational culture include also explicit and implicit expectations of employee behaviour. In a smaller organisations in single location, the behaviour of individuals is much more visible than in larger ones in multiple locations. In these smaller groups, the need for articulated values is reduced, since unacceptable behaviours can be challenged openly. However, for the larger organisation, where desired behaviour is being encouraged by different individuals in different places with different sub-groups, an articulated statement of values can draw an organisation together. Articulated values of an organisation can provide a framework for the collective leadership of an organisation to encourage common norms of behaviour, which will support the achievement of the organisation's goals and mission.

For managers, understanding the behaviour of employees is often challenging, especially in multicultural large organisations. Anyhow, it is good to remember that organisational culture should be treated as an important influence on em-

ployee behaviour; and values become visible through behaviour in everyday work. Also, values have an impact on individuals' attitudes.

In **Figure 6** present the variables affecting individual behaviour. Some of the variables – attitude, motivation and learning – can be influenced more easily by right way of management. Values, personality and abilities are an individuals' personal qualities, which are not easy, though not impossible, to change. (Robbins 2003: 27-29, 251.)

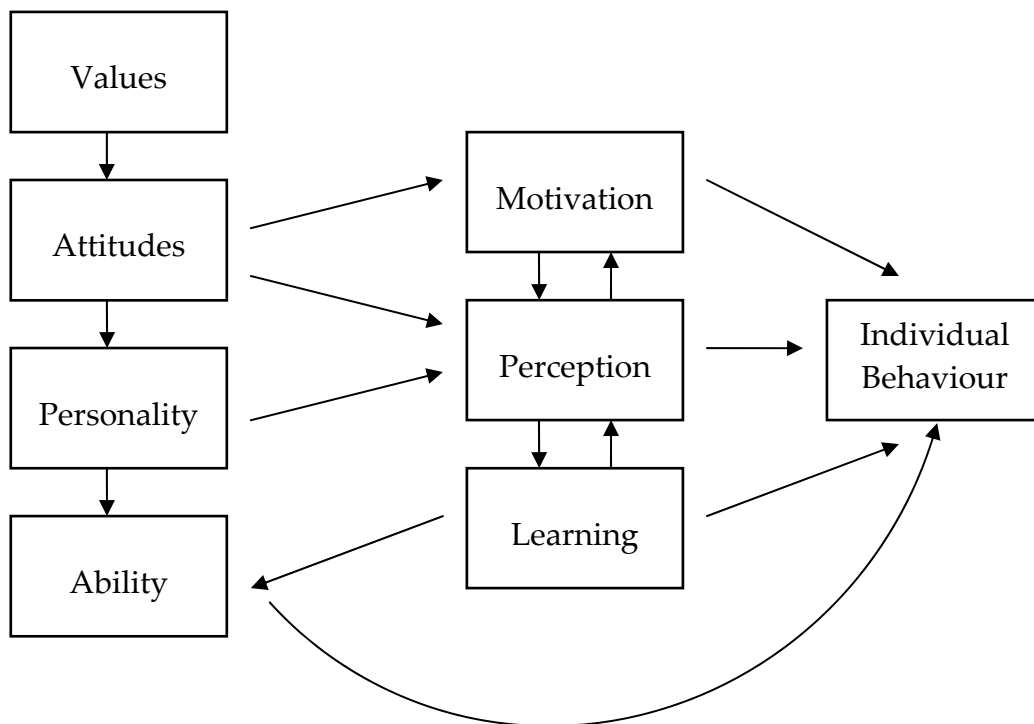


Figure 6. Variables affecting individual behaviour (Robbins 2003: 27–29).

To alter the values and attitudes, and through that to attempt to affect the behaviour of individuals, it would be good to know what are the things individu-

als value in their lives. One way for managers to affect the values and attitudes would be to lead by example. Attitudes strongly influence the behaviour of individuals. Additionally, employees react to perceptions, not to reality. Values can be clear to the employees in organisation but is not a guarantee that they are behaving according to those values. If they are not, then highlighting this fact and reminding about the related issues is necessary.

2.3. Changing organisational culture

Organisations do not form accidentally or spontaneously. The process of culture formation is, in each organisation's case, first a process of creating a small group. Culture makes the day-to-day functioning possible; once the group of people has shared assumptions, it will tend to stick to those assumptions. Hence, organisational culture is very difficult to change unless the one changes the people inside the group. (Frost et al 1991: 14-15.)

Culture is learned and developed through a variety of explicit and implicit mechanisms. Powerful members of organisation try to impose their assumptions as the proposed solutions to problems, and the group selects something to try before the process of learning can operate. The creation and embedding process, therefore, has to be viewed simultaneously as learning and teaching process. At every stage the role of the leader and the group must be understood if one is to make sense of how culture evolves. (Frost et al 1991: 25.)

There is a disagreement about the extent to which values of an organisation's culture can be changed. O'Reilly, Chatman and Caldwell (1991) describe organisational values as stable, when again some researches suggest they can be

changed. For example, Deal and Kennedy (1982) consider that corporate executives must possess and exercise the ability to shape the organisational culture in order to be effective, while Trice and Beyer (1993) are not so convinced about individual's ability to change the organisational culture. (Campbell 2004: 41.)

Values direct all actions and decisions towards the higher goals of individuals. Defining and changing the values towards a concrete operation is a challenging and long process (Suurla 2001: 91). The way to change to the desired behaviours is to change the people, incentives, performance management and organisational structure. It is generally accepted that culture influences behaviour, which in turn affects organisational performance, and in a circular way, culture is in turn affected by behaviour and performance.

Harrison (2007) claims that since culture change is difficult to implement; it is best to change behaviour first because that is easier, and then culture change will follow. Organisations place great importance on culture because of its perceived impact on performance. An example of the importance of culture is the way that culture clashes are a leading cause of merger failures. Poor culture fit is considered the main cause of most large-scale merger disasters, resulting also in lost shareholder value.

According to Harrison (2007) there are three broad levels of change. At the most basic level, organisations can achieve new outcomes without changing the way people work. For example, an organisation may divest non-core assets to focus on the core business. At the next level of complexity, employees may need to adjust their practices or to adopt new ones in line with their existing mind-sets in order to reach a new profitability target.

Thirdly: if the only way an organisation can reach its higher performance goals is to change the way its people behave across the board, it has to achieve cultural change as well. Employees will only alter their mind-sets if they see the point of the change and agree with it. However, management needs to make the effort to change attitudes at the same time as changing behaviour, so that employees can see the reasons for the changed behaviour and agree with those reasons – or at least give them a try. If people's actions are conflicting with their beliefs, they are uncomfortable about the inconsistency and are likely to solve this problem by changing either their attitudes or their behaviour. If the employer expects changed behaviour, it is likely that changes in attitude will fall into line with the employees' desire to align their attitude with the new behaviour. (Harrison, 2007.)

Culture controls the managers more than managers control the culture, because it is done through the automatic filters of perceptions, thoughts and feelings managers' have. Culture is created primarily by leaders, and also embedded and strengthened by them. If culture becomes dysfunctional, leadership is needed to help the group to unlearn some of its cultural assumptions and to learn new assumptions. Such change requires conscious and deliberate destruction of cultural elements, in other words manipulation of the culture, which can be seen as the unique and essential function of leadership. (Jokinen 2004: 70.)

In changing the organisational culture, the reinforcement of new behaviours is essential. The surrounding mechanisms – as reward and recognition systems and performance measurement – must be in tune with the new behaviour. If an organisation's directives for new behaviour are not reinforced, employees are less likely to adopt the new behaviour. For example, if managers are expected to spend more time on training newcomer employees, but such training is not

included in their performance evaluation, they are likely not to bother. (Harrison, 2007.)

Thompson and Luthans (1990: 330) highlight the need for a more systematic approach: "Changing culture in the light of this behaviour-consequence concept involves comprehensive planning and execution. Consistent messages must be conveyed through behavioural interactions and through changes in the employees' environment. Through behavioural actions people communicate ideas and values. People learn more from behaviours than from printed statements and company policies."

In changing organisational culture Deal and Kennedy (1982: 164-167, 189), for instance, support the following actions. Consensus building based on sharing; developing high-trust between individuals; allowing time for people to change; setting the direction but allow the employees to work out the details ('empowerment'); and in another, more direct intervention, providing the training to develop the new skills needed. They see middle management's role changing dramatically, even becoming obsolete. Within an "atomised organisation", managers will be both the bearers of culture as well as its promoters".

2.4. Summary

This chapter introduced the different characteristics of organisational culture. There are several definitions found from the literature for this subject but mainly organisational culture is described as the invisible part existing in organisations - basic assumptions, beliefs, similar manners, shared meanings and values formed by the members of organisations during years. The purpose was

to study also more profoundly, the way that organisational culture is constructed, so more thorough insights to the levels of organisational culture were introduced, dividing the theme into levels of values and behaviour.

Values are the deepest level of culture – they do not show themselves but they are drawn into surface with behaviour and attitudes. Values can become the shared values through cognitive transformation, where the leader convinces the people to behave according to his beliefs. If the group experiences those beliefs to be continuously reliable in different situations, those become the shared values and beliefs. For managers, especially in multicultural organisations, understanding the behaviour of employees is often challenging. Therefore, it is important to remember that values affect individuals deeply and they remain hidden behind people's everyday behaviour.

Additionally, this chapter brought up the subject of changing organisational culture. Organisational culture is difficult to change unless one changes the people inside the group. Especially defining and changing the values is a challenging and long process. Culture controls the managers and managers control the culture, doing it automatically through perceptions, thoughts and feelings they have. Culture can be seen to be created primarily by leaders, and also embedded and strengthened by them. Yet, according to Schein (1992: 42) one cannot understand organisational learning, development and planned change, unless one considers culture as the primary source of resistance to change. Cultural understanding is desirable for everybody, but it is essential for leaders if they are to lead.

Next, the study continues to review the literature of quality, quality management and the implementation of quality culture.

3. QUALITY CULTURE

To be able to manage and develop quality management, at first the meaning of quality should be defined. This chapter introduces the different concepts of quality and how quality can be managed. Additionally, the different approaches to Total Quality Management and implementation of quality culture are presented.

3.1. The concept of quality

Quality can mean very different issues - as goodness or superiority, characteristics, or quality of the activity. It can be seen how the values come true in everyday work – while quality is evaluated one can also evaluate the values in everyday work. Individuals experience the quality in everyday work in very different ways. Quality can also mean the quality of the process or system, or the fundamental philosophy of the whole organisation. According to ISO standard quality means/includes all the features and characteristics of the products or services, which are required to fulfil the set and presumed needs (SFS, 2006).

The term quality is used in different contexts in different ways and the word 'quality' can be used in several concepts. Garvin (1984: 25-43, 1988: 39-48) has studied the quality related researches from four separate viewpoints: philosophical, economical, marketing and operational management. These four different schools approach quality in very different ways: the philosophical school concentrates on conceptual questions of quality, the economical school focuses on maximising the profit and market balance. Meanwhile, marketing is interested in quality as directing the purchase behaviour of individuals and cus-

customer satisfaction, and operational management emphasises the methods of contributing quality and process controlling.

Quality issues are part of everyday reality in today's companies and they are handled widely throughout the company. Quality can be seen, also, as high quality of products or services; the quality of work performance means that the everyday work is done carefully and accurately. Product development and design has to take into account the changing needs of customers; marketing has to foresee customer needs and to react to their feedback. In production, the needs of the customers are turned into the specification, which should be able to be manufactured.

As already stated, quality is often used as to signify "excellence" of a product or service. If we are to define quality in a way which is useful for its management, then we must recognise the need to include in the assessment of quality, the true requirements of the 'customer'. Quality then is simply meeting the requirements and this has been expressed in many ways by several authors:

- 'Fitness of purpose or use' (Juran, 1980).
- 'The totality of features and characteristics of a product or service that bear its ability to satisfy stated or implied needs' by BS4778, 1987 (ISO 8402, 1986).
- 'The total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service in use will meet the expectation by the customer' by Feigenbaum (Oakland 1992: 2-3).

