Benefits from TQM for Organisational Performance

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ABSTRACT

Total Quality Management (TQM) is sometimes considered as a management system in continuous change and consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources. Whether TQM improves the performance of companies has been discussed for several years. One way of working with TQM and its values, methodologies and tools is to apply for and work with a quality award. Today, there are international, national, regional, branch-wise and in-company quality awards. The purpose of this thesis is to evaluate whether and describe how working with quality awards affects the performance of companies.

The thesis consists of an extended summary and three appended papers on this subject, each one with a different aim and methodology. Two of the papers study the benefits from in-company quality awards for the performance of units, and one paper studies the financial performance of quality award recipients compared with competitors and branch indices.

The main conclusion of the thesis, which strengthens earlier published results, is that working with quality awards affects financial performance positively if companies successfully implement TQM, which is the case for quality award recipients. Moreover, the results of this thesis have not been able to show strong evidence proving that the performance of units which have worked with in-company quality awards, but have not yet successfully implemented TQM, are affected by this work. However, such units experience that working with in-company quality awards has positive effects on the customers as well as the employees.
SAMMANFATTNING


Uppsatsen består av en ”kappa” och tre bifogade artiklar i ämnet, var och en med olika mål och metodologi. Två av artiklarna beskriver fördelarna med företagsinterna kvalitetsutmärkelser på enheternas resultat, och en artikel beskriver det finansiella resultatet hos utmärkelsemottagare i jämförelse med konkurrenter och branschindex.

Slutsatsen med uppsatsen, som stärker tidigare publicerade resultat, är att arbetet med kvalitetsutmärkelser påverkar det finansiella resultatet positivt om företagen lyckas med implementeringen av offensiv kvalitetsutveckling, såsom är fallet för utmärkelsemottagarna. Resultaten från denna uppsats har inte lyckas att påvisa starka bevis för att resultatet för enheter som arbetat med en företagsintern kvalitetsutmärkelse, men som ännu inte har lyckas med implementeringen av offensiv kvalitetsutveckling till fullo, har påverkats av detta arbete. Enheter upplever däremot att arbetet med företagsinterna kvalitetsutmärkelser har en positiv effekt på såväl kunder som medarbetare.
LIST OF PAPERS

This thesis includes an extended summary and the following three papers, appended in full.

**Paper I**

**Paper II**

**Paper III**
Eriksson, H. (2002). “Experiences of working with in-company quality awards”. The paper has been submitted to *The TQM Magazine*.
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Appended Papers
1. Introduction

This chapter consists of the background to the research area. In addition, the problem discussion, the purpose, the research questions, the definitions, the delimitations, and the structure of the thesis are presented.

1.1 Background

How does one improve the performance of organisations? There is neither a unique answer to that question nor a universal application for organisations. In contrast, there are many different management theories that argue for different, and sometimes similar applications. In this thesis, the management theory of Total Quality Management (TQM) is illuminated. A discussion concerning how TQM is related to other management theories can be found in, for example, Spencer (1994), Dean & Bowen (1994) and Boaden (1996).

Quality has been an important issue for organisations for many years. The early focus on quality evolved from inspection to quality control and later to quality assurance, according to Dale (1999). During the 1990s, TQM evolved as a common term among organisations. Some define TQM as an approach, see Oakland (1993) and Dale (1999). However, Hellsten & Klefsjö (2000) view TQM as a management system in continuous change and consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources. The core values of TQM are considered, by Bergman & Klefsjö (1994) and Hellsten & Klefsjö (2000), to be focus on customers, top management commitment, base decisions on facts, focus on processes, improve continuously and let everybody be committed.

One way of working with TQM and its values, methodologies and tools is to apply for a quality award. One aim of quality awards is to recognise good practice in organisations with the help of competition-like events, see Bergman & Klefsjö (2002). Japan began honouring outstanding quality practices in the 1950s. After the successful development in Japan, several countries established programmes in the late 1980s and early 1990s to recognise the inventive, yet effective, quality practices taking place, see Vokurka et al. (2000). Today, there are international, national, regional, branch-wise and in-company quality awards. Some examples of well-known

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1 The terms “organisation” and “company” are used in this thesis synonymously to describe a private or publicly owned producer of goods or services.

2 Hellsten & Klefsjö (2000) used the term “technique” in their article. The term was later changed to “methodology”. The term methodology will therefore be used in this thesis.
national and international quality awards are the Malcolm Baldrige National Quality Award and the European Quality Award. In many countries, however, the development of national quality awards is still new or non-existent, see Chuan & Soon (2000). Vokurka et al. (2000) and Johnson (2002) also present a thorough list of quality awards and a comparison between different awards.

The different quality awards have many similarities. Almost all the contemporary quality awards involve work aimed at obtaining a description of the company’s way of working based on a set of criteria and questions, as well as an evaluation of the description. One main difference between the types of quality awards is the group of companies that the award is aimed at. For example, only units within a company can apply for an in-company quality award, while a national quality award is open for many different organisations in a whole country.

To be able to apply for any type of quality award, the company has to perform certain activities. For example, work such as planning for an application and training of employees has to be performed. Further, the company has to describe its activities and follow-up the application and the suggested improvements. The improvements can, in turn, result in improved performance in companies. However, working with quality awards can be very time-consuming for companies, as “everyday” activities within the company cannot be neglected. Whether this work connected with quality awards results in improved performance in the company, or not, is an important issue for many companies of today.

1.2 Problem Discussion

The relationship between TQM initiatives and improved performance is frequently discussed. Some people claim that TQM programmes are ineffective, see, for example, Eskildson (1994) and Harari (1997). Bergquist & Ramsing (1999) and Przasnyski & Tai (1999) argue that it is difficult to establish a relationship between TQM and improved performance in companies. On the other hand, results have been published which state that TQM investments do result in improved performance in companies, see, for example, Lemak & Reed (1997), Hendricks & Singhal (1997) and Handsfield et al. (1998). A common approach to studying possible benefits regarding TQM investments is to investigate how companies that have received a quality award have been developing in terms of operational and financial performance, see for example Hendricks & Singhal (1999), Przasnyski & Tai (1999) and Bergquist & Ramsing (1999).
Today, there are several companies applying for quality awards in Sweden each year, and some companies have also received a quality award. According to Hendricks & Singhal (1997), companies in the United States that have successfully implemented TQM, and hence received a quality award outperform a control sample of companies similar to the award recipients. In Sweden no similar study has been performed in order to understand how a successful implementation of TQM affects the financial performance of the company, or in other words, to describe if quality award recipients outperform companies that have not successfully implemented TQM. Besides cultural differences between the United States and Sweden, the companies in the two countries also use different models in their application for the quality awards.

Besides organisations that apply for national or regional quality awards, there are also some companies in Sweden that work with in-company quality awards. In addition, there are also companies that have ceased or are ceasing their in-company quality awards. Despite the work on in-company quality awards carried out in organisations, no study has been performed, according to extensive literature studies, with the aim of understanding how units experience and are affected by working with in-company quality awards. Nor, to the knowledge of the present author, have the effects of the work connected with in-company quality awards on the performance of units within companies been studied. One issue in this context is whether units that apply for and work with in-company quality awards experience improved performance in comparison with units that do not apply for and work with in-company quality awards.

Hence, the main problem that this thesis sets out to illuminate is whether companies benefit from working with quality awards or not. Does working with quality awards result in improved performance in companies, or are the resources spent on quality awards an inappropriate investment? Do companies in Sweden that successfully implement TQM outperform other companies which have not made such an implementation? Do units in Sweden that apply for and work with in-company quality awards outperform units that do not apply for and work with in-company quality awards?

1.3 Purpose of the Thesis
The purpose of the thesis is to evaluate whether and describe how working with quality awards affects the performance of companies\(^3\).

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\(^3\) “Companies” are studied in research question 1. However, in research question 2 and 3 “units” within companies are studied.
1.4 Research Questions
To be able to fulfil the purpose of the thesis, the following research questions have been formulated:

1. What are the effects of a successful implementation of TQM on the financial performance of companies?
2. What are the effects of working with in-company quality awards on the performance of units?
3. How are units affected by and which experiences have been derived from working with in-company quality awards?

The number of each research question is also the number of the paper that mainly sets out to illuminate the research question.

1.5 Definitions
The following definitions are vital to the thesis:

Total Quality Management (TQM) is a management system in continuous change and consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources, see Hellsten & Klefsjö (2000).

An in-company quality award is a quality award that is only aimed at units within a given company.

Performance is a measure of attainment achieved by an individual, a team, an organisation or a process, see EFQM (1999). In the present study, the performance of or the measure of attainment achieved by organisations or companies is studied.

Receiving a quality award is used as a proxy for successful implementation of TQM, see Hendricks & Singhal (1997).

Self-assessment is a comprehensive, systematic and regular review of an organisation’s activities and results referenced against a model of business excellence, see EFQM (1996).

The definitions are discussed further in Chapter 2.

1.6 Delimitations
This study is limited to Swedish companies, primarily in order to minimise cultural differences between companies.
1.7 Thesis Structure

The chapters of the thesis are presented below. Besides the chapters, the thesis also consists of three appended papers; see Figure 1.1 for the chapters, the appended papers and the main thread of the thesis.

Chapter 1: Introduction. Background to the research area, the problem discussion, the purpose, the research questions, the definitions, the delimitations and the structure.

Chapter 2: Theoretical frame of reference, including TQM, quality awards, self-assessment and the effects of TQM on performance.

Chapter 3: Methodology. Discussion concerning the research design, the research approach and the validity and reliability of the thesis.

Chapter 4: Summary of the three papers that are appended.

Chapter 5: Conclusions and ideas for further research.

Figure 1.1 The figure shows the structure of the thesis, including the five chapters, the appended papers and the main thread of the thesis.
2 Theoretical Frame of Reference

In this chapter the theoretical frame of reference is discussed. Areas such as TQM, self-assessment, quality awards and the relationship between TQM and performance are described. Moreover, some criticisms of TQM are presented.

2.1 Quality

In order to keep a competitive advantage on the market, organisations have for many years focused on the quality of their products. Different initiatives to increase the quality of products and services have evolved during the years. The early focus, at the beginning of the twentieth century, was on inspection, which included checking that the manufactured products met the specifications. During the past few decades the focus in organisations has shifted from inspection to quality control of products. Through quality control organisations are trying to identify, directly in the process, flaws which can be corrected before producing too many products that do not meet the specifications. In the evolution of the concept of quality, the focus on quality has moved even further back in the process. Quality assurance has become a recognised practice for planning and preventing problems at the source before starting to manufacture products. The latest focus in the evolution of quality is considered to be on Total Quality Management (TQM), which involves the application of quality management principles to all aspects of the organisation, including customers and suppliers, and their integration with the key business processes (Dale, 1999).

However, there are also other views of the evolution of quality than the single-path evolution presented above by Dale (1999). Kroslid (1999), for example, identifies a dual-path framework with two different schools of quality management, “the deterministic school of thought” and “the continuous improvement school of thought”. The deterministic school of thought has developed from a deterministic view of reality, with a belief in the existence of one best way, while the continuous improvement school of thought is founded on a reality full of variation, with an awareness of improvement potential in every aspect of work. Kroslid (1999) argues that China, Japan, South Korea, Sweden and the United States, in terms of their current national approach, predominantly position themselves within the continuous improvement school of thought, while Australia, Brazil, Germany, Great Britain, Italy, Norway and Saudi Arabia belong more to the deterministic school of thought.
2.2 Total Quality Management (TQM)

Different definitions of TQM have been presented over the years. Some of these definitions are presented below. Oakland (1993) states that TQM is “an approach for improving the competitiveness, effectiveness and flexibility of a whole organisation”. Dale (1999) defines TQM, in accordance with ISO 8402, as “a management approach of an organisation, centred on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organisation and to society”. Dale (1999) states further that tools and methodologies are used in TQM in order to improve the organisation continuously. Shiba et al. (1993) argue that “Total Quality Management (TQM) is an evolving system of practices, tools, and training methods for managing companies to provide customer satisfaction in a rapidly changing world”. Hellsten & Klefsjö (2000) developed the definition of TQM used in this thesis. Hellsten & Klefsjö (2000) define TQM as a management system in continuous change and consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources, see also Figure 2.1. As shown, there are different definitions of TQM presented by different authors of TQM literature. For a further discussion concerning the definition of TQM and the confusion about principles and practices of TQM, see Boaden (1997).

![Figure 2.1 Total Quality Management (TQM) seen as a continuously evolved management system consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources. Source: Hellsten & Klefsjö (2000).](image-url)
2.3 Values
An organisation’s core values are the basis of its culture, see Hellsten & Klefsjö (2000). The core values should not be considered to stand alone, but rather they should be looked upon as being connected to each other. The values may vary a little between different organisations and over time, according to Hellsten & Klefsjö (2000). Moreover, different values are included in the concept of TQM by different authors, as well as in different quality awards. Since core values are an essential part of the work connected with quality awards, some of the most recognised core values of TQM are very briefly presented below, see, for example, Bergman & Klefsjö (1994) and Hellsten & Klefsjö (2000). The core values are discussed in detail in the references cited below.

2.3.1 Focus on Customers
Focusing on customers is stressed by most authors of TQM literature to be an important part of TQM. Shiba et al. (1993) define a customer as the person or group who receives the work that one carries out, and asserts that a business function without a customer should not be performed. Evans & Lindsay (1996) stress the importance of customer focus, and imply that any business has four goals: to satisfy its customers, to achieve higher customer satisfaction than its competitors, to retain customers in the long run and to gain market shares.

2.3.2 Base Decisions on Fact
An important element in quality philosophy is to make decisions which are based on fact and are well founded, and not to allow random factors to be of decisive importance, see Bergman & Klefsjö (1994). Shiba et al. (1993) argue that at no time should one see speculation or opinion as the basis of decision-making. This core value also focuses on the need for utilizing efficient statistical tools, such as the seven quality control tools and the seven management tools, see Dale (1999) for a description of these tools.

2.3.3 Focus on Processes
Nearly every organised activity can be looked upon as a process whose aim is to deliver products which satisfy its customers, see Bergman & Klefsjö (1994). Davenport (1993) states that process orientation involves elements of structure, focus, measurement, ownership, and customers, and that adopting a process view implies a commitment to process improvement.

2.3.4 Improve Continuously
Deming (1986) states in one of his 14 points for management that one should improve constantly and forever the system of production and service, to enhance quality and productivity, and thus constantly decrease
costs. Deming also emphasised the use of the improvement cycle, also called the Shewhart cycle and the Deming cycle, according to Evans & Lindsay (1996). The improvement cycle is composed of four stages: plan, do, study and act (PDSA). Similarly, according to Shiba et al. (1993), any activity can be improved if you systematically plan the improvement, understand the current practice, plan and implement the solutions, analyse the results and their causes and perform the cycle again.

2.3.5 Let Everybody be Committed
In order to ensure that the quality strategy is successful, everybody has to be committed to customer satisfaction and to continuous quality improvement, see Bergman & Klefsjö (1994). Moreover, Shiba et al. (1993) argue that everyone in the company should be mobilized in order to improve the way in which they perform their jobs and satisfy customers.

2.3.6 Top Management Commitment
Dale (1999) states that it is the responsibility of the senior management team to create the organisational environment, atmosphere, values and behaviour in which TQM can achieve its potential. In addition, Oakland (1993) stresses the importance of top management commitment for success in promoting business efficiency and effectiveness. Moreover, Oakland (1993) states that TQM must be truly organisation-wide, and it must start at the top with the Chief Executive.

2.4 Methodologies
Hellsten & Klefsjö (2000) argue that methodologies are “ways to work within the organisation to reach the values”. A methodology, according to Hellsten & Klefsjö (2000), “consists of a number of activities performed in a certain way”. It is important to note that the methodologies presented in Figure 2.1 are just examples and not a complete list. The main methodology studied in this thesis is self-assessment. Self-assessment has many similarities to the phases that an organisation goes through when applying for a quality award. Hence, self-assessment is studied in this thesis in order to describe the work connected with quality awards; see also Conti (2002) for a general outline of quality-related assessments and their connection to quality awards. The definition of, the reasons for, and the procedure and the output of self-assessment are the main topics discussed in this section.

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4 The third stage, “study”, was formerly called “check”, and the improvement cycle used to be known as the “PDCA cycle”, according to Evans & Lindsay (1996).
2.4.1 Self-assessment
Assessment and self-assessment have during the last few decades been established as important methodologies for improvements. One difference between assessment and self-assessment is that the latter does not involve any external organisation of the work, while the first does. According to EFQM (1996) self-assessment is “a comprehensive, systematic and regular review of an organisation’s activities and results referenced against a model of business excellence”. Further, according to EFQM (1996), “the self-assessment process allows the organisation to discern clearly its strengths and areas in which improvements can be made and culminates in planned improvement actions which are then monitored for progress”.

Samuelsson & Nilsson (2002) state, in alignment with Conti (2002) and after studying nine large organisations, that there is no universal method for self-assessment. On the contrary, their findings indicate that several approaches to self-assessment may be successful as long as they fit the organisation, are used continuously, and foster participation. Samuelsson & Nilsson (2002) claim further that self-assessment must be considered from a holistic perspective in order to realise its full potential. Moreover, Conti (1997) argues that self-assessment and the subsequent improvement planning should be integrated into the corporate strategic planning cycle as a first fundamental step in the process of integration of quality concepts into business practice.