Crosby (1997: 73-83) presented his "4 Absolutes of Quality" as the cornerstones of his approach:

1. Quality is defined as conformance to requirements, not just as goodness
2. Quality is achieved through prevention not appraisal
3. The quality performance standard is "zero defects" and is not defined by Acceptable Quality Level (AQL) which allow and build in acceptable levels of errors and inefficiencies
4. Quality is measured by the price of non-conformance

Crosby spread the word that "Quality is Free". According to him by setting up processes that are designed to prevent errors, by having people trained and motivated to operate them as designed, not only will quality improve, the costs of production will be reduced.

Thus, it is impossible to find one, and only one, definition for quality as quality has many different definitions, which can be seen as correct in their own context. Still, understanding these different approaches help to understand the competing views of quality the personnel has in different functions inside the company. Additionally, it has been discovered that the persons in different levels of an organisation define the quality in different ways. If the competing viewpoints of quality between functions and levels of organisation are not openly admitted, the level of quality will most probably not be improved. (Derrick & O'Brien 1989: 27.)

Lillrank (1990: 49-50) has suggested that the definition of quality which an organisation has chosen, leads the organisation's resolutions and its culture development. The production-centred approach to quality leads to a functional control and regulation organisation, the product-centred approach to an expert organisation and the value-centred approach, into a cost accounting centred

organisation. Thereby, for a manager it is important to consider his own approach to the quality and choose an approach as a general concept to communicate and coordinate co-operation between different functions. Additionally, it is important to segregate the quality into strategic dimensions to be able to set the numeric goals for quality so that companies can examine quality as a strategic variable. This subject is examined in the following section.

3.2. The strategic dimensions of quality

To develop the quality strategy, quality should be divided into different dimensions or quality variables. Management is required to analyse the quality dimensions systematically, to have the capability to choose those factors which give the company the possibility to provide higher quality than the competitors. Garvin (1988: 49-50) has stated that quality consists of the following eight dimensions: performance, features, reliability, conformance, durability, aesthetics, serviceability and perceived quality.

Performance is mainly concerned with a product's primary operating characteristics. Therefore, the elements that make up performance form the preliminary set of design criteria. Features are objective and measurable attributes, usually secondary aspects of performance that supplement the basic functions of performance and individual needs. Reliability reflects the probability of a product malfunctioning or failing within a specific time period, and conformance indicates the defect rates or the degree to which a product's design and operating characteristics meet established standards. (Garvin 1988: 50-55.)

Durability is a measure of product life and it has both economic and technical dimensions, while serviceability means the consumer perception of the speed, competence and ease of repair of a product as well as courtesy. The final two quality dimensions are the most subjective. Aesthetics – how a product looks, feels, sounds, tastes or smells – is clearly an individual preference or personal judgment and a reflection of individual preferences. Perceived Quality again is indirect and very critical; usually as an assumption about quality rather than reality itself, it's derived from various tangible and intangible aspects of a product. (Garvin 1988: 55-60.)

According to Garvin these quality dimensions vary for different products and different companies. Most of the variables are related to the features of the product; others reflect the individual preferences. Some of them are timeless and objective when others vary according to trends. Different dimensions of quality are in interaction with each other. Sometimes, the progress in one dimension is reached only at the other dimension's expense. Occasionally, two dimensions, for example reliability and conformance, may change side by side. It is necessary to make the selection between the dimensions as each one of them makes demands to resources of the company. (Garvin 1998: 49-50.)

With the above quality concepts and dimensions, the management should be able to create a coherent definition and idiom of quality the company and its employees. The management of the company should create an extensive quality definition for the organisation and balance the variations between different approaches towards the quality as the differing explications leads easily into collisions and unclarity. Additionally, management should find out the quality concept of the product, service or process inside the organisation, as measuring quality and competing with it requires understanding how this quality concept

is determined. A proper framework for quality management must include a profound understanding of dimensions of quality. This brings us towards the deeper subject – how the quality should be managed, which is discussed in the next chapter.

3.3. Quality Management

For an organisation to be truly effective, every single part of it must work properly together. Every part, every activity, every person in a company affects, and is, in turn, affected by others. Errors have a way of multiplying and failure to meet the requirements in one part or area creates problems elsewhere; leading to yet more errors, yet more problems and so on. From time to time everyone is experiencing problems in working life. This causes people to spend a large part of their life on useless activities, correcting errors, looking for things, finding out why things are late, checking suspect information, reworking, and apologizing to customers for mistakes poor quality and lateness. Therefore, the benefits of getting it right first time everywhere are enormous. (Oakland 1992: 12-13.)

Quality management is a way to continuously improve performance at every level of operation, in every functional area of an organisation using all available human and capital resources. It combines fundamental management techniques, existing and innovative improvement efforts, and specialised technical skills in a structure focused on continuously improving all processes. Quality management can be seen both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organisation, all the processes within the organisation, and the degree to which present and future needs of the customers are met. (Oakland 1992: 3-4.)

Oakland (1992: 7) states that as employees are the greatest resource in business, managing people demands a lifetime of observation, experimentation, action and reflection. Quality management means empowering employees, but it also empowers the manager. There is no room for managers who manage by directive, attendance, standard operating plan or other means of management by power or fear. Even if the goal of quality management is continuous improvement, the threshold of employee motivation and empowerment must be passed first.

Oakland (1992) is claiming that quality management program must require dedication, commitment and participation from the top leadership. Also it should sustain a culture committed to continuous improvement, satisfying customer needs and expectations, and involving every individual in improving his/her own work processes. Additionally, quality management should create teamwork and constructive working relationships, recognise people as the most important resource and employ the best available management practices, techniques and tools.

This is illustrated in **Figure 7**, where quality management starts with strategic vision which is transformed by management dynamics, the prism, into component colours, the tools and methods needed at implementing this vision.

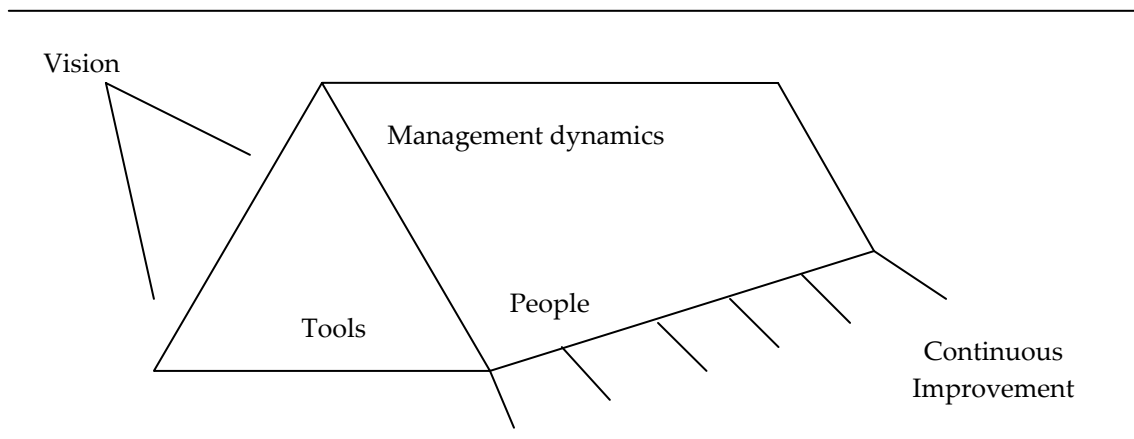


Figure 7. Quality Management Prism (Oakland 1992: 8).

As a quality philosophy, quality management has the primary elements which can be gathered under the following marrow (Brocka & Brocka 1992):

- | | |
|--------------------------|----------------------------------|
| 1. Organisational vision | 5. Continuous improvement |
| 2. Barrier removal | 6. Customer/vendor relationships |
| 3. Communication | 7. Empowering the worker |
| 4. Continuous evaluation | 8. Training |

As organisations progress, training, barrier removal and communication can be used to empower the worker. Continuous improvement and continuous evaluation can be combined into continuous analysis. These elements frame the strategic portion of the quality pyramid, introduced in **Figure 8**.

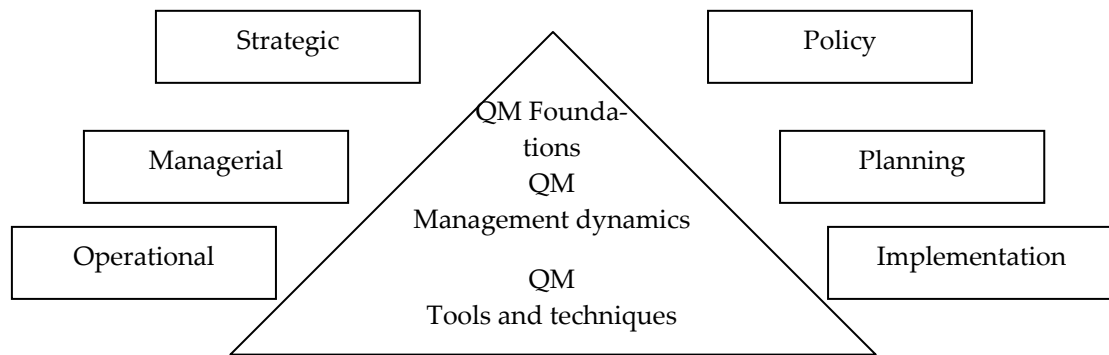


Figure 8. Quality Management Pyramid (Brocka & Brocka 1992: 23).

Organisational vision provides the framework that guidelines a firm's beliefs and values. Still, simply stating a vision is not enough as it needs to be demonstrated by the continuous actions and initiatives of executives, managers, supervisors, foremen and individuals. The idea of continuous improvement leads to continuous change which must be considered in the implementation of Total Quality Management, which is examined in the next section.

3.3.1. Total Quality Management (TQM)

One major stream of quality management related research involves attempts to develop generally accepted definition of Total Quality Management (TQM). To create a conceptual foundation of quality management, the most significant practices of TQM are attempted to identify through increasing number of empirically grounded studies (Grandzol & Gershon, 1997; Zhang, 2000). Also, there are some theoretical analyses that create the conceptual foundation to

quality management; however, both of the types of these studies – empirical and theoretical – have not been able to create one generally accepted definition of TQM (Kujala & Lillrank, 2004: 44). As a consequence, many studies of quality management related issues begin with author's own definition of TQM (Zhang, 2000; Douglas & Judge, 2001; Gustaffson, Nilsson & Johnsson, 2003). Below a few different definitions of Total Quality Management are introduced.

As mentioned above, from empirical point of view, the main emphasis inside each company implementing TQM seems to be on defining the TQM more or less in their own way. Therefore, in many companies TQM is based on two major frameworks: 1) the ISO 9001 family of quality standards, and 2) quality award criteria. The most extensive methods of approaching TQM discipline are quality awards like Malcolm Baldrige National Quality Award and the European Quality Award. Nowadays, the developments of ISO 9000 quality management standards are consistent with the philosophy and practices of quality awards, being previously having limited approach to TQM as ensuring mainly quality of sales-delivery process. Studies point out that Total Quality Management reached an integrated set of commonly accepted practices as an outcome of the wide acceptance of these two frameworks. (Kujala et al., 2004: 44-45.)

TQM has been one of the most influential methods used in managing business processes over the last 30 years. It has been incorporated as a vital component, in the management systems of some of the world's most successful enterprises. In reality TQM is prevailing management concept aimed at achieving business excellence. Ghobadian and Gallar (1998: 9-10) define TQM as a structured attempt to re-focus the organisation's behaviour, planning and working practices towards a culture which is employee driven, problem solving, customer orientated, and open and fear-free. Additionally, the organisation's business prac-

tices are based on seeking continuous improvement, devolution of decision making, removal of functional barriers, elimination of sources of error, team working and fact-based decision making.