Further, van der Wiele et al. (1996) have identified, on the basis of data from 117 organisations that have experiences from self-assessment, the five most important reasons for organisations taking the initiative to start the process of self-assessment. These are:
1. finding opportunities for improvement
2. creating a focus on the TQM model portrayed by the award criteria
3. directing the improvement process
4. providing new motivation for the improvement process
5. managing the business

In more detail, van der Wiele et al. (1996) point out that organisations are using self-assessment to identify strengths and weaknesses, and to facilitate internal and external learning in terms of the transfer of best practice and ideas. Brown & van der Wiele (1996) show, on the basis of a national postal survey of self-assessment practices in Australia, that the reasons for using self-assessment are mainly to find opportunities for improvement and to direct the improvement process, while the goals for the introduction of self-assessment are to improve business performance, to drive continuous improvement and to increase quality-awareness in all aspects of the business.
The self-assessment procedure can be divided into four phases according to Svensson & Klefsjö (2000). These four phases, see Figure 2.2, are closely related to the four phases of the improvement cycle ‘plan-do-study-act’, which was emphasised by Shewhart and later by Deming, see, for example, Evans & Lindsay (1996).

- In the first step it is very important to plan the self-assessment process seriously. Why shall we perform a self-assessment? When shall the work be carried out? Who shall be involved? Which model shall be used as a basis for the description?
- In step two a description of the organisation shall be obtained, preferably based on the criteria from a quality award or another similar tool for business excellence.
- In the next step an analysis of the description shall be made in order to find strengths and improvement possibilities.
- In step four, on the basis of the results from the analysis a plan for improvements shall be created. What shall be done? What resources are needed? Who shall perform the work? Who is responsible?

The plan for improvement, based on the analysis of the description, is the major output from the self-assessment procedure. Self-assessment usually generates many improvement opportunities, and it is important to prioritise this information and use it to drive business improvement, see Porter &
Tanner (1996). Moreover, it has been argued that the appropriate follow-up of the self-assessment, the establishment of action plans and their implementation, is highly dependent on the commitment of top and line management, see also Porter & Tanner (1996). Simpson et al. (1998) discuss the reaction of receptiveness in quality award applicants to external feedback reports from the award assessors. Simpson et al. (1998) argue that it is widely accepted that subsequent self-assessment is more successful than the first exercise. In one case cited in their study, a pragmatic approach has been taken to the management of the feedback and hence the company is more susceptible to the feedback. However, the feedback phenomenon is complex, according to Luckett & Eggleton (1991), who state that care must be exercised in making both predictions about the impact of feedback and general statements about the effectiveness of the feedback. Further, Argyris (2000) discusses how and why so much of today’s business advice, such as feedback from assessors, is flawed and the fact that many programmes, such as TQM, do not create an internal commitment.

However, Brown & van der Wiele (1996) find that the organisations in their study are positive about the results of self-assessment. Moreover, Finn & Porter (1994) state, according to a survey study, that companies are increasingly using self-assessment and that benefits from this approach are quickly realised.

2.5 Tools

Hellsten & Klefsjö (2000) define tools as “rather concrete and well-defined tools, which sometimes have a statistical basis, to support decision-making or facilitate analysis of data”. It is important to note that the tools presented in Figure 2.1 are just examples and not a complete list. A tool developed by the Swedish Institute for Quality (SIQ) and called the SIQ Model for Performance Excellence is the main tool studied in this thesis, since it is used by most of the quality awards in Sweden.

2.5.1 The SIQ Model for Performance Excellence

Many different tools have been developed in order to support self-assessment and the work connected with quality awards. The criteria of the Malcolm Baldrige National Quality Award (MBNQA), see NIST (2001), and the criteria of the European Quality Award (EQA), see EFQM (1999), are probably the most well-known of these tools.

The Swedish Quality Award is organised by the Swedish Institute for Quality (SIQ). The SIQ has developed a tool called the SIQ Model for Performance Excellence, which consists of 13 core values and seven criteria, which are further divided into 27 sub-criteria. Some of the core values of the
SIQ model for Performance Excellence have many similarities to those described in Chapter 2.3. The core values of the SIQ Model for Performance Excellence are customer orientation (see Section 2.3.1), committed leadership (see Section 2.3.6), participation by everyone (see Section 2.3.5), competence development, long-range perspective, public responsibility, process orientation (see Section 2.3.3), prevention, continuous improvement (see Section 2.3.4), learning from others, faster response, management by facts (see Section 2.3.2) and interaction, see SIQ (2002). The criteria of the SIQ Model for Performance Excellence are displayed in Figure 2.3.

Figure 2.3 The figure shows the SIQ Model for Performance Excellence with the criteria and points. Source: SIQ (2002).

The SIQ Model for Performance Excellence, which was inspired by the criteria of the Malcolm Baldrige National Quality Award that were used up to 1996, has many similarities to the latter. For example, both emphasise the results achieved by the organisations, see Chuan & Soon (2000). However, there are also differences between the two. For example, the SIQ Model for Performance Excellence places a greater emphasis on evaluation and improvement concerning all the criteria addressed and on the practice of TQM principles in all organisational activities. There is also a relatively greater emphasis placed on the organisation’s impact on society, and on the organisation’s commitment to the customers compared with most of the criteria of other national quality awards, see Chuan & Soon (2000).
2.6 Quality Awards

Today, there are many different kinds of quality awards. Some examples are international, national, regional, branch-wise and in-company quality awards. The methodology of self-assessment and the tool called the SIQ Model for Performance Excellence are an important part of the quality awards in Sweden, and have hence been presented in the preceding section. In this section, national quality awards and in-company quality awards are briefly discussed, due to the fact that these quality awards are the main focus of this thesis.

2.6.1 National Quality Awards

Japan began honouring outstanding quality practices in the 1950s. After the successful development in Japan, several countries established programmes in the late 1980s and early 1990s to recognise the inventive, yet effective, quality practices taking place, see Vokurka et al. (2000).

There are many similarities between the different national quality awards. Almost all the existing national quality awards are carried out in the three evaluation dimensions of approach, deployment and results, see Chuan & Soon (2000). For a thorough list of quality awards and a comparison between different awards, see, for example, Vokurka et al. (2000) and Johnson (2002). Some quality awards are also given a short presentation by the International Academy for Quality, see IAQ (1995). However, the development of national quality awards in many countries is still new or non-existent, see Chuan & Soon (2000).

The award process of the Swedish Quality Award includes four steps. These are preparation, description, evaluation and improvement, see SIQ (2002). By describing the organisation’s present way of working in relation to the SIQ Model for Performance Excellence, improvement areas can be identified by examiners of the Swedish Quality Award, who first perform an individual evaluation, including awarding of points and identification of strengths and improvement areas. After the individual evaluation, the examiners who evaluate a particular organisation reach a consensus regarding the points for each criterion, the strengths and the improvement areas. The organisation may use the feedback report with the strengths and improvement areas to improve the organisation’s way of working. A separate judging committee decides, after the evaluation from the examiners, if any of the organisations that have applied for the quality award have reached such a high level that a site-visit will be performed there. After the site-visit, one or more recipients of the Swedish Quality Award are presented if the judging committee finds any of the quality award applicants worthy of the award.
2.6.2 In-company Quality Awards

An in-company quality award is a quality award that is only aimed at units within a given organisation. One possible benefit of an in-company quality award in comparison with a national quality award is that it is easier for units to benchmark and learn the best practices, since access to the award recipients of in-company quality awards is easier. For instance, van der Wiele et al. (1996) claim that both internal and external learning in terms of best practices and the transfer of ideas is taking place when performing self-assessment, and this procedure contributes to the improvement of the performance of organisations.

One disadvantage of a competition like an in-company quality award can be that too much focus is on the scoring instead of finding and executing improvements. Conti (2001) identifies this problem, and states that if the goal of self-assessment is performance improvements, the best choice is to ignore scores and weights, see also Conti (2002). Further, Conti (2001) argues that internal awards linked to self-assessment can indeed be a stimulus; they can drive interest and create the motivation to start. However, although awards will certainly help to produce improvement at the beginning, the rate of improvement then tends to slow down, according to Conti (2001).

Myers & Heller (1995) discuss AT&T’s in-company quality award, called the Chairman’s Quality Award (CQA), and conclude that the units that have worked with and applied for the award show great improvement in the average scores from the examiners. Evidence of success is the increasing median scores for the eight units involved in the CQA between 1990 and 1993. The CQA is based on the Malcolm Baldrige National Quality Award, and consists of site-visits and award criteria like leadership, strategic quality planning, and customer focus. The CQA differs from the Baldrige Award in that there are three CQA award levels, an achievement award, an improvement award and a business excellence award.

Hannukainen & Salminen (1998) discuss Nokia’s Current State Analysis (CSA) tool. CSA is a tool for self-assessment concerning process capability, and was developed in nine steps, including studying the criteria of the European Quality Award. According to Hannukainen & Salminen (1998), Nokia is, through this successful tool, exhorting its people around the globe to establish the most challenging performance targets based on their self-assessment concerning process capability. The CSA scoring system has seven performance levels, from zero (theoretical knowledge only) to seven (verified world-class performance).
2.7 Successful Implementation of TQM

In the first research question formulated in this thesis, the effects of a successful implementation of TQM on the financial performance of companies are studied. Hence, it is of great importance to illuminate different definitions of and opinions about what constitutes a successful implementation of TQM.

Hackman & Wagerman (1995) have provided a measuring framework which can be used to test if TQM has been properly implemented. This framework was used in a qualitative study by McAdam & Bannister (2001) in order to determine if the framework of TQM was perceived to have been implemented. Lascelles & Dale (1991) identified six levels of adoption of TQM. These levels are uncommitted, drifters, tool pushers, improvers, award winners and world-class, see Figure 2.4.

![Figure 2.4](source: Lascelles & Dale (1991)).

It is argued by Lascelles & Dale (1991) that these levels are not necessarily the stages through which organisations pass on their TQM journey; but rather they are characteristics and behaviour which organisations display in reaction to TQM. For example, at level 3, “tool-pushers”, the organisations are in an increasing number looking at the criteria of quality awards, while at

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5 Lascelles & Dale (1991) use the term “Total Quality Improvement” (TQI) instead of “Total Quality Management” (TQM). TQI is, according to these authors, an enabling mechanism based on continuous improvement that incorporates the strategic components that drive the entire business organisation. TQI is required to reach the vision of TQM.
level 5, “award winners”, the organisations have reached the stage of being able to compete for a quality award and some recipients of quality awards are also present at this level. At this stage the organisations have reached a point in their total quality maturity where they have developed the kinds of cultures, values, trust, capabilities, relationships and employee involvement in the business that are required to receive a quality award, according to Lascelles & Dale (1991). Ghobadian & Gallear (2001) use, among other criteria, the receipt of a quality award as a measurement for a successful implementation of TQM. Hendricks & Singhal (1997) also use the receipt of quality awards as a criterion for a successful implementation of TQM programmes. According to Lascelles & Dale (1991), the last level, “world-class”, which is only reached by a handful of organisations, is characterised by the total integration of quality improvement and business strategy to creatively delight the customer.

2.8 TQM and Performance

This thesis evaluates whether and describes how working with TQM in general and quality awards in particular affects the performance of companies. Hence, earlier published results describing the connection between TQM and performance are of great importance for the thesis, and are therefore presented in the present section.

There are many different approaches to estimating the possible benefits of TQM. Historically, one of the most common ways to quantify the benefits of TQM has been to estimate the costs of poor quality, see, for example, Juran (1989) and Sörqvist (2001). In recent years, research has also shown that one of the goals of TQM, customer satisfaction, has a significant positive impact on market value as well as accounting returns, see, for example, Andersson & Fornell (1994). Another way to calculate the benefits of TQM is to balance expenditures against expected revenue gains and reduced costs. Rust & Zahorik (1995) call this approach Return on Quality (ROQ).

According to EFQM (1999), performance is a measure of attainment achieved by an individual, a team, an organisation or a process. In the present thesis, the measure of attainment achieved by companies is studied. Samson & Terziovski (1999) show that the relationship between TQM practice and organisational performance is significant in a cross-sectional sense, in that TQM practice intensity explains a significant proportion of variance in performance. Samson & Terziovski (1999) show further that the categories of leadership, management of people and customer focus are the strongest significant predictors of operational performance. Moreover, the major findings of Allen & Kilmann (2001) show that higher levels of
company performance are significantly correlated with greater use of TQM practices. McAdam & Bannister (2001) discuss the need for performance measurement within the TQM framework, and the fact that both hard and soft measures, and both management- and employee-perceptive measures should be used to measure the outcome of TQM.

2.8.1 Benefits from TQM for Nations and Regions

Link & Scott (2001) performed an economic evaluation of the Baldrige National Quality Program and concluded that the net private benefits associated with the Baldrige National Quality Program to the economy as a whole in the United States were conservatively estimated to be $24.65 billion. When compared with the social costs of $119 million associated with the programme, it is clear that, from an evaluation perspective, the Baldrige National Quality Program is socially beneficial as summarised by a benefit-to-cost ratio of 207 to 1, see Link & Scott (2001). Moreover, Fisher et al. (2001) evaluate whether offering a regional quality award in the United States brings economic returns to the region and the state. Although the empirical results recorded in the study are mixed, the authors believe that a state’s commitment to quality business practices has a positive impact on economic development in the studied states.

2.8.2 Benefits from TQM for Performance

The General Accounting Office study (GAO, 1991), which was one of the first studies trying to establish a link between TQM practices and the performance of companies, evaluated Malcolm Baldrige recipients and companies that had received a site-visit (i.e. companies that in a sense were close to winning an award). The main conclusion from the GAO study was that the companies investigated improved their operating results. Moreover, better employee relations were achieved, improved operating procedures were attained, greater customer satisfaction was accomplished, and an increased market share and profitability were gained. Many other articles also discuss the results from the GAO study; see, for example, Shetty (1993) and Zairi et al. (1994). Bergquist & Ramsing (1999) use similar methods to those described in the GAO study, see GAO (1991). However, Bergquist & Ramsing (1999) claim that the results of their study cannot conclusively determine that quality award recipients perform better than others, even if most of the respondents in the study believed that using award criteria did have a positive impact on the performance of the company.

Further, the findings of Oakland (1999) indicate that quality award recipients and applicants are unequivocal in their comments about the benefits of TQM and self-assessment for business results, including profitability, an increased market share and more satisfied customers. Quality award recipients like Texas Instruments Defence Group also claim that quality
work can yield tremendous rewards, see Junkins (1994). Moreover, Letza et al. (1997) have presented a thorough discussion of different studies concerning the effect of TQM on different performance measurements.

**2.8.3 Benefits from TQM for Financial Performance**

Hendricks & Singhal (1997) compare recipients of quality awards with different control companies, see also Hendricks & Singhal (1999). The indicators chosen in their research to study performance are changes in the operating income, the sales, the return on assets, the return on sales, the total assets and the number of employees. The main conclusion from their research is that companies that have received a quality award outperform the control companies concerning operating income-based measures. Wrolstad & Kreuger (2001) showed that the companies that had received a quality award presented better results than a control group concerning measures of the operating profit margin, return on sales and return on equity, while the difference was not so large between the two groups concerning the operating margin, but still in favour of the quality award recipients. Lemak & Reed (1997) claim also that TQM leads to an improved profit margin, after studying sixty companies that have demonstrated a commitment to TQM for a period of at least five years. Handsfield et al. (1998) claim that the results of their study provide support for the existence of a relationship between a company’s quality-driven strategies and improved financial performance. Easton & Jarrell (1998) also show clear evidence that the long-term performance of companies that have implemented TQM is improved.

One approach to measuring the benefits of TQM initiatives is to follow the share price on the stock market of a company that has successfully implemented TQM. Helton (1995) claimed that companies that had received the Baldrige National Quality Award outperformed companies on the Dow Jones Industrials index or the Standard & Poor index. George (2002) argues too that one should invest in companies that have successfully implemented TQM, as these companies show better results on the stock market. Moreover, Hendricks & Singhal (2001) state that award recipients in America significantly outperform firms in the various control groups. Depending on the control group used, the mean outperformance ranges from 38% to 46%. However, as discussed in Przasnyiski & Tai (1999), the returns are often calculated without adjusting for market and industry factors and are not annualised either, which is not correct from a financial point of view. When adjusting to these factors, Przasnyiski & Tai (1999) show instead that the stocks of Malcolm Baldrige National Quality Award recipients underperform stocks with a similar risk and in a similar branch of industry by a 31% margin.
2.9 Criticism of TQM

In this section, some criticisms of TQM are discussed in order to give a more complete picture of the concept. There are many different ways to estimate the possible benefits of TQM, and different studies have shown different results. One reason for the different results is that opinions differ about what TQM really is, see, for example, Boaden (1997) and the different definitions of TQM in Chapter 2.2. The different opinions concerning what TQM is lead to different opinions about what TQM should result in. Eskildson (1994) also states, on the basis of survey results, that many organisations do not succeed in their TQM efforts. The two main reasons are argued here to be vague definitions of TQM and inappropriate implementation.

Harari (1997) claims that TQM programmes are ineffective and gives ten reasons why TQM does not work. Harari (1997) states that, after putting together all the independent research conducted by consulting firms, the conclusion is that only about one-fifth, or at best one-third, of the TQM programmes in the United States and Europe have achieved significant or even tangible improvements in quality, productivity, competitiveness or financial results. Pyzdek (1999) summarizes the criticisms of TQM that have been revealed over the years and adds a few criticisms of his own. In summary, Pyzdek (1999) believes that TQM professionals constantly need to seek to improve the knowledge of quality and the methods for attaining it. Moreover, van der Wiele et al. (2000) evaluate whether TQM is a fad, fashion, or fit. A fit of TQM into normal management practice means that the original fad will have affected the normal way of working within the whole organisation and not just a small part, such as would be the case in the adoption of a mere fashion. The fieldwork from van der Wiele et al. (2000) shows that a change to a fit of TQM to normal management will only occur when there is a strong internal motivation and emotional involvement to implement TQM.