The generally accepted core of Total Quality management (TQM) is that it requires an organisation to actively and continually define and redefine quality in terms that the customer sets. A typical framework of companies' TQM relies on the four principles of customer focus, continuous improvement, employee involvement and innovative leadership. This framework requires enhanced quality on all organizational levels and a belief that there is always room for improvement (Chandra, 1993). However, the way the process of continuous change and improvement are accomplished may vary from one organisation to another. (Dellana & Hauser, 1999: 11.)

Total Quality Management can be seen as a philosophy of management that is driven by the constant attainment of customer satisfaction through the continuous improvement of all organisational processes. First of all, TQM has an intense focus on customers – internal and external. Secondly, there is a concern for the continuous improvement; quality can always be improved. Thirdly, improvement covers quality in every area of the organisation; fourth, accurate measurement of every critical performance variable in the organisation's operation is very important. And fifth, TQM involves the people on the line in improvement process by empowering employees. TQM is affecting also organisational behaviour as it requires employees to rethink what they do and become more involved in workplace decisions. (Robbins 2003: 6-7.)

Total Quality Management (TQM) is an approach to improving the effectiveness and flexibility of business as whole. Also, it can be seen as a way of organ-

ising and involving the whole organisation – every department, every activity, every single person at every level. In a truly effective organisation each part of it must work properly together, recognising that every person and every activity affects and in turn is affected by others. TQM is also a method to relieve people's lives of wasted effort by improving the effectiveness of work so that results are achieved in less time. The methods and techniques of TQM are equally useful in finance, marketing, sales, development, manufacturing, personnel – in every one of a company's activities. (Oakland 1992: 14–15.)

As introduced in this chapter, TQM is a complex notion and can be seen from different angles, which is important to be aware of when studying this issue more deeply. Still, in addition to pointing out the formation of Total Quality Management in this study, there is a need to point out also the different approach to TQM. Therefore, the next section discusses TQM as a cultural phenomenon.

3.3.2. Total Quality Management (TQM) – a cultural phenomenon

Kujala (2002: 38) is suggesting that Total Quality Management can be studied as a cultural phenomenon, as the concept of organisational culture matches the complexity and multiple levels of TQM. The framework of organisational culture used as a basis for TQM as a cultural phenomenon is resting on Schein's (1987) cultural research paradigm. This framework sees that culture manifests itself in the form of practices or espoused values, but its essence is a coherent set of basic assumptions or beliefs concerning how the world behaves. The organisational culture values and behaviour was researched in this study in chapter 2.

In general, research on TQM from a cultural perspective can be divided into two wide categories: 1) studies focusing mainly on TQM values, principles, and norms, and 2) focusing on the basic assumptions of TQM. The first category is taking values, principles and norms as the starting point for research and is based on the assumptions that they can and should be controlled. The second category focuses on implicit assumptions on the nature of human beings, reality, human relationships and external environment in which TQM values, principles and norms are based upon. The cultural framework of TQM and related model of organisational culture is introduced below in **Table 1**. (Kujala et al, 2004: 46.)

Levels of organisational culture	Conceptual model of TQM (example based on customer satisfaction survey)
1. Artefacts <ul style="list-style-type: none"> • Visible organisational structures and processes 	1. Management practices and approaches (Management practices, guidelines, procedures, organisational structures, and processes) <ul style="list-style-type: none"> • Customer satisfaction surveys , for example
	2. Management areas <ul style="list-style-type: none"> • Customer and market knowledge
2. Espoused values <ul style="list-style-type: none"> • Strategies • Goals • Philosophies 	3. Core values <ul style="list-style-type: none"> • Customer orientation • Fact-based management (Decisions can be based on survey information)
3. Basic underlying assumptions <ul style="list-style-type: none"> • Unconscious, taken-for-granted beliefs • Perceptions • Thoughts and feelings 	4. Basic assumptions <ul style="list-style-type: none"> • The customer is the most important stakeholder in ensuring organisational survival or an organisation has a moral duty to help the customer • Physical reality is dominant and can be measured

Table 1. Levels of organisational culture and framework of TQM. Modified from Kujala et al (2004: 47).

The above framework is based on Schein (1992) and it gives a structure by which to study the principles, values, and the management practices associated with ideal quality management. Artefacts are the most visible level of organisational culture. Organisational structure, policies, procedures, and other elements that are apparent to an external observer belong to this level. The second level includes the espoused values, or explicitly articulated core values, which can be revealed to the external observer. The basic assumptions form the most comprehensive level of organisational culture and they form the basis of how organisational members see their environment and determine their course of action in specific situations. (Kujala et al 2004: 47.)

Understanding the TQM as a cultural phenomenon forms the basis to success in implementing Total Quality Management in organisation. The next chapter discusses the challenges in implementing TQM as quality culture.

3.4. Implementing quality culture

In practice, the implementation of a successful quality management program requires the organisational culture to be compatible with quality culture. Theoretical analysis and development of the Total Quality Management discipline should focus on understanding the consequences of some superficial assumptions inherent in the discipline, and implementation problems that arise from a mismatch between quality culture and organisational culture. TQM programs require a fundamental change in the way in which organisational members work together to meet customer requirements. The changes cannot be analysed by focusing on visible technical interventions, but by gaining a comprehensive

understanding of the underlying cultural values and behaviour that supports or hinders those interventions (Kujala et al, 2004: 43, 45).

As there is not a single definitive formula for the implementation of TQM there is not either a single formula to implement the quality culture. The implementation process is, nevertheless, important. It can be seen that implementation of TQM and through that quality culture requires detailed attention and planning (Ghobadian et al 1998: 19). The concept of TQM is usually described as a form of “management philosophy” based on number of core values. Today, the quality is emphasised corporate wise, applied to all business functions and employees and TQM is therefore much more than core values. (Svensson & Klefsjö, 2000.)

A major thrust of TQM is to have quality department spending more time helping to prevent, rather than inspecting or correcting, errors. Then, resources can be reorganised from fire fighting activities and the organisational culture can gradually change to reflect the error-free-work method of operation. The preliminary stages of understanding and commitment are vital steps, which also form the foundation of the whole TQM structure. Oakland (1992) states that organisations are often ignoring these phases of Total Quality Management, introduced in **Figure 9**, believing they have the right attitude and awareness, when at the same time there are some essential gaps in their quality implementation.

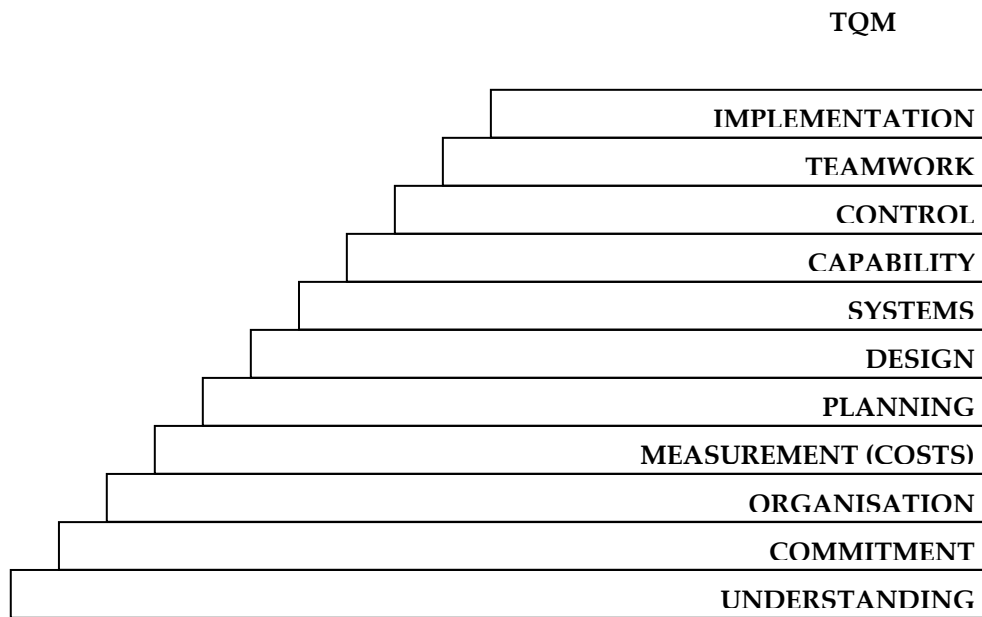


Figure 9. The steps of TQM (Oakland 1992: 290).

There must be a clear allocation of responsibilities within the management structure. It is generally accepted that the primary operational responsibility for ensuring that the quality chain does not break must rest on with the line management. Particularly, there are two key areas which require attention: senior executive level and first-line supervision level. On senior executive level, quality must be treated like any other major managerial function, with a clear line of responsibility and command running up to an individual accountable at the top of the organisation. (Oakland 1992: 29.)

The first-line supervision level is other critical level as the supervisor who is “one the spot” and in a position to know whether the supplier/customer interfaces are working satisfactorily in practice. The promotion of quality is a foremost matter of efficient management. The first level supervision has the following responsibilities: instruct subordinates in the appropriate methods and procedures, inform them of likely causes of errors or defects and the preventive

methods necessary, supervise the arrangement of such methods and instructions in the quality system and initiate any steps necessary to improve methods, equipment, materials, conditions, in the work area for which he/she is responsible. (Oakland 1992: 29-30.)

Anyhow, real progress in quality is impossible without the full cooperation and commitment of all employees. If they are to accept the full share of responsibility, they must be able to participate fully in making and monitoring of arrangements for achieving the requirements at their work place. In some organisations this is assisted by arrangements where all of the employees in a particular unit meet periodically for discussions about quality – sometimes called “quality circles”. (Oakland1992: 29-30.)

The feeling of responsibility must be engendered in all employees, so that they follow the agreed written procedures, use of the correct materials and equipment and as instructed, draw attention to existing or potential quality problems and report all errors, defects and waste. Additionally, employees should become committed to suggest ways in which risks of errors or quality problems could be reduced and assist in the training of new entrants and young people particularly by setting a good example. (Oakland 1992: 236-238.)

When studying the Total Quality Management from a cultural perspective, it is important to focus on understanding the role of organisational culture plays in the TQM implementation process. Organisational culture can be observed as a major variance-causing factor in TQM implementation programs and it can hinder or support the success of such a program. The essence of Total Quality Management is cultural change and TQM practices can be seen as tools for this change. Kujala (2002: 39) states that one can make the conclusion that manage-

ment is capable of changing and creating a culture for successful TQM implementation and that this change is beneficial for the organisation. This of course means that if an organisation wants to adopt TQM as guiding principle, it must begin with the management's effort to make the culture supportive. Kekäle (1998) suggests that first of all, management should choose the approach that fits to the existing organisational culture, or, secondly, they can systematically manage a cultural change.

3.5. Summary

To get more thorough insights to the levels of organisational culture, the theme was divided into levels of values and behaviour. For managers, especially in multicultural organisations, understanding the behaviour of employees is often challenging. Therefore, it is important to remember that values affect individuals deeply and they are hidden behind people's every day behaviour. The organisational culture influences behaviour, which in turn affects organisational performance; and in a circular way, culture is in turn affected by behaviour and performance.

In chapter 3.2.2 was introduced Schein's (1992) theoretical framework of organisational culture to study TQM as cultural phenomenon. Theoretical analysis and development of the Total Quality Management discipline focuses on understanding the consequences of some superficial assumptions inherent in the discipline, and implementation problems that arise from a mismatch between quality culture and organisational culture.

Implementation of Total Quality Management can be compared to changing the organisational culture as the challenges in changing organisational culture and

implementing TQM are similar. Both approaches can be seen as managing continuous change. Organisational culture is difficult to change unless one changes the people inside the group. Defining and changing the values is a long and challenging process.

This chapter concludes that the success of implementing TQM is related to the improvement related to the existing organisational culture and the ideal quality culture. Consequently, the success of quality management implementation programs would point out the change compared to organisation's pre-existing culture. The implementation process would be slow and difficult if an organisational culture differs significantly from ideal quality culture being as a target.

The next chapter introduces the longitudinal single case study approach and data collection methods. Additionally, the case company and its quality management development program and empirical material are introduced.