Moreover, Hackman & Wagerman (1995) give two reasons why organisational change programmes including TQM can go wrong. First, the changes may be so ambitious and involve such fundamental alterations of the social system that, for all their potential merit, the organisation cannot accommodate to them. Second, the changes may be more like window-dressing than real changes, as in a programme that exhorts people to alter their behaviour but requires managers to do little other than issue the exhortation. Knights & McCabe (1997) state that management often do not understand the flaws/problematics and underlying philosophy of TQM. Consequently, they continue to adopt inconsistent approaches, such as
attempting to control costs and employees while espousing the importance of the customer and the needs of a trust-based culture.

Moreover, Beckford (1998) presents a critical review of different techniques and tools of TQM, and the philosophies of different quality gurus. Finally, for a thorough discussion concerning the main criticism of TQM, see Krosid (1999).

2.10 Summary of the Theories

The theories and earlier published results that have been presented in Chapter 2 are of greater or lesser importance in the studies presented in the different papers. Therefore, Table 2.1 illustrates and summarises the level of importance which the theories and earlier published results presented in Chapter 2 have for the different papers. The table also illustrates which study was the reason for the different sections being included in Chapter 2 (i.e. if the importance of a section is high in a paper, that study was the reason for the section being included in Chapter 2).

Table 2.1 The table illustrates the level of importance which the theories and earlier published results presented in Chapter 2 have for the different papers.

<table>
<thead>
<tr>
<th>Section/Paper</th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
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<tbody>
<tr>
<td>2.1 Quality</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>2.2 TQM</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>2.3 Values</td>
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<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>2.4 Methodologies</td>
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<td>High</td>
<td>High</td>
</tr>
<tr>
<td>2.5 Tools</td>
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<td>Low</td>
<td>High</td>
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<tr>
<td>2.6 Quality Awards</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>2.7 Succ. Impl. of TQM</td>
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<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>2.8 TQM and Performance</td>
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<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>2.9 Criticism of TQM</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
3 Methodology

In this chapter the chosen methodology is presented. The chapter also includes a description and discussion of aspects related to the chosen research approach and strategy. Further, other relevant selections are presented, and the validity and reliability of the thesis are discussed.

3.1 Research Approach

The term “methodology” focuses on the best means for gaining knowledge about the world, see Denzin & Lincoln (2000). According to Taylor & Bogdan (1984), methodology refers to the way in which we approach problems and seek answers. Before starting a study, one can, for example, define what the goal of the research is going to be, and whether the research is going to be mainly positivistic or hermeneutic, inductive or deductive, quantitative or qualitative. These issues are discussed below.

3.1.1 Goals of Research

Dane (1990) claims that the immediate goals of research - exploration, description, prediction, explanation and action – provide us with a strategy for figuring out which questions to ask and which answers to seek. The purpose of this thesis is to evaluate whether and describe how working with quality awards affects the performance of companies. Descriptive research involves examining a phenomenon to define it more fully or to differentiate it from other phenomena, according to Dane (1990), who states further that descriptive research involves attempting to define or measure a particular phenomenon, usually by attempting to estimate the strength or intensity of a behaviour or the relationship between two behaviours.

Phillips & Pugh (2000) argue that in descriptive research one is trying to find the limits of previously proposed generalisations. The relationship between working with quality awards and the performance of companies has not been studied thoroughly from a Swedish perspective. Hence, this thesis is trying to find the limits of previously proposed generalisations; i.e. to evaluate whether a successful implementation of TQM also improves the financial performance of Swedish companies. Moreover, in-company quality awards have not been of great research interest. Hence, in this thesis, in-company quality awards are illuminated in order to evaluate whether

6 In this chapter, the meaning of the term “methodology” is different from the one presented in Chapter 2.
7 Phillips & Pugh (2000) use the term “testing-out research” for “descriptive research”. However, the meanings of the two terms, testing-out research and descriptive research, are similar.
previously proposed generalisations about quality awards are also true of in-company quality awards.

3.1.2 Positivism or Hermeneutics

Positivism and hermeneutics are the names of two dominant and contradictory traditions of research in the science dealing with people and society, see Andersson (1979). Hermeneutics can be translated into the “art of interpretation” or “interpretation science”. Positivism, on the other hand, is built upon experimentation, quantitative measures and logical discussion, see Wiedersheim-Paul & Eriksson (1991).

Arbnor & Bjerke (1977) argue that there are three different methodological views: the analytical view, which is positivistic, the system view, which to some extent is positivistic, and the actor view, which is anti-positivistic. The analytical view assumes that knowledge is independent of the individual and that the world can be understood in an objective way in which the whole is the sum of the parts. On the other hand, the system view assumes that knowledge is system-dependent, that the whole differs from the sum of the parts, and that the parts are dependent on the system. Finally, the actor view assumes that knowledge is dependent on the individual, and that the actors explain the whole.

The author of this thesis has a background in natural science. Instead of using interpretation and understanding, as perhaps a hermeneutic researcher would do, the approach of the author to research involves trying to find and simplify problems. This view of research is mainly a positivistic and an analytical approach to research. The author’s intention in writing this thesis has been to try objectively to apply operational measures of performance and by logical discussion try to describe a relationship between working with quality awards and the performance of companies (see further Paper I and Paper II).

However, some of the research conducted in this thesis is based on an actor view and has a more hermeneutic approach. For example, the author of this thesis has made interpretations and drawn conclusions to some extent on the basis of values and experience that the author possesses. Further, it is the author’s opinion that the knowledge presented in Paper III is dependent on the actors involved in in-company quality awards, and that these actors explain the whole: how units are affected by and which experiences have been derived from working with in-company quality awards. The research conducted in the study described in Paper III also accepts a constructivist paradigm, which means that realities are multiple and dependent on the individual persons or groups that hold the constructions. Constructivism is thoroughly described in Guba & Lincoln (2000).
3.1.3 Induction or Deduction
When conducting research, one normally distinguishes between induction and deduction. Molander (1988) states that the idea of induction is the generation of general conclusions from the specific case. Deduction, on the other hand, states the explanation of a specific case from a general rule. Wiedersheim-Paul & Eriksson (1991) make the following definition of induction and deduction:

**Deduction:** From theory we form hypotheses, which are testable statements about reality. Through logical conclusion we derive the result.

**Induction:** From separate phenomena in reality we derive general statements.

Figure 3.1 shows graphically the theory by Wiedersheim-Paul & Eriksson (1991) about inductive and deductive research.

![Diagram of inductive and deductive research](image)

Figure 3.1 The figure shows the principles of inductive and deductive research. Source: Wiedersheim-Paul & Eriksson (1991).

This thesis includes both deductive and inductive parts, and has many similarities to Figure 3.1. The first part of the study was mainly deductive. From the theory of the link between quality awards and performance, hypotheses were formed. For example, one hypothesis was that working with quality awards affects the performance of companies. The second part of the study was mainly inductive. Units that had applied for in-company quality awards (see Paper II) and companies that had received a quality award (see Paper I) were studied in order to make generalisations to form theoretical propositions about TQM in general and quality awards in particular, and hence to contribute to the theory about the link between working with quality awards and the performance of companies. The
3.1.4 Quantitative or Qualitative
Today two major categories of research methods exist, namely quantitative and qualitative methods. According to Merriam (1994), information brought by words is qualitative, while information brought by numbers is quantitative. Qualitative research implies an emphasis on the qualities of entities, and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. In contrast, quantitative studies emphasise the measurement and analysis of causal relationships between variables, not processes, see Denzin & Lincoln (2000). However, Allwood (1999) maintains that this distinction between quantitative and qualitative methods is not appropriate, because research methods in general consist of both qualitative and quantitative elements. Moreover, Holme & Solvang (1991) argue that there are many benefits to be gained by combining qualitative and quantitative methods, that a qualitative study can be a follow-up activity of a quantitative study, and that a qualitative study can serve as a preparatory study prior to a quantitative study.

It has therefore been the author’s intention to use both qualitative and quantitative elements in this thesis, without arguing that the one is better than the other. Paper I and Paper II are, however, mainly quantitative and set out to describe quantitatively the performance of companies that have been working with quality awards, while Paper III is more qualitative in nature and sets out to study how units experience and are affected by the work connected with in-company quality awards. Paper II also serves as a preparatory study for Paper III. In Paper II the effects of in-company quality awards are studied, in order to examine them further in Paper III, and to see if the results from Paper II can be verified.

3.2 Research Strategy
According to Holme & Solvang (1991) and Merriam (1994), the choice of research strategy depends on which research question is being posed. Moreover, the type of strategy depends on whether one is striving for control of the events or focusing on temporary events, see Yin (1994) and Table 3.1. The research situation in this thesis does not require control over behavioural events, but it does focus on contemporary events. Hence, a survey, archival analysis and a case study are appropriate research strategies in this thesis, according to Table 3.1. Case studies are most appropriate when one wishes to answer “Why” and “How” questions (research question 3 in this thesis), while “What” questions (research questions 1 and 2 in this
thesis) are most appropriately answered by surveys or archival analysis, according to Table 3.1. Table 3.2 shows the research questions and the strategies chosen for this thesis.

**Table 3.1** The table shows relevant situations for different research strategies. Source: Yin (1994).

<table>
<thead>
<tr>
<th>strategy</th>
<th>form of research question</th>
<th>requires control over behavioural events?</th>
<th>focuses on contemporary events?</th>
</tr>
</thead>
<tbody>
<tr>
<td>experiment</td>
<td>how, why</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>survey</td>
<td>who, what, where, how many, how much</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>archival analysis</td>
<td>who, what, where, how many, how much</td>
<td>no</td>
<td>yes/no</td>
</tr>
<tr>
<td>history</td>
<td>how, why</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>case study</td>
<td>how, why</td>
<td>no</td>
<td>yes</td>
</tr>
</tbody>
</table>

**Table 3.2** The table shows the methods used to illuminate the different research questions.

<table>
<thead>
<tr>
<th>Number of the Paper</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Question</td>
<td>What are the effects of a successful implementation of TQM on the financial performance of companies?</td>
<td>What are the effects of working with in-company quality awards on the performance of units?</td>
<td>How are units affected by and which experiences have been derived from working with in-company quality awards?</td>
</tr>
<tr>
<td>Strategies</td>
<td>Archival analysis</td>
<td>Survey</td>
<td>Case study</td>
</tr>
</tbody>
</table>

The author of the thesis chose to perform an archival analysis in order to illuminate research question 1, and a survey utilizing a questionnaire for research question 2. The reason was that the data requested in research question 2, was not easily available through archival analysis, while data
regarding the financial performance was available through archival analysis in the form of annual reports. A case study was chosen in order to answer research question 3, in accordance with Yin (1994).

3.3 Sampling and Other Selections
Kumar (1996) states that in selecting a sample, one should always try to achieve maximum precision in one’s estimates within a given sample size and avoid bias in the selection of one’s sample. How the sample selections and other relevant selections were performed for the different studies is described below.

3.3.1 Paper I - Archival Analysis
Hendricks & Singhal (1997) and Ghobadian & Gallear (2001) use the receipt of a quality award as a criterion for a successful implementation of TQM. The same proxy was used in this study, because the qualitative case study approach by McAdam & Bannister (2001) was considered to be inappropriate, due to the subjective judgement of what a successful implementation of TQM constitutes. Moreover, it was the intention of the authors of the paper to make a comparison between the results of this study and those of the Hendricks & Singhal (1997) study. Further, as shown in Lascelles & Dale (1991) and Figure 2.4, quality award recipients show a TQM maturity, and one can therefore argue that these companies have successfully implemented TQM.

Hence, all the Swedish companies that had received the national, a regional, a branch-wise or an in-company quality award were included. Further, since the authors of the study wished to study the development of the financial performance after the award announcement, only companies that had received an award in the year 1999 or before were included in the study. Moreover, only quality award recipients that were profit-driven were included in the study, because non-profit organisations do not always strive to increase their financial performance due to other business incentives. A total number of twenty-one companies conformed to these criteria. In addition, four quality award recipients were excluded for the following reasons:

- One award recipient had been closed down by its foreign owner and the production had been moved abroad
- One award recipient presented the financial figures in a way that made comparisons impossible
• Two award recipients constituted less than 40%\(^8\) of the company that provided the financial figures

The seventeen quality award recipients that were included in the study came mainly from the manufacturing industry and had a relatively large number of employees.

To assess the financial benefits of implementing TQM, it would have been ideal to compare the performance of the companies in question with the performance that would have been the case if the companies had not implemented TQM. Since it was impossible to find or construct such ideal comparisons, two other comparisons were chosen. First, each company that had received a quality award in Sweden was individually compared with the branch index in question in order to make a valid comparison regarding the financial performance. Second, a comparison was performed with the award recipients’ stated competitors, i.e. each quality award recipient was individually compared with one of its competitors.

The indicators chosen, change in sales, return on assets, return on sales, change in total assets and change in number of employees, and the approach for calculating and comparing them with the indicators of the control groups were similar to a large extent to those used in the study of Hendricks & Singhal (1997). A six-year period, divided into one implementation period and one post implementation period, was studied regarding these indicators, see also Hendricks & Singhal (1997). For a more detailed description of the study, see Paper I.

3.3.2 Paper II - Survey

In Sweden, there are five companies that have or have had an in-company quality award. One of these companies, the Swedish Telecom ("Telia"), ended its in-company quality award in 1995. This company was not included in the study due to the difficulties for the people within the company to remember and estimate the effects of the in-company quality award. Further, Vattenfall, which has had an in-company quality award, was not included in the study due to large re-organisations. In this case, the re-organisations had made it impossible to reconstruct the original units that had once applied for the in-company quality award. Hence, this study covers in total three different companies, the Swedish National Road Administration ("Vägverket"), Sydkraft (a supplier of electricity) and the

\(^8\) This limitation was set in order to include as many of the award recipients as possible in the study and yet not decrease the reliability of the study. It can be argued that if 40% of the company has implemented a TQM programme, the rest of the company should to some extent also have been working with TQM.
Swedish Post Office (“Posten”). Within these three companies 77 units were surveyed with a questionnaire. The respondents of the questionnaire were heads of these units.

When evaluating performance, it is crucial to identify appropriate key-indicators. Input regarding appropriate key-indicators came mainly from the General Accounting Office study (GAO, 1991), which is often referred to in the literature discussing benefits of TQM. In the GAO study, 20 companies that were among the highest-scoring applicants in 1988 and 1989 for the Malcolm Baldrige National Quality Award were evaluated according to four different groups of key-indicators:

- customer satisfaction indicators (called key-indicators of customers in this study)
- operating indicators (called key-indicators of processes in this study)
- employee indicators (called key-indicators of employees in this study)
- financial performance indicators (called key-indicators of owners in this study).

Similar areas of key-indicators are also used in the Balanced Scorecard, see Kaplan & Norton (1996). Bergquist & Ramsing (1999) and Zairi et al. (1994) also use these key-indicators in order to determine the effects of TQM practice on performance.

In order to find out whether the key-indicators from the GAO study were appropriate in this study, the quality managers of the surveyed companies were used as a reference group. As a result, some of the key-indicators from the GAO study were not included in the questionnaire, while others were added to describe better the companies' activities and results. However, the groups of key-indicators remained the same.

Two surveyed companies had initiated in 1998 their in-company quality award and one company had started in 1997. To be able to study the same time period for all the surveyed companies, 1998 was chosen as an approximate starting time for the development of the key-indicators. Hence, the respondents of the questionnaire were asked to estimate the development of the key-indicators from 1998 until the end of 2001. It took an average of two and a half years for the companies in the GAO study to notice the benefits of TQM. Therefore, a period of four years was considered to be enough time to study the results from the use of the in-company quality award.
Finally, the effects of in-company quality awards on performance were analysed, by studying units that had applied for an in-company quality award and by comparing these units with units that had not applied for an in-company quality award concerning the effects on performance. For a more detailed description of the survey, see Paper II and Eriksson (2002a).

3.3.3 Paper III - Case Study

In this study, units that had been working with an in-company quality award for some time were prioritised in the case selection due to the fact that such units had greater experience of the in-company quality award. A single case study, instead of a multiple case study, was chosen due to a restriction of resources and because the case study was also to serve as a prelude to further studies on the subject, see Yin (1994). A unit within the Swedish National Road Administration that had been working with an in-company quality award since 1998 and had written three descriptions was chosen as an appropriate case study.

Before initiating a case study, one also has to decide how many units of analysis one wishes to investigate. In a holistic design one unit is examined, while in an embedded design more than one unit of analysis are examined. The sensitivity of the study increases as more units within the case are used, see Yin (1994). Hence, an embedded single-case design was chosen. To understand the experiences better and to obtain a broader picture of the work connected with the in-company quality award, and thus increase the sensitivity of the study, employees who had different levels of involvement in the self-assessment process and different levels of responsibility at the unit were interviewed and analysed on the basis of which perspective they possessed, see further Paper III.

Input regarding appropriate inquiries came to a large extent from Paper II, since Paper II served as a preparatory study for Paper III. However, this case study focusing on experiences of the in-company quality award can be divided into three different consecutive steps or areas of questions. First, what are the purpose and goal of working with the in-company quality award? Second, what does the self-assessment process of an in-company quality award look like? Third, and the main focus of the study, what is the perceived outcome of the work connected with the in-company quality award? The perceived outcome of the in-company quality award was divided further into four different areas of questions and compared with other identified effects of the in-company quality award, mainly derived from the document studies of the work connected with the in-company quality award. For a detailed description of the questions of this case study, see Eriksson (2002b).
3.3.4 Alternative Methods of Data Collection
It is the opinion of the author that one should always try to consider alternative data collection methods when conducting research. A possible data collection method in the study described in Paper II, instead of a questionnaire, was to perform telephone interviews. Telephone interviews were rejected, partly because the total number of respondents was too high (77 units were analysed). Further, the archival analysis (Paper I) of annual reports from companies that had received a quality award would have been difficult to perform in another way, for example through a questionnaire, since data on financial performance was required. This information would have been difficult to collect using another method than analysing the annual reports of the companies. Finally, for the case study, see Paper III, the data collection methods of interviews and document studies were used. Direct observation and participant observation were rejected because such methods would have been very time-consuming, see Yin (1994).