4. THE EMPIRICAL DATA AND METHODS

This chapter introduces research methods starting from description and explanation of the chosen strategy to ways of collecting data and analysis. After this the case company and its quality management development program used as a basis of this study are presented.

4.1. Longitudinal single case study approach

The case study methods may involve an in-depth, longitudinal examination of a single instance or event: a case (Yin 2003: 15). This study is grounded on a single case study combined to longitudinal research in target organisation - Wärtsilä Finland Oy, Power Plants. Eisenhart (1989: 534) describes the case study as a strategy, which focuses on understanding the dynamics present within defined bounds. According to Yin (2003) a case study is a research strategy, sometimes likened to an experiment, a history, or a simulation, though not linked to any particular type of evidence or method of data collection.

Yin (2003: 15) suggests that case study should be defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context. He notes that case studies can be based on any mix of quantitative and qualitative evidence. Also Eriksson & Koistinen (2005: 4) describe that qualitative material is typical for case study, nevertheless, it can also be combined with quantitative material. The quantitative approach is mainly handling figures and the qualitative approach, on the other hand, looks for meanings (Hirsjärvi et al 2004: 128).

Menard (2002: 3) explains that longitudinal research serves two primary purposes: to describe patterns of change and to establish the direction (positive or negative) and magnitude of causal relationships. The empirical material of this case study was gathered and analysed through quantitative material by using two separate questionnaires.

The main purpose of this study is to examine the empirical material, and to describe the possible changes experienced among respondents. Change is typically measured with reference to one or two continua: chronological time or age (Menard 2002: 25). In this research the simplest longitudinal analysis – measuring change in a variable from one period to another is used.

Periods for which the data is collected may be short, consisting of a few hours, or long, consisting of several years; data is still collected on each variable for at least two periods (Menard 2002: 34.) The timeframe of this longitudinal study – 5 months - was selected by the case company, and was rationalised by the content of the campaign and its assumed influences on company's employees. The first questionnaire was distributed to the whole personnel of the case company before the start of campaign in August 2006, and the second questionnaire was distributed in January 2007. The purpose of the two questionnaires was to find out what kind of affects the campaign had on the respondents' values and behaviour by making the comparison of the two conducted surveys.

4.1.1. Data collection methods

The data collection method was selected to be quantitative as the amount of the available respondents was quite extensive: 350 persons, which from 26 percent of the personnel answered the first questionnaire and 28 percent the second

questionnaire. According to Hirsjärvi et al (2004: 130) the quantitative method is recommended especially when the amount of data is quite extensive. By this method the collection of the data is more efficient especially when the statements are scaled and rated.

Both quantitative survey questionnaires performed - in August 2006 and February 2007 - were identical in included the seven values concluded from the Quality Awareness Campaign material and chosen to be the core values of quality culture. The values selected to emphasise during the QAC were *Co-operation, Quality Philosophy, Profitability & Success, Continuous Improvement, Customer Orientation, Work Commitment and Communication*.

Each of the seven defined core values of quality culture was operationalised by two statements on value level and two statements on behaviour level (**Table 2**). Additionally, the respondents of the questionnaire were asked to reply on both value and behaviour level statements from personal and organisational point of view. The reason to use the value and behaviour level statements was the theoretical frameworks of Schein (1987: 3) and Briscoe et al (2004: 117), as values give the basis to people's behaviour and are drawn to the surface through individual's behaviour.

Table 2. Operationalisation of core values of quality culture.



On both value and behavioural level statements the respondents were asked to state to what extent they feel the given statements are expressed in their everyday work from a quality perspective. The seven point scale for the quantitative questions was used in the questionnaire, where number 1 meant *I strongly disagree* and number 7 *I strongly agree*.

The results of both survey materials were analysed by using an SPSS statistical program. The values from the data were studied through the sum of variables and the means. Additionally, the Independent Samples T-test was used to compare the means of two variables ($p < 0.05$). The t-test assesses whether the means

of two groups are statistically different from each other. This analysis is appropriate whenever you want to compare the means of two groups.

4.1.2. Qualitative open-ended material and methods

In addition to quantitative material, the open-ended materials received from the separate surveys are studied with the qualitative approach. The analysis is made with a qualitative content analysis (Hirsjärvi et al, 2004: 155). The qualitative materials of both surveys were dissimilar which is explained further below.

In the first questionnaire, the purpose of the open questions was to survey how employees of the case study organisation experienced the good and poor quality in their everyday work, to find out if the campaign workshop material to be used meets the organisational needs. Additionally, the quality related values arising from the organisation were researched, in other words the core of the quality culture was surveyed. The outcomes of these answers were used to improve the workshop material accordingly. The questions of the first survey were:

- *How do you experience the good quality in your everyday work at the moment?*
- *Also, please indicate the opposite – how do you experience at the moment the poor quality in your everyday work?*
- *What kind of values you appreciate in your everyday work?*

In the second questionnaire, the open questions were used mainly to get the reaction about the impacts of the Quality Awareness Campaign recognised by the attendees after this campaign, on both their person level and also on the organisational level of Power Plants unit. Furthermore, the purpose was to re-

ceive feedback about improving this quality management development program within the organisation. The questions of the second survey were:

- *What impacts you recognise Quality Awareness Campaign had on your personal level in your everyday work?*
- *What impacts you recognise Quality Awareness Campaign had on Power Plants' organisational level in everyday work?*
- *How would you improve quality awareness overall within Power Plants organisation?*

4.2. Case Company – Wärtsilä Finland Oy

This study is based on a case company Wärtsilä Finland Oy, Power Plants business unit. Wärtsilä's principal activities are the supply of ship power machinery and the provision of solutions for decentralized power generation and supporting services. Wärtsilä Finland Oy employs in Vaasa, Finland, 2000 employees, which from approximately 330 persons belong to Power Plants unit. (Wärtsilä, 2007.)

Wärtsilä Finland Oy belongs to Wärtsilä Corporation, which employs more than 13,000 employees in 130 offices in over 60 countries around the globe. The net sales of the company in the year 2006 was 3 189 MEUR. Wärtsilä's strategic goal is to strengthen its leading position in its field. This is done by providing customers with the best lifetime efficiency and reliability in the market through an integrated offering that meets their business needs throughout the world. (Wärtsilä, 2007.)

Wärtsilä enhances the business of its customers by providing them with complete lifecycle power solutions. When creating better and environmentally compatible

technologies, Wärtsilä focuses on the marine and energy markets with products and solutions as well as services.

Wärtsilä is the leading power plant supplier for flexible power plant solutions in selected niches. The company supplies solutions for the developing world, islands and remote areas with baseload power generation needs. We also supply for grid stability and peaking needs and for industries such as oil and gas, mining, textile, cement, as well as municipalities with self-generating needs.

In the year 2006 Wärtsilä's the largest Power Plant deals were to Azerbaijan, United States, Tanzania, Nigeria and Turkey. (Wärtsilä, 2007.)

The Quality Awareness Campaign

The study focused mainly on a Quality Awareness Campaign (QAC), a development program of quality management, within Wärtsilä Finland, Power Plants. The QAC aimed at creating quality awareness in Wärtsilä's Power Plants personnel at selected levels for the importance of quality and its effect on business results. The company sees that quality is not only institutional quality observed in quality management systems and quality reporting, but it's also to a high degree personal: something that is or is not done in everyday life on all levels. Especially, the purpose of the campaign was to enhance quality awareness, the personal well-being and self-confidence of the employees, and furthermore, create more satisfied colleges and customers and better performance of the company. The quality culture of the target organisation is studied through the used quality management development program. (Wärtsilä, 2006.)

The Quality Awareness Campaign progressed in different parts. First, the campaign started with marketing phase marketing stage in September 2006 which aimed at creating the awareness of quality as individual well-being of employees by visible campaign material in Wärtsilä Finland Oy, Power Plants premises. The marketing stage lasted approximately one month.

Secondly, the employees were shared into groups of 20 persons to attend on the one-day workshop sessions including interactive quality workshop sessions. The content of the sessions included the introduction of objectives and key messages. The session continued with issue "Feeling Great – Also at Work" and preceded towards quality management issues "Doing Things Right First Time" and "Good Quality Means also Good Business Results". After that was carried on with the subject "How Do I Define Good Performance for Myself", and last the "Practical Tools for Personal Performance Development" was introduced. The interactive sessions included also small team works and continuous open discussions on the aroused issues. The one-day workshop period for all Power Plant employees lasted altogether two months from September to November 2006.

Thirdly, the employees were supposed to perform some post-work via company intranet website which, at the end, was implemented only by independent task of Personal Quality Checklist to be used after the QAC workshop session.

4.3. Sample description of the questionnaires

Two identical questionnaires were used to gather the study's empirical material - quantitative survey and qualitative open-ended questions. The sample descriptions of both questionnaires are introduced in following two sections.

4.3.1. Sample description: pre-test study

Totally 94 people - 26 % of the personnel - answered the first questionnaire which from all answers were valid. Due to the fact that case company's personnel included many several types of manager-positions as respondents, the managers were separated into two different groups. The position of Management covered managers in supervisory positions, and the position of Manager or expert included engineers and specialists of the case company.

Figure 10 shows the distribution of the respondent's position. The biggest group of respondents were Managers or experts, including engineers or specialists, by 65 percent. The second biggest group was administrative personnel by 20 percent and, thirdly, 15 percent answers of the questionnaire came from management i.e. managers in supervisory position.



Figure 10. Position of the respondents (n=94)

Unit of the respondents is shown in **Figure 11**. The distribution of the answers per unit was most active in Delivery Management by 41 percent. The second biggest group of the respondents was Sales Management by 22 percent. Other units were less active: as Power Plant Technology with 16 percent, Supply Market Management with 10 percent, Finance and Business Control with 4 percent, Others (including personnel from Wärtsilä Development and Financial Services and Wärtsilä Headquarters personnel included to Power Plants organisation) with 5 percent and Business & Competence Management with 2 percent.

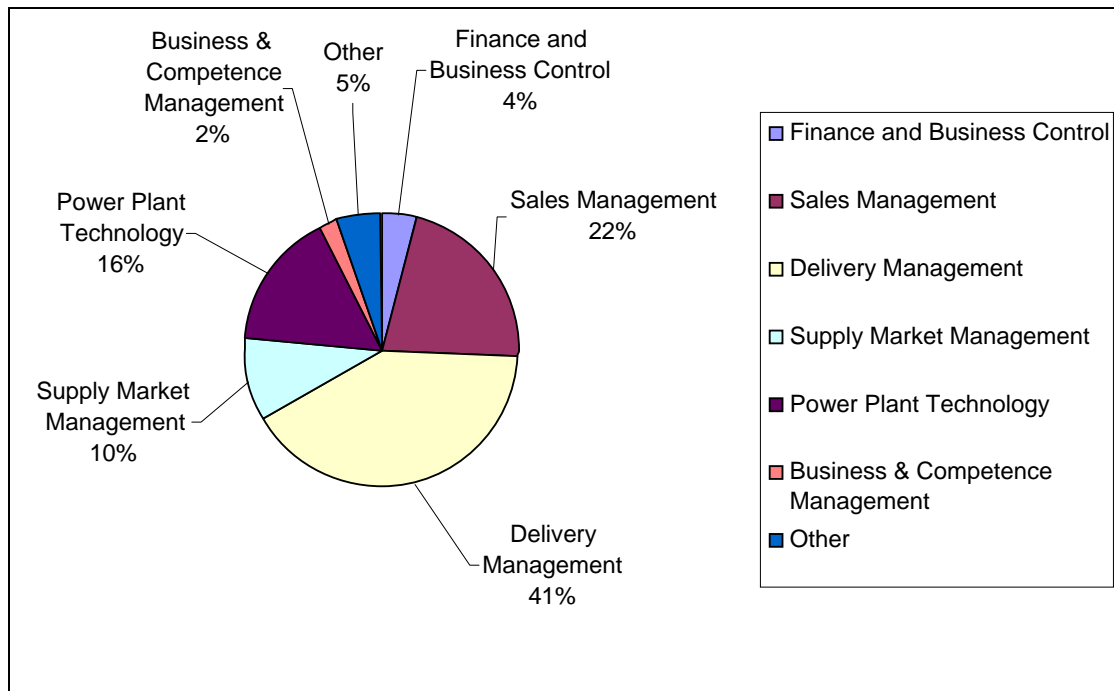


Figure 11. Unit of the respondents (n=94)

The half of the respondents – 50 percent (n=47) were between the age of 30 to 50 years, as indicated in **Figure 12**. A big group of respondents was under 30 years old: 32 percent. Additionally 18 percent of the respondents were over 50 years old. The age distribution of respondents is in line with company's overall age structure. This fact should be noticed while analysing the results.