3.3.5 Interpretation and Analysis
The interpretation and analysis of the empirical findings are not thoroughly discussed in the papers, and are therefore described to some extent in this section. There are many methods to analyse and interpret quantitative data, see, for example, Eggeby & Söderberg (1999) and Dahmström (2000). Paper I and II were mainly analysed through descriptive statistical tools. In Paper II cluster analysis was also used in order to group the effects of the in-company quality awards. In Paper I, confidence intervals, with a 95% confidence level, were created. The confidence intervals were non-parametric, and accordingly not based on any distributional assumptions.

In Paper III, which is a qualitative study, several possibilities were available for interpreting and analysing the results. According to Yin (1994), there are four dominant modes of analysis in qualitative research, namely pattern matching, explanation-building, time-series analysis, and programme logic models. Pattern matching compares an empirically based pattern with a predicted one, see Yin (1994). Pattern matching was used in Paper III, since the theory about quality awards served as a predicted pattern. The new empirically based pattern was obtained in the study of in-company quality awards, see Paper III. There are also three different types of less dominant modes, namely analysis of embedded units of analysis, repeated observations and the case survey approach. The strategy called embedded units of analysis was used in Paper III, as different units were investigated. For a further discussion of how the collected data was interpreted and analysed, see the respective papers, and Eriksson (2002a) for Paper II and Eriksson (2002b) for Paper III.
Moreover, there are mainly two different methods for displaying qualitative data, according to Miles & Huberman (1994). These two methods are networks and matrices. Matrices consist of rows and columns. Networks consist of nodes with related links. Matrices were used in Paper III to present the answers from the different units of analysis.

### 3.4 Summary of Approach and Strategy

Table 3.3 illustrates and summarizes the methodological aspects considered and the research path followed during the completion of the papers and the entire thesis. The purpose of the table is to summarize the main methodological aspects of the thesis according to the view of the author. Table 3.3 should not been looked upon as a complete or definite illustration of the research conducted in the thesis, but rather it illustrates the author’s main opinion about the research conducted in the thesis.

**Table 3.3** The table illustrates a summary of the methodological considerations and the research path followed during the completion of the papers and the entire thesis.

<table>
<thead>
<tr>
<th></th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
<th>The Entire Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
<td>Mainly Descriptive</td>
<td>Mainly Descriptive</td>
<td>Mainly Descriptive</td>
<td>Mainly Descriptive</td>
</tr>
<tr>
<td><strong>Traditions and Views</strong></td>
<td>Mainly Positivistic</td>
<td>Mainly Positivistic</td>
<td>Mainly Hermeneutic and Constructivist</td>
<td>Mainly Positivistic</td>
</tr>
<tr>
<td><strong>Views</strong></td>
<td>Mainly Analytical</td>
<td>Mainly Analytical</td>
<td>Mainly Actor</td>
<td>Mainly Analytical</td>
</tr>
<tr>
<td><strong>Approaches</strong></td>
<td>Deductive and Inductive</td>
<td>Deductive and Inductive</td>
<td>Deductive and Inductive</td>
<td>Deductive and Inductive</td>
</tr>
<tr>
<td><strong>Approaches</strong></td>
<td>Quantitative</td>
<td>Quantitative</td>
<td>Qualitative</td>
<td>Mainly Quantitative</td>
</tr>
<tr>
<td><strong>Research Strategies</strong></td>
<td>Archival Analysis</td>
<td>Survey</td>
<td>Case Study</td>
<td>Combined Strategies</td>
</tr>
<tr>
<td><strong>Data Collection Methods</strong></td>
<td>Study of Annual Reports</td>
<td>Questionnaire</td>
<td>Interviews and Document Studies</td>
<td>Combined Methods</td>
</tr>
</tbody>
</table>
3.5 Reliability and Validity
Four tests have been commonly used to establish the quality of empirical social science research. These are: construct validity, internal validity, external validity and reliability. How these issues are treated decides the quality and the credibility of the study, see Yin (1994).

3.5.1 Construct Validity
Dane (1990) argues that construct validity involves determining the extent to which a measure represents the concepts that it should represent and does not represent the concepts that it should not represent. Moreover, construct validity deals with establishing correct operational measurements for the concept being studied according to Yin (1994).

In the case of the present thesis, earlier studies on how TQM affects performance served as an input when deciding which indicators to use in order to study the performance of companies. Moreover, the author of this thesis aimed to use many combined methods to collect similar data. This is called triangulation. For example, some questions in the questionnaire (Paper II) and in the case study (Paper III) were similar, in order to ascertain whether the results from Paper II could be validated. Moreover, triangulation was also performed in the study presented in Paper III for some areas of questions, as two different sources for data collection were used: interviews and document studies.

During the completion of the entire thesis and the separate papers, colleagues of the author also commented on different occasions on the work and the research design in order to construct validity. Moreover, as an incentive to construct validity in the study, the questionnaire (see Paper II) and the case study inquiries (see Paper III) were reviewed both internally and externally in order to improve the structure and the questions that were going to be asked, and correct possibilities of misinterpretation and other flaws. Moreover, during the completion of the study described in Paper I, a reference group was formed, which continuously made comments and helped the authors to improve the design of the study.

3.5.2 Internal Validity
Internal validity deals with establishing causal relations between factors, see Yin (1994). Internal validity is mainly an issue for explanatory studies, according to Yin (1994). Herzog (1996) states that internal validity refers to the validity of inferences about cause based on research findings.

The purpose of this thesis is to describe a relationship between working with a quality award and organisational performance. Even if the study is
not primarily explanatory, some explanatory parts do exist in the thesis. For instance, one issue to consider in this study is if a relationship between factors that appears obvious can actually be dependent on additional factors. It is therefore crucial to discover as many as possible of the factors that can influence a given situation. One way to handle this issue is to try to keep other events ($z$) that could influence the performance of the companies ($y$) constant. When studying the performance of the companies in Paper II, the units were divided into different groups: units that had not applied for the in-company quality award, units that had applied one time and units that had applied two or more times. It can be argued that units within the same company are influenced by the same directors and are in similar branches. Therefore, the units are influenced to some extent by other events ($z$) in the same way. In a similar way, in Paper I, the companies that had received a quality award were compared with similar companies regarding size and branches in order to keep other events ($z$) as equal as possible.

Moreover, pattern matching was used in Paper III in order to try to increase the internal validity, see Yin (1994).

3.5.3 External Validity
External validity refers to the validity of inferences about the generality of the research findings, according to Herzog (1996).

The research described in Paper II includes all the companies that have or have had an in-company quality award in Sweden, except for two companies. Moreover, in Paper I, almost all the companies that have received a quality award were included in the study. As these two studies are close to involve all the units and companies available in Sweden, it is possible, according to the belief of the author, to make statistical generalisations of the results that are valid for other quality award recipients and other companies that have in-company quality awards. Moreover, a non-response analysis was performed for the survey, see Paper II. In Paper III, the case study, an analytical generalisation is possible but not a statistical generalisation, see Yin (1994).

3.5.4 Reliability
Bell (1993) states that the reliability of an investigation is satisfying if another researcher can conduct the same research and draw the same conclusions, or in other words, according to Yin (1994), if the data collection procedures can be repeated with the same result.

One precondition for high reliability which is fulfilled is that the data collection procedures are described. The methods used were described in the different papers. Eriksson (2002a), a research report, also presents a
thorough description of the questionnaire and the following results, which were presented in Paper II. Eriksson (2002b), also a research report, presents all the answers from the respondents of the case study, which were presented in Paper III.

Moreover, the central concepts of the studies, which are described in Paper II and Paper III, were explained to the respondents in order to decrease the possibility of misinterpretation.

3.5.5 Summary of Reliability and Validity

In summary, the actions performed in order to try to improve the validity and reliability of the different papers and the entire thesis are presented in Table 3.4.

**Table 3.4** The table shows the actions performed in order to try to improve the validity and reliability of the papers and the entire thesis.