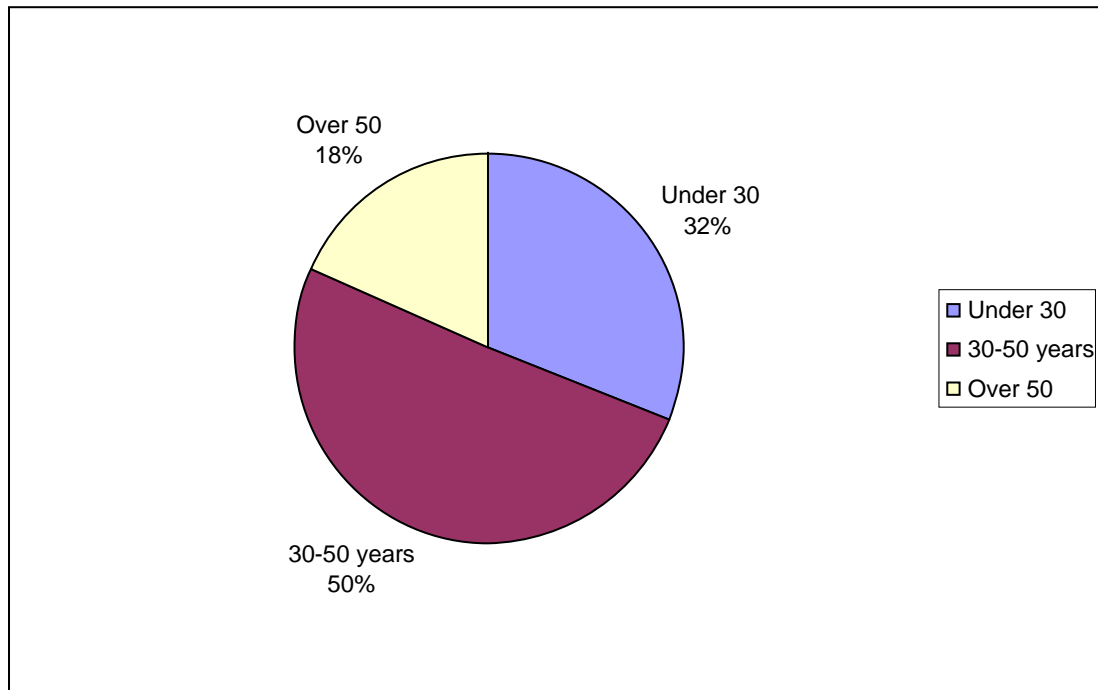


Figure 12. Age distribution of the respondents (n=94).

The working history of respondents was divided into four groups. **Figure 13** shows that the largest group was consisted of 38 percent of employees working in company more than 10 years. The second biggest group was the employees working inside the company for less than 2 years with 26 percent of the answers. 19 percent of the respondents were working in Wärtsilä from 5 to 10 years and the smallest group of the respondents (17 percent) had the working history of 2 to 5 years.



Figure 13. Working history of respondents within company (n=94).

4.3.2. Sample description: follow-up study

Totally 104 people – 28% of the personnel – answered the second questionnaire, which from 67 percent (70) answers were valid (**Figure 14**). The remaining 33 percent of responses were not valid as those respondents did not participate in the Quality Awareness Campaign. The idea was to study the impacts of the Quality Awareness Campaign and the respondents who did not take part in the training cannot evaluate the change in Wärtsilä Finland Oy, Power Plants, properly.

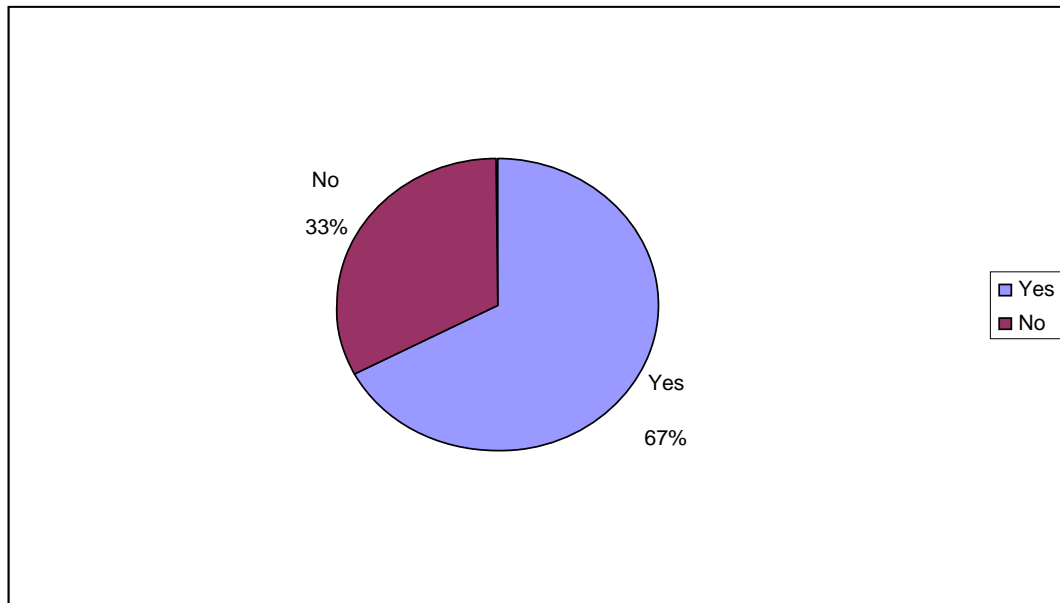


Figure 14. Total amount of respondents attending the QAC (n=70)

Figure 15 shows the distribution of respondent's position. The biggest group of respondents were managers or experts, including engineers or specialists, with 63 percent. The second biggest group was management i.e. managers in supervisory position with 21 percent and the smallest group was administrative personnel with 16 percent of the answers.



Figure 15. Position of the respondents (n=70)

The distribution of answers per unit was most active in Delivery Management with 39 percent. The second biggest group of respondents came from Sales Management with 20 percent. The respondents of Power Plant Technology gave 19 percent of the answers, Supply Market Management 11 percent, Others (including personnel from Wärtsilä Development and Financial Services and Wärtsilä Headquarters personnel included to Power Plants organisation) with 7 percent, Finance and Business Control with 3 percent and Business & Competence Management with 1 percent. Unit of the respondents is shown in **Figure 16**.



Figure 16. Unit of the respondents (n=70)

Half of the respondents, 50 percent (n=35), were between the age of 30 to 50 years as indicated in **Figure 17**. Second biggest group of the respondents were under 30 years old (26 percent). 24 percent of the respondents were over 50-year-old employees.



Figure 17. Age distribution of the respondents (n=70).

Figure 18 shows that the most of the answers were given by employees working in the company more than 10 years (41 percent). The second biggest group was the employees working in the company less than 2 years (26 percent). 19 percent of the respondents were working in Wärtsilä from 5 to 10 years, and the smallest group of the respondents had working history from 2 to 5 years (14 percent).



Figure 18. Working history of respondents within company (n=70).

4.3.3. Validity and reliability of the study

The validity in study means that the material actually measures what it is functioned for (Uusitalo, 1997: 84). In this case study the Quality Awareness Campaign and its impacts can be measured, because a vast majority of the respondents have been involved in the campaign and know the terms to which the questions are referring. Also, the amount of the responses was high which increases the validity of the study. According to Grönfors (1982: 175) the validity includes proving the reliability.

According to Uusitalo (1997: 84), the study is reliable when the test can be repeated over and over again with same results. The research can be made again in Power Plants unit of Wärtsilä Finland Oy at any time. Additionally, according to Yin (1989: 99) one advance of the case study is that both quantitative and

qualitative data can be gathered and used. This increases markedly the reliability of the entire case study. In other words, by using methodological triangulation the reliability of the study can be increased. In this study quantitative and qualitative material was used – the multiple sources of evidence were compared to each other.

The pilot questionnaire, including the statements of operationalisation of quality culture to ensure that the questionnaire actually measures the issues that were intended, was used. In order to test the reliability of the scales, five employees from different functions of the case company organisation were selected to fill in the test questionnaire. The scales of the given responses as per respondent varied clearly which is supporting the reliability of the study.

The reliability of the variables under the certain value was measured by Cronbach's alpha. Alphas were determined for all statements – two value level and two behaviour level statements. Cronbach's alpha shows are the statements under the same value measuring the same thing. Alphas above the figure 0,500 can be seen acceptable.

In pre-test survey, the value and behavioural level statements were giving acceptable or good figures in alphas (**Table 3**). Only in the value level statement of organisational viewpoint of Profitability & Success the alpha was below 0,500 and gave a result of 0,497. The figures in alphas run from 0,497 to 0,868.

Table 3. Reliability of the scales: pre-test survey.

<u>Value</u>	<u>Level</u>	<u>Personal</u>	<u>Organisational</u>
Co-operation	value	α ,726	α ,775
	behaviour	α ,868	α ,735
Quality Philosophy	value	α ,808	α ,803
	behaviour	α ,804	α ,798
Profitability & Success	value	α ,771	α ,497
	behaviour	α ,786	α ,526
Continuous Improvement	value	α ,853	α ,817
	behaviour	α ,796	α ,686
Customer Orientation	value	α ,623	α ,709
	behaviour	α ,589	α ,728
Work Commitment	value	α ,861	α ,855
	behaviour	α ,765	α ,752
Communication	value	α ,816	α ,805
	behaviour	α ,745	α ,752

Also, in follow-up study the value and behaviour level statements gave acceptable or good figures in alphas. The figures of Cronbach's alphas vary from 0,533 to 0,879 (**Table 4**).

Table 4. Reliability of the scales: follow-up survey

<u>Value</u>	<u>Level</u>	<u>Personal</u>	<u>Organisational</u>
Co-operation	value	α ,533	α ,773
	behaviour	α ,849	α ,879
Quality Philosophy	value	α ,820	α ,791
	behaviour	α ,749	α ,842
Profitability & Success	value	α ,807	α ,645
	behaviour	α ,747	α ,638
Continuous Improvement	value	α ,772	α ,797
	behaviour	α ,680	α ,701
Customer Orientation	value	α ,667	α ,747
	behaviour	α ,617	α ,605
Work Commitment	value	α ,809	α ,839
	behaviour	α ,788	α ,805
Communication	value	α ,740	α ,773
	behaviour	α ,825	α ,626

4.3.4. Limitations of the study

This study is a single case study; therefore, the generalisations based to this study cannot be made. In this case study only the change in quality culture – in values and behaviour of personnel within Wärtsilä Finland Oy, Power Plants – is analysed. The impacts of background variables (position, unit, age, and work history) or how they affected the study results are not researched. Also, the possible changes shortly after the Quality Awareness Campaign are not studied; only the current opinion of respondents is reviewed.

5. EMPIRICAL STUDY ANALYSIS AND RESULTS

This chapter presents the results of the empirical study. The chapter is divided into two subchapters according to the material of the results of two surveys. First, the changes in values and behaviour, based to the results of the quantitative survey material, are analysed. Then, the results of qualitative open ended material of the first and second survey are introduced. The development of Quality Awareness Campaign is discussed at the end of the chapter.

5.1. Changes on values and behaviour

This section analyses the quantitative and qualitative material of first and second surveys.

5.1.1. Results of the quantitative survey material

The quantitative survey was divided into seven values mentioned previously in this study - Co-operation, Quality Philosophy, Profitability & Success, Continuous Improvement, Customer Orientation, Work Commitment and Communication. In addition, the qualitative material i.e. the open-ended questions generating the other themes than values, are analysed in this section.

Co-operation

Co-operation (**Table 5**) is appreciated on personal value level in first and second surveys. The mean personal level is 4,355 for the first survey, while the mean in organisational level is 3,599. In the second survey, the mean of personal level is surprisingly lower than in the first survey: 4,071, while the mean in or-

organisational level is 3,571, which is higher than in the first survey. The standard deviation varies from 1,033 to 1,258, staying fairly low.

Table 5. Means, standard deviations and statistical significance of Co-operation

	Pre-test survey (Std. dev.)		Follow-up survey (Std. dev.)		Sig. (2-tailed)
<u>Value:</u>					
Personal	4,355	(1,033)	4,071	(1,231)	.112
Organisational	3,559	(1,257)	3,571	(1,258)	.951
<u>Behaviour:</u>					
Personal	4,344	(1,131)	4,443	(1,044)	.569
Organisational	3,731	(1,228)	3,814	(1,397)	.687

However, there were not statistically positive improvements on reported means of Co-operation. In the first survey the personal mean is 4,344 and the organisational mean is 3,731. On the second survey the behaviour level statements are giving means for personal level as 4,443 and organisational level as 3,814. The standard deviation runs from 1,044 to 1,397. The results from both surveys were not statistically significant as $p > 0.05$.

Quality Philosophy

The means of Quality Philosophy are higher on personal level than on organisational level in both surveys. In value statements of the first survey, the mean of personal level is 4,602 while the mean of organisational level is 3,968. In the second survey, the mean in personal level is again lower than in the first survey: 4,529, while in organisational level the mean is 4,000, which is higher than in the first survey. The standard deviation is between 1,049 and 1,330 (**Table 6**).

Table 6. Means, standard deviations and statistical significance of Quality Philosophy

	Pre-test survey (Std. dev.)		Follow-up survey (Std. dev.)		Sig. (2-tailed)
<u>Value:</u>					
Personal	4,602	(1,049)	4,529	(1,086)	.662
Organisational	3,968	(1,265)	4,000	(1,330)	.875
<u>Behaviour:</u>					
Personal	4,108	(1,102)	4,157	(1,175)	.782
Organisational	3,785	(1,208)	3,800	(1,175)	.938

The means of behaviour level statements of Quality Philosophy are lower than means of the value level statements. In the first survey, the mean of personal behaviour is 4,108, and the mean of organisational behaviour is 3,785. In the second survey, the mean of personal behaviour level is 4,157 and for organisational behaviour level 3,800 - both means are slightly higher than in the first survey. The standard deviation runs from 1,102 to 1,208. The results of Quality Philosophy were not statistically significant as $p > 0.05$.

Profitability & Success

In Profitability & Success the means of organisational level are overall higher than in personal level, which is not the case amongst the other introduced values. In value statements of the first survey, the mean of personal level is 4,183, while the mean of organisational level is 4,538 (**Table 7**). The results of the second survey show the mean 4,243 for personal level and the mean 4,457 for organisational level. The standard deviation varies from 1,160 to 1,185.

Table 7. Means, standard deviations and statistical significance of Profitability & Success

	Pre-test survey (Std. dev.)	Follow-up survey (Std. dev.)	Sig. (2-tailed)
<u>Value:</u>			
Personal	4,183 (1,352)	4,243 (1,185)	.767
Organisational	4,538 (1,160)	4,457 (1,176)	.663
<u>Behaviour:</u>			
Personal	4,129 (1,175)	4,100 (1,092)	.872
Organisational	4,000 (1,155)	4,171 (1,090)	.337

The behaviour level of Profitability & Success is giving relatively equal means from both surveys on personal and organisational levels. In the first survey, the mean of the personal level is 4,129 and the mean of organisational level is 4,000. Second survey shows the mean of 4,100 on personal level and 4,171 on organisational level. The standard deviation varies from 1,090 to 1,175. As $p > 0.05$, the results of the both surveys are not statistically significant.

Continuous Improvement

On personal level, the means of Continuous Improvement are highly above 4 (**Table 8**). In value statements of the first survey, the mean of the personal level is 4,903 and the mean organisational level is 4,011. The second survey shows a decrease on the mean of personal level, and gives the mean 4,657 as a result. On organisational level the mean is 4,057, which is higher than in the first survey. The standard deviation runs from 0,940 to 1,283.

Table 8. Means, standard deviations and statistical significance of Continuous Improvement

	Pre-test survey (Std. dev.)	Follow-up survey (Std. dev.)	Sig. (2-tailed)
<u>Value:</u>			
Personal	4,903 (0,940)	4,657 (1,102)	.125
Organisational	4,011 (1,283)	4,057 (1,089)	.807
<u>Behaviour:</u>			
Personal	4,247 (1,206)	4,300 (1,040)	.770
Organisational	3,419 (1,230)	4,429 (1,379)	.964

On behaviour level the means have increased on both personal and organisational levels. In the first survey, the mean of personal level is 4,247, while the mean of organisational level is 3,419. In the second survey, the means are higher than in the first survey: the mean of the personal level is 4,300 and the mean of organisational level is 4,429. The standard deviation is between 1,040 and 1,379. In Continuous Improvement the results of both surveys are not statistically significant from each other as $p > 0.05$.

Customer Orientation

On value level means, Customer Orientation has not changed positively. The figures of the second survey are lower than the first survey. In value statements of the first survey, the mean of the personal level is 4,258 and the mean of organisational level is 4,086 (see **Table 9**). The results of the second survey show that the mean of the personal level decreased from 4,258 to 3,886. The mean of organisational level is 4,043. The standard deviation varies from 1,209 to 1,383.

The mean of personal behaviour level is 4,366 and the mean of organisational behaviour level is 3,667. In the second survey, the mean of personal level has

decreased from 4,366 to 3,957. At the same time, the mean of organisational level increased from 3,667 to figure 4,086, and changed intensively. Standard deviation is between 1,126 and 1,247.

Table 9. Means, standard deviations and statistical significance of Customer Orientation

	Pre-test survey (Std. dev.)	Follow-up survey (Std. dev.)	Sig. (2-tailed)
<u>Value:</u>			
Personal	4,258 (1,383)	3,886 (1,257)	.078
Organisational	4,086 (1,292)	4,043 (1,209)	.828
<u>Behaviour:</u>			
Personal	4,366 (1,153)	3,957 (1,233)	.031
Organisational	3,667 (1,247)	4,086 (1,126)	.028

Behaviour in personal and organisational levels has changed statistically significantly but on both levels the means have changed into different directions. On personal level of behaviour the change is negative, giving a result $p=.031$. On organisational level of behaviour, again, the change is positive and $p=.028$. Still, these changes can be seen coincidental and affected by other possible changes inside the organisation during the time-scale of the surveys.

Work Commitment

Like the previous value, Customer Orientation, also Work Commitment has the lower means than in the first survey than in the second survey. In value statements of the first survey, the mean of personal level is 4,806 (**Table 10**). The mean of organisational level is 4,280. In the second survey, the mean of personal level is 4,671 and the mean of organisational level is 4,057. It is good to notice that the means of personal level of Work Commitment are in a high level, way above figure 4. The standard deviation varies from 1,050 to 1,204.

The means of behaviour level have decreased. In the first survey, the mean of personal level is 4,505 and the mean of organisational level is 4,086. In the second survey, the mean of personal level is 4,129 and the mean of organisational level is 3,629. The standard deviation runs from 1,034 to 1,253.

Table 10. Means, standard deviations and statistical significance of Work Commitment

	Pre-test survey (Std. dev.)	Follow-up survey (Std. dev.)	Sig. (2-tailed)
<u>Value:</u>			
Personal	4,806 (1,050)	4,671 (1,073)	.421
Organisational	4,280 (1,204)	4,057 (1,178)	.239
<u>Behaviour:</u>			
Personal	4,505 (1,094)	4,129 (1,034)	.027
Organisational	4,086 (1,188)	3,629 (1,253)	.018

Both, personal and organisational levels of behaviour of Work Commitment have changed statistically significantly to negative direction. On personal level of behaviour $p=.027$ and on organisational level of behaviour $p=.018$. Also, in this case the changes can be seen coincidental and might be affected by other possible changes inside the organisation during the time-scale of the surveys.

Communication

In Communication, the means of personal level are higher than the means of organisational level. In value statements of the first survey, the mean of personal level is 4,409 and the mean of organisational level is 3,419 (**Table 11**). In the second survey, the mean of personal level is 4,414 and the mean of organisational is 3,429. The standard deviation is between 0,940 and 1,247.

In behaviour statements, the figures have not changed positively. In the first survey, the mean of personal level is 4,409, and the mean of organisational level is 3,441. In the second survey, the mean of the personal level is 4,329 and the mean of organisational level 3,429. The standard deviation runs from 1,126 to 1,315.

Table 11. Means, standard deviations and statistical significance of Communication

	Pre-test survey (Std. dev.)	Follow-up survey (Std. dev.)	Sig. (2-tailed)
<u>Value:</u>			
Personal	4,409 (1,060)	4,414 (0,940)	.972
Organisational	3,419 (1,247)	3,429 (1,137)	.961
<u>Behaviour:</u>			
Personal	4,409 (1,175)	4,329 (1,126)	.661
Organisational	3,441 (1,315)	3,429 (1,162)	.951

In the first survey, Continuous Improvement, value level (4,903), Work Commitment (4,806) and Quality Philosophy (4,602) gained the highest means, while Communication (3,419) and Continuous Improvement, behaviour level (3,419) had the lowest means. Also, in the second survey Work Commitment (4,671), Continuous Improvement (4,429) and Quality Philosophy (4,157) received the highest means. Communication (3,429) and Co-operation (3,571) received the lowest means in both, first and second survey.

The high majority of the results showed that the personal level means of introduced values were clearly higher than the organisational level means. The means of both surveys varied between 3,419 and 4,903, while the scale was from one to seven (1-7). On value level statements the means had higher results, mainly over figure four, while on behavioural level the means were biased over

figure three. Nevertheless, the figures are revealing that the overall level of the means is on a relatively good level.

5.1.2. Results of the open ended material of the first survey

The quantitative survey and answers of the qualitative open-ended questions were divided into seven values mentioned previously in this study - Cooperation, Quality Philosophy, Profitability & Success, Continuous Improvement, Customer Orientation, Work Commitment and Communication. In addition, the qualitative material i.e. the open-ended questions generating the other themes than values, are analysed in this section.

In the first survey, the purpose of the qualitative material was to find out how employees of the case company organisation experience the good and the poor quality in their everyday work. In other words – how the employees define the quality inside their organisation. This subject was explored through the following questions:

- *How do you experience the good quality in your everyday work at the moment?*
- *Also, please indicate the opposite – how do you experience at the moment the poor quality in your everyday work?*

Experiences of good quality in everyday work

Based on the open-ended answers (n=94) of the first questionnaire, the various groups of good quality demonstrated in **Table 12** were identified. The percentages shown are calculated from the amount of references in the responses. The references under 3 percent are not reported.

Table 12. The experiences of the good quality in everyday work inside the organisation. (n=94)

Communication & Information flow	12 %
Teamwork & Co-operation	11 %
Project Excellence	9 %
Guidelines & Directives	8 %
Customer Satisfaction	7 %
Doing Things Right First Time	7 %
Smooth Processes	7 %
Work Accuracy & Performance	7 %
Technical Excellence	5 %
Does not experience the good quality too much or at all	5 %
Work Environment & Atmosphere	4 %
Work Satisfaction	4 %
Continuous Improvement	3 %
Management Skills	3 %

According to the received answers the respondents of the questionnaire experienced the good quality in their everyday work through various different themes. Communication & Information flow was appreciated the most as a good quality in respondents' everyday work in 12 percent of the responses. The next theme valued as good quality was Teamwork & Co-operation with 11 percent of the answers. Project Excellence was mentioned in 9 percent of the answers and Guidelines & Directives in 8 percent of the answers.

Customer Satisfaction, Doing Things Right First Time, Smooth Processes and Work Accuracy & Performance were appreciated as a good quality in 7 percent of responses, each. Technical Excellence was seen as good quality in 5 percent of the responses. Also, 5 percent of the respondents claimed that they do not experience the good quality too much or at all in their everyday work. Work Environment & Atmosphere and Work Satisfaction were mentioned as the good

quality in 4 percent of the responses, and Continuous Improvement and Management Skills in 3 percent of the responses.

Experiences of poor quality inside the organisation

As there was explored the respondents' experiences of the good quality, additionally, was also surveyed the employees' experiences of the poor quality in their everyday work. As well, based to the open-ended answers (n=94) of the first questionnaire, the various groups of the quality definitions demonstrated in **Table 13** were identified. The percentages shown are calculated from the amount of references in the responses. The references under 3 percent are not reported.

Table 13. The experiences of the poor quality in everyday work inside the organisation. (n=94)

Poor Communication & Information flow	25 %
Too High Workload & Lack of Time	11 %
Customer Dissatisfaction	7 %
Technical Problems & Solutions	7 %
Processes Not Working	6 %
Lack of Teamwork & Co-operation	6 %
Poor Project Excellence	6 %
Time Taking Problem Solving	4 %
"Fire-Fighting"	3 %
Poor Ability to Use personal Skills	3 %

25 percent of the respondents of the questionnaire experienced Poor Communication & Information flow as the poor quality in their everyday work. Too High Workload & Lack of Time came up in 11 percent of the responses; and both, Customer Dissatisfaction and Technical Problems & Solutions were mentioned in 7 percent of the answers.

Processes Not Working, Lack of Teamwork & Co-operation and Poor Project Excellence were emphasised in 6 percent of responses, each. Time Taking Problem Solving was seen as poor quality in 4 percent of the responses. "Fire-Fighting" and Poor Ability to Use personal Skills appeared in 3 percent of the responses.

The core of quality related values

Additionally, the appreciated values prevalent inside the organisation were researched in the first survey. The respondents had to respond the following question from the quality point of view:

- *What kind of values you appreciate in your everyday work?*

At the same time, the purpose was to find the confirmation that the values used in the survey questionnaire statements were reasserted by the respondents of the case company's organisation. The outcome is presented in **Table 14**. The values mentioned in less than 4 percent of the responses are not reported.

Table 14. The quality values in case company organisation (n=94)

Communication & Information flow	12 %
Teamwork & Cooperation	11 %
Openness	8 %
Work Performance/Excellence	8 %
Honesty	7 %
Work Environment & Atmosphere	6 %
Reliability	5 %
Colleagues	5 %
Work Dedication & Commitment	4 %
Management & Leadership	4 %

According to the respondents, the most appreciated values were Communication & Information flow with 12 percent and Teamwork & Cooperation with 11 percent. Communication and Cooperation were also two of the seven core values selected for the Quality Awareness Campaign.

Openness and Work Performance/Excellence appeared to be appreciated values in 8 percent of the answers. Honesty was mentioned in 7 percent of the responses, Work Environment & Atmosphere in 6 percent and Reliability in 5 percent of the responses. Also, Colleagues as a value were appreciated by 5 percent of the answers. Work Dedication & Commitment and Management & Leadership, both, were respected as values in 4 percent of the responses. Work Commitment was also one of the selected values for Quality Awareness Campaign.

The outcomes of all the three open-ended questions of the first survey support each other, as there are clearly seen the common values and themes arising from all the responses. Especially Communication & Information flow can clearly be seen the most appreciated factor of a good quality and also as a value inside the organisation. Also, Teamwork & Co-operation is highly valued as a good quality and value.

5.1.3. Results of the open-ended material of the second survey

In the second questionnaire, open questions were used to study the impacts of Quality Awareness Campaign the participants experienced in personal and in organisational level after the campaign. Furthermore, the purpose was to re-

ceive the feedback about improving this quality management development program.

Impacts on personal level in respondents' everyday work

The following question to survey the impacts of QAC's on personal level was asked:

- *What impacts you recognise Quality Awareness Campaign had on your personal level in your everyday work?*

The results of the first open question are shown in **Table 15**. Most of the respondents did hardly see any affect (25 percent) – or no affect at all (13 percent) after QAC on their personal level in everyday work. 13 percent of respondents reported that their awareness of importance of quality increased, and 9 percent saw improving their everyday work and checking own way of working. 4 percent of the respondents experienced better information flow and communication and 4 percent of the respondents informed they had the more systematic approach to the quality issues.

Table 15. Impacts on personal level in respondents' everyday work (n=70)



Impacts on organisational level in respondents' everyday work

The following question to survey the impacts of QAC's on organisational level was asked:

- *What impacts you recognise Quality Awareness Campaign had on Power Plants' organisational level in everyday work?*

Table 16 indicates the results of the second open question. Most of the respondents (32 percent) did not experience any impacts on organisational level in their everyday work. 19 percent of the respondents did not know, in other words – did not recognise any impacts. 16 percent of the respondents not experience much impact, while 8 percent of the respondents experienced increased communication and 5 percent increased quality awareness.

Table 16. Impacts on personal level in respondents' everyday work (n=70)



5.2. Developing the quality awareness in organisation

Furthermore, the purpose of the second survey was to get the feedback about the Quality Awareness Campaign and to receive suggestions about improving the quality awareness within organisation. The question to study this was:

- *How would you improve quality awareness overall within Power Plants organisation?*

The results are gathered to **Table 17**. The most of the respondents would improve the communication and information sharing (29 percent). Quality training, brainstorming and repeating the QAC was suggested by 5 percent of the respondents. 5 percent of the respondents wanted to see that management improves their skills and, at the same time, is as an example in quality issues. More feedback was suggested by 4 percent, and better rewarding, improve in co-operation and learning from poor Project Excellence by 3 percent, each. Also, more motivation and management's commitment by 3 percent, each, of the respondents was suggested.

Table 17. The areas improving quality awareness within organisation (n=70)



In addition to the improvement areas described above, also other following areas were mentioned: active teamwork, creating quality atmosphere, having more specified training and improving the company's products. Also, improving the way of working, improving the IT-tools and advertising were mentioned. In the next chapter the results of this study are wrapped up.

6. DISCUSSION AND CONCLUSIONS

The aim of this research was to study the impact of the quality management development program on quality related culture - on employees' values and behaviour. The material for this study was collected in two different ways – by quantitative survey questionnaire and by qualitative open questions.

As a conclusion of the quantitative material – values and behaviour, or in other words the quality related culture, inside the case company did not change. It means that after the Quality Awareness Campaign, the respondents did not feel that the stated values were expressed in everyday work from a quality perspective. As an exception, in Customer Orientation there was statistically significant positive change: on organisational level of behaviour.

There were also negative changes in the study – on the personal behaviour level of the Customer Orientation; and on the personal and organisational level of behaviour on Work Commitment. Still, statistically significant changes can be seen to be coincidental and deriving also from other possible changes inside the case company's organisation in the time-scale of surveys.

However, when looking to the means of the results of both surveys, the fact that the overall level of quality inside the case company's unit is on a good level should be noticed. Also, as the purpose of the Quality Awareness Campaign was to increase the quality awareness inside the organisation, it can be seen to have a successful outcome from this point of view.

The outcomes of all the three open-ended questions of the first qualitative survey support each other. The common themes arise in most of the answers - es-

pecially Communication & Information flow, Teamwork & Co-operation and Project Excellence were experienced to be of good quality in everyday work and also as strong values inside the organisation. Both qualitative survey results show that the quality inside the company's unit is appreciated and raises a variety of themes among employees.

In the second qualitative survey, the respondents did not see a great deal of impact of the QAC on personal or organisational level in respondents' everyday work. Still, the improvement in communication and information flow was highlighted in both of the mentioned levels. Also, the awareness of quality was increased and the respondents reported improving their own everyday work by checking their way of working.

As the quality culture did not change within the timeframe of this longitudinal study, the reason for this can be seen that the QAC as a quality management development program of improving the quality culture was too short-term. The second questionnaire was sent out 3 months after the QAC training, so it was conducted rather late compared to the duration of Quality Awareness Campaign.

If the changes in values and behaviour would have been measured soon after the QAC, one could assume that the results would have been better. Additionally, it is possible that there was not enough reinforcement of the subjects handled after the training. It is also challenging to keep the change positively sustained; the management's role in reinforcement is extremely important.

The most frequently mentioned causes of failure of QAC were the lack of proper implementation and management commitment. The role of the leaders

is crucial to have a successful change in organisation – the reinforcement of the culture is depending on their leadership and management skills. In addition, it is important that the change is based on the prevailing culture instead of the prevailing culture being ignored when implementing the new culture.

If the case company would use the data collection material and methods of this study in its other business units, it should first be checked if the values used as a basis of this study match the existing values and culture inside those other units. If not, then the existing core values of the unit should be explored first and then the data collection material and methods should be modified accordingly. At the same time, the way of implementing TQM as quality culture in the organisation could be planned more specifically, especially which values the company needs to influence in the existing quality culture to improve it.

This fact is supported also by theory: Van Donk and Sanders (1993), and Kujala and Lillrank (2004) brought out in their studies that the existing culture in an organisation is the biggest factor hindering the implementation of the TQM as a quality culture. So, if the case company would want to implement a common quality culture in the long run to all four business units, the existing quality cultures in those units should be taken into account.

Quality management means empowering employees, but first of all it empowers the managers. Even if the goal of quality management is continuous improvement, the threshold of employee motivation and empowerment must first be passed. Total Quality Management has expanded to include all areas of management, therefore it is important to realise that almost any management approach, which works in practice, can be considered quality management. Thus,

every manager as a TQM manager needs to understand the existing organisational culture and check if it matches with the quality culture.

One has to remember that as this longitudinal study is to measure the change in quality culture of the case company also in future, the timeframe of half a year is relatively short to achieve a significant change in organisational and in quality culture. Therefore, from the longitudinal point of view, it would be interesting to study the quality culture of the case company over a certain time cycle, for example one or two years. In that way, the wider long-term view of the development of the quality culture inside the organisation could be built.

To continue implementing the quality culture, there is a continuous need for the managerial reinforcement and leading by example. Management should be continuously involved in quality management by understanding the importance of the relationship between managing quality and the existing organisational culture. The survey identified the existing values in organisation, which should be taken into account when planning new quality management development programs.

Future research suggestions

This study is useful for companies who are planning to implement and improve the quality related culture inside their organisations. This study found out that there are strong values inside the organisation which affect the Total Quality Management as quality culture.

The limitation of this study is that it is a single case study and, hence, generalisations can not be made. Still, this study would be useful for practical under-

standing and development of TQM discipline. Future studies could examine more specifically, which environments and conditions could support ideal quality culture, and look at the consequences of mismatch between ideal and actual quality cultures.

Reinforcement is unquestionably one crucial issue in the implementation of quality culture, as the change in culture will not be successfully implemented without it. Therefore, it would be interesting to research how the changes in quality culture could be made to be sustainable. In that case the reinforcement could be observed to demonstrate that a leader's ability to manipulate culture is significant. One future research area could also be to develop a quality management tool for managers to help reinforce the quality related culture inside an organisation.

REFERENCES

- Adler, N. J. (1986). *International Dimensions of Organizational Behaviour*. Cincinnati, OH: South-Western College Publishing.
- Alpander, G. G. & C. R. Lee (1995). *Culture, strategy and teamwork: the keys to organisational change*. *Journal of Management Development*. Vol. 14:8, p. 4-18
- Atkinson, P. E. (1990). *Creating Culture Change: The Key to Successful Total Quality Management*. IFS Ltd. Bedford.
- Briscoe, D. R. (2004). *International human resource management policy and practice for the global enterprise*. 2nd edition. London: Routledge.
- Brocka, B. & M. S. Brocka (1992). *Quality Management. Implementing the Best Ideas of the Masters*. New York: Richard D. Irvin, Inc.
- Cameron, K. S. & C. K. Barnett (2000). *Organization quality as a cultural variable: An empirical investigation of quality culture, processes, and outcomes*. In book: Cole, R. E. & Scott, W. R. (Edit.). *The Quality Movement & Organization Theory*. Thousand Oaks: Sage.
- Campbell, C. R. (2004). *A Longitudinal Study of one Organization's Culture: Do Values Endure?* *Mid-American Journal of Business*, Vol. 19, No. 2, p. 41-51
- Cartwright, Sue & C. L. Cooper (1992). *Mergers and Acquisitions: The Human Factor*. Oxford. Butterworth-Heinemann Ltd.

- Chandra, M. (1993). *Total Quality Management in Management Development*. Journal of Management Development. Vol. 17:7. p. 19-31
- Cole, W. E. & J. W. Mogab (1995). *The Economics of Total Quality Management: Clashing Paradigms in the Global Market*. Oxford: Basil Blackwell Inc.
- Cook, H. E. (1997). *Product Management. Value, Quality, Cost, Price, Profit and Organization*. London: Chapman & Hall.
- Crosby, P. B. (1997). *The Absolutes of Leadership*. 1 edition. John Wiley & Sons Canada, Ltd.
- Davenport, T. H. & L. Prusak (1998). *How Organizations Manage What They Know*. Harvard Business School Press, Boston.
- Deal T. & A. A. Kennedy (1982). *Corporate Cultures*. Reading, Mass.: Addison-Wesley.
- Dellana, S. A. & R. D. Hauser (1999). *Toward Defining the Quality Culture*. Engineering Management Journal, Vol. 11, No. 2. p. 11-15
- Deming, W. E. (1986). *Out of the Crisis*. Cambridge University Press. Cambridge.
- Derrick, F. & W. O'Brien (1989). *Survey Shows Employees at Different Organizational Levels Define Quality Differently*. Industrial Engineering, 21:4, p. 22-27

- Deshpandé, R. & F. E. Webster Jr. (1989). *Organizational Culture and Marketing: Defining the Research Agenda*. Journal of Marketing. Vol. 53, No. 1, p. 3-15.
- Douglas, T. J. & W. Q. Judge (2001). *Total quality management and competitive advantage: the role of structural control and exploration*. Academy of Management Journal. Vol. 44, No. 1, pp.158-169
- Drummond, H. (1992). *The Quality Movement: What Total Quality Management is Really All About*. Kogan Page Ltd. London.
- Eisenhart, K. (1989). *Building theories from case study research*. Academy of Management Review 14: 4, p. 532-550
- Eriksson, P. & K. Koistinen (2005). *Monenlainen tapaustutkimus*. Kuluttajakeskustutkimus, julkaisu 4:2005. Kerava.
- Frost, P. J. & C. P. Egri (1991). *Shamanism and Change: Bringing back the Magic in Organizational Transformation*. Research in Organizational Change and Development, Vol. 5, p.175-221
- Garvin, D. (1984). *What does "Product Quality" really mean?* Sloan Management. Columbia Journal of World Business, 19:3, p. 3-17
- Garvin, D. (1988). *Managing Quality: The Strategic and Competitive Edge*. New York: The Free Press.

- Ghobadian, A., D. Gallear, H. Woo & J. Liu (1998). *Total Quality Management. Impact, Introduction and Integration Strategies*. London: The Chartered Institute of Management Accounts.
- Gormann, L. (1989). *Corporate Culture*. *Management Decision*, 27:1, p. 14-19.
- Grant, R. M., R. Shani & R. Krishnan (1994). *TQM's Challenge to Management Theory and Practice*. *Sloan Management Review*, Winter, pp. 25-35
- Grandzol, J. & M. Gershon (1997). *Which TQM practices really matter: An empirical investigation*. *Quality Management Journal*. Vol. 4, No. 4, pp. 43-60
- Grönfors, M. (1982). *Kvalitatiiviset kenttätömenetelmät*. Juva. WSOY: graafiset laitokset.
- Gustaffson, A., L. Nilsson & M. D. Johnsson (2003). *The role of quality practices in service organizations*. *International Journal of Service Industry Management*. Vol. 14, No. 2, p. 232-244
- Hoecklin, L. A. (1995). *Managing cultural differences – Strategies for competitive advantage*. 2nd edition. Singapore: Longman Singapore Publishers Pte. Ltd.
- Hamada, T. (2000). *Quality as a cultural concept: Messages and metamessages*. In book: Cole, R. E. & Scott, W. R. (Edit.). *The Quality Movement & Organization Theory*. Thousand Oaks: Sage.

Harrison, K. (2007) [online] [cited 9 January 2007]. *Communicate to change behaviour ahead of organizational values and culture*. Available in World Wide Web<URL:http://www.cuttingedgepr.com/articles/changecomm_change_behaviour.asp>

Hellsten, U. & B. Klefsjö (2000). *The Springboard: A Strategy for Continuous Improvement of small and medium-sized companies*. Total Quality Management, 8, pp. 183-186.

Hirsjärvi, S. , P. Remes & P. Sajavaara (2004). *Tutki ja kirjoita*. 10. uudistettu painos. Jyväskylä Gummerus Kirjapaino Oy.

Hofstede, G. (1997). *Cultures and Organizations: Software of Mind*. New York, McGraw-Hill.

Hofstede, G. & G. J. Hofstede (2005). *Cultures and Organizations: Software of Mind*. New York, McGraw-Hill.

Jokinen, T. (2004). *Managing quality inside a high-technology project organisation*. Oulu, Oulu University Press.

Judson, A. S. (1991). *Changing Behaviour in Organisations. Minimizing the resistance to change*. Oxford: Basil Blackwell, Inc.

Juran, J. M. & F. M. Gryna (1980). *Quality Planning and Analysis*. 2nd edition. New York: McGraw-Hill Book Company.

- Kekäle, T. (1998). *The Effects of Organizational Culture on Successes and Failures in Implementation of Some Total Quality Management Approaches*. Vaasa: University of Vaasa.
- Kim, P., Pindur, W. & K. Reynolds (1995). *Creating a new organisational culture: The key to total quality management in the public sector*. *International Journal of Public Administration* 18, p. 675-709
- Kirton, G. & A. Greene (2005). *The Dynamics of Managing Diversity. A Critical Approach*. Second edition. Elsevier Butterworth-Heinemann, Oxford.
- Kock, S. (1991). *A Strategic process of gaining external recourses through long lasting relationships*. Publications of the Swedish School of Economics and Business Administration.
- Kotter J. P. & J. L. Heskett (1992). *Corporate culture and performance*. The Free Press. New York.
- Kujala, J. (2002). *Quality management as cultural phenomena – A conceptual model and empiric illustration*. Helsinki University of Technology. Report No. 25.
- Kujala J. & P. Lillrank (2004). *Total Quality Management as Cultural Phenomenon*. *The Quality Management Journal*. Vol. 11:4. p. 43-55
- Linstead, S. & R. Grafton-Small (1992). *On reading organizational culture*. *Organization Studies*. 13/3: p. 331-355

- Lillrank, P. (1990). *Laatunmaa. Johdatus Japanin talouselämän laatujohtamisen näkökulmasta*. Jyväskylä: Gummerus.
- Lundby K. M., S. Dematteo & M.C. Rush (1999). *Organizational Culture and Total Quality Management. In Perspectives to Total Quality*. Edited by M. J. Stahl. Blackwell Publishers. Oxford.
- Lynch, R. L. & K. F. Cross (1995). *Measure up! Yardsticks for Continuous Improvement*. Blackwell Publishers, Cambridge.
- Maull, R., Brown, P. & R. Cliffe (2001). *Organisational culture and quality improvement*. International Journal of Operations & Production Management 21, p. 302-326
- Menard, S. W. (2002). *Longitudinal Research*. 2nd edition. Sage Publications: Thousand Oaks: California.
- Moen, R. D., T. W. Nolan & L. P. Provost (1991). *Improving Quality through Planned Experimentation*. New York: McGraw-Hill, Inc.
- Oakland, J. S. (1992). *Total Quality Management*. Butterworth Heinemann, Oxford.
- O'Reilly, C. A. & J. A. Chatman (1996). *Culture as Social Control: Corporations, Cults, and Commitment*. Research in Organizational Behaviour. Vol. 18. p. 157-200.

Peters, T. & N. Austin (1985). *A Passion for Excellence - The Leadership Difference*.

US: Random House, England: William Collins.

Posner, B. , J. M. Kouzes & W.H. Schmidt (1985). *Shared Values Make a Difference:*

An Empirical Test of Corporate Culture. Human Resources Management. Vol. 17 (13), p. 1379-1394.

Robbins, S. P. (2003). *Essentials of organizational behaviour*. Upper Saddle River,

NJ: Prentice Hall. 7th edition. ISBN 0-130121448-9

Savolainen, T. (1994). *Laadun johtaminen: käsitteellinen tarkastelu ja laatujärjestelmän kehittämissuunnitelman käynnistämisen kuvaus esimerkkiyrityksessä*.

Jyväskylä: University of Jyväskylä.

Schein, E. H. (1987). *Organisaatiokulttuuri ja johtaminen*. Espoo: Weilin & Göös.

Schein, E. H. (1992). *Organizational culture and leadership*. Second edition. Jossey-Bass Inc., San Francisco.

Schein, E. H. (2004). *Organizational culture and leadership*. Third edition. Jossey-Bass Inc., San Francisco.

Svensson, M. & B. Klefsjö (2000). *Experiences from Creating Quality Culture for Continuous Improvements in the Swedish School Sector by Using Self-Assessments*. Total Quality Management, Vol. 11, July, p. 4-6

Suomen Standardoimisliitto SFS (2006). [online] [cited 21 November 2006]. *Laadunhallintajärjestelmän luominen*. Available in World Wide Web
<URL:<http://www.sfs.fi/iso9000/laadunhallinta/>>

Suurla, R. (2001). *Avauksia tietämyksen hallintaan*. Eduskunnan kanslian julkaisu. Helsinki. 1/2001.

Tata J. & S. Prasad (1998). *Cultural and structural constraints on Total Quality Management implementation*. Total Quality Management, Vol. 9; No. 8, December, p. 703-710.

Thompson, K. R. & F. Luthans (1990). "Organizational Culture: A behavioural Perspective", In: Schneider, B. (ed.), *Organizational Climate and Culture*, Oxford: Jossey-Bass.

Uusitalo, H. (1997). *Tiede, tutkimus ja tutkielma. Johdatus tutkielman maailmaan*. Juva, WSOY. ISBN 951-0-17457-2.

Van Donk, D. P. & G. Sanders (1993). *Organizational Culture as a Missing Link in Quality Management*. International Journal of Quality & Reliability Management. Vol. 10, No. 5.

Vesalainen J. (2006). *Analyttisyys ja tutkimuksen tekeminen: Metodologia*. Course notes from Organisaatiotutkimus ja tutkimuksen suunnittelu. Non published. University of Vaasa.

- Wärtsilä (2007) [online] [cited 6th February 2007]. *Wärtsilä Company Profile*. Available in World Wide Web <URL: <http://www.wartsila.com/en/aboutus/0/generalcontent,57FDA3AE-A342-4D95-A732-D4C4D9B1A320,92D82833-AB87-4136-8EEB-57206C6F0DCF,,7000.htm>>
- Wärtsilä Finland Oy (2006). *Quality Awareness Campaign material*. Non published.
- Wiener, Y. (1988). *Forms of Value Systems: A Focus on Organizational Effectiveness and Cultural Change and Maintenance*. *Academy of Management Review*. Vol. 13 (4). p. 534-545.
- Zang, Z. (2000). *Developing a model of quality management methods and evaluation their effects on business performance*. *Total Quality Management*. Vol. 1; No. 1, p.129-137.
- Yin, R. (2003). *Case Study Research. Design and Methods*. 3rd edition. Sage Publications: Thousand Oaks: California.