<table>
<thead>
<tr>
<th></th>
<th>Paper I</th>
<th>Paper II</th>
<th>Paper III</th>
<th>The Entire Thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construct Validity</strong></td>
<td>Use previously used indicators, Review study design, internal and external</td>
<td>Use previously used indicators, Review study design, internal and external</td>
<td>Triangulation, Review study design, internal and external</td>
<td>Use previously used indicators, Triangulation, Review study design, internal and external</td>
</tr>
<tr>
<td><strong>Internal Validity</strong></td>
<td>Try to keep other events equal</td>
<td>Try to keep other events equal</td>
<td>Pattern-matching</td>
<td>Try to keep other events equal, Pattern-matching</td>
</tr>
<tr>
<td><strong>External Validity</strong></td>
<td>Include as many quality award recipients as possible</td>
<td>Include as many units as possible, Non-response analysis</td>
<td>Purely analytical generalisation</td>
<td>Include as many companies and units as possible, Non-response analysis</td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td>Document data collection procedures and results</td>
<td>Explain central concepts, Document data collection procedures and results</td>
<td>Explain central concepts, Document data collection procedures and results</td>
<td>Explain central concepts, Document data collection procedures and results</td>
</tr>
</tbody>
</table>
4 Summary of Papers

In this chapter, the background, the purpose, the method and the main conclusions of the papers are summarised.

4.1 Paper I

The title of the paper is “The impact of TQM on financial performance”.

4.1.1 Background

The question of whether an adoption of Total Quality Management (TQM) improves financial performance has been discussed for several years. Various studies have been conducted to examine the impact of TQM on financial performance, but there is still disagreement concerning the effectiveness of TQM.

4.1.2 Purpose

The purpose of this study is to form an opinion as to whether companies in Sweden that have successfully implemented TQM have a better financial performance development than their stated competitors and median branch indices.

4.1.3 Method

This paper presents a study of Swedish quality award recipients, which are compared with the branch indices and with identified competitors. The comparison concerns the development of different financial performance indicators.

4.1.4 Conclusions

During the implementation period, the award recipients did not necessarily perform better than their competitors and the branch indices. On the other hand, the award recipients performed better than their competitors and branch indices concerning all the studied indicators during the post implementation period. For example, the award recipients showed a significantly higher return on assets than their competitors and the branch indices during the post implementation period of TQM. Moreover, the indicators concerning change in sales, change in number of employees and return on sales showed that the award recipients outperformed the branch indices during the post implementation period. The findings indicate that the financial performance, measured according to the stated indicators, develops more advantageously for companies that have successfully implemented TQM than their branch indices and stated competitors.
4.2 Paper II
The title of the paper is “Effects of in-company quality awards on organisational performance”.

4.2.1 Background
Today, there are some companies in Sweden that are working with in-company quality awards. There are also companies that have ceased or are ceasing working with in-company quality awards. The literature studies indicate that no evaluation has been made to estimate the costs and effects of in-company quality awards, and to investigate if in-company quality awards in fact increase the performance of units.

4.2.2 Purpose
The purpose of this paper is to analyse the impact of in-company quality awards on performance by studying units that have applied for an in-company quality award and by comparing these units with units that have not applied for an in-company quality award concerning the effects on performance. The purpose of this paper is also to study other relevant effects and the costs associated with the work connected with in-company quality awards.

4.2.3 Method
The paper covers a questionnaire about the effects of in-company quality awards on the performance of units. The questionnaire is aimed at units within Swedish companies that use or have used in-company quality awards to stimulate TQM efforts and thereby to improve their performance.

4.2.4 Conclusions
Even if this study includes units which were not necessarily among the highest-scoring applicants, some positive effects on performance have been identified. Some units that had applied for the in-company quality award experienced that the general development of the key-indicators was improved greatly concerning all four groups of key-indicators, while none of the units that had not applied stated the same positive development. However, one may argue that the development of the key-indicators does not differ much between the groups of units. Some perceived positive effects of the in-company quality award have been identified, such as an increased customer orientation. The remarkable thing is that the identified effects were most important for the employees and not the customers, owners or processes of the company. The largest costs perceived by the respondents concerned the description of activities and the improvement work itself.
4.3 Paper III
The title of the paper is “Experiences of working with in-company quality awards”.

4.3.1 Background
One way of working with TQM and its values, methodologies and tools, and hence try to increase customer satisfaction, is to apply for a quality award. The Swedish Quality Award has influenced the establishment of several regional, branch-wise and in-company quality awards in Sweden. Today, there are mainly two companies in Sweden, the Swedish Post Office ("Posten") and the Swedish National Road Administration ("Vägverket"), which are working with an in-company quality award. However, in-company quality awards have not been of great research interest, according to the performed literature studies.

4.3.2 Purpose
The purpose of this case study was to study how a unit experienced and was affected by the work connected with an in-company quality award.

4.3.3 Method
In order to perform an in-depth study of how a unit experienced and was affected by working with an in-company quality award, an embedded single-case design was chosen as the most appropriate research strategy. Moreover, interviews and document studies were performed in order to collect data.

4.3.4 Conclusions
The main conclusion of this paper is that, even if the work connected with the in-company quality award requires a great deal of effort, especially in the phase of description of activities, the customer orientation is perceived to increase as a result of working with the in-company quality award. Some other positive effects were also recognised, such as an improved comprehensive view of the employees, a higher degree of participation by everyone and the initiation of systematic improvement work. These perceived positive effects are also reflected in an improvement in the average score from the examiners. The main areas of criticism, and thereby possible improvement areas, concerning working with the in-company quality award are a lack of communication, and the bureaucratic and extensive SIQ Model for Performance Excellence, according to the respondents.
5 Conclusions and Further Research

In this chapter, the findings with respect to the different research questions are discussed. In addition, some general conclusions are presented. This chapter also consists of ideas for further research which have evolved during the research process.

5.1 Introduction

The purpose of the thesis is to evaluate whether and describe how working with quality awards affects the performance of companies. The following research questions were formulated:

1. What are the effects of a successful implementation of TQM on the financial performance of companies?
2. What are the effects of working with in-company quality awards on the performance of units?
3. How are units affected by and which experiences have been derived from working with in-company quality awards?

5.1.1 Findings concerning Research Question 1

Some positive developments concerning financial performance can be recognised for the award recipients in comparison with the branch indices and the competitors. In particular, the award recipients outperform the branch indices and the competitors with regard to a number of indicators during the post implementation period. For example, the award recipients show a significantly higher return on assets than their competitors and the branch indices during the post implementation period. Moreover, the indicators concerning change in sales, change in number of employees, return on sales and return on assets show that the award recipients outperform the branch indices significantly during the post implementation period.

5.1.2 Findings concerning Research Question 2

The same positive development as that for the quality award recipients, concerning organisational performance, cannot be identified for quality award applicants or units that have applied for an in-company quality award. Even if only award applicants, and none of the units that did not apply for the in-company quality award, perceive the studied key-indicators of organisational performance to be improved greatly during the studied time period, the evidence is not very strong. This fact is, however, not very surprising. Quality award applicants are normally just at the beginning of their TQM maturity and hence still in the implementation period of TQM, in contrast to quality award recipients. Consequently, it is difficult to see
results yet, such as improved organisational performance, for the group of award applicants. Many of the applicants for the in-company quality award also claimed that working with TQM was based on a long-range perspective and the positive effects of working with TQM, such as improved organisational performance, were still to come.

5.1.3 Findings concerning Research Question 3
Even if the applicants for in-company quality awards do not yet see any positive development concerning their organisational performance, other positive effects of working with TQM are perceived to exist. For example, the customer orientation is perceived to increase within the organisation, as the award applicants start to work with an in-company quality award. Further, an increased comprehensive view of the business, a higher degree of participation by everyone and the initiation of systematic improvement work are other positive effects, according to the award applicants. The main criticism of the work connected with quality awards concerns the resource-demanding tasks that are mandatory when working with in-company quality awards. The phase of description of activities especially requires a great deal of resources. The SIQ Model for Performance Excellence and the lack of communication during the work connected with in-company quality awards also received criticism.

5.2 Conclusions
The main conclusion of this thesis is that working with quality awards affects financial performance positively if companies successfully implement TQM, such as is the case for award recipients. Moreover, the results of this thesis have not been able to show strong evidence proving that the performance of units that have worked with in-company quality awards, but have not yet successfully implemented TQM, are affected by this work. However, the units experience that the work connected with in-company quality awards has positive effects on the customers as well as the employees.

The main conclusion of this thesis strengthens earlier published results, which state that a successful implementation of TQM improves the performance of companies, see, for example, Hendricks & Singhal (1997). The results of this thesis show that this is also true of Swedish companies that are working with the SIQ Model for Performance Excellence.

The results of this thesis also indicate that units applying for in-company quality awards outperform similar units that have not applied. However, as argued in Paper II, the evidence for this conclusion is not strong. Key-indicators for performance similar to those used in the well-recognised
GAO study, see GAO (1991), were used in the study described in Paper II. One difference between the two studies was, however, that the GAO study included the highest-scoring applicants, while the study described in Paper II did not necessarily include the highest-scoring units. This could be one explanation why the study described in Paper II has not been able show the same results as the GAO study.

The experiences that have been derived from the work connected with in-company quality awards are in alignment with other studies of TQM, self-assessment and quality awards. For example, the units that had participated in the in-company quality award believed that customer orientation improved as a result of working with in-company quality awards. An improved customer orientation is also one of the most important aims of TQM, see, for example, Shiba et al. (1993) and Bergman & Klefsjö (1994). Moreover, this study strengthens earlier published results, see, for example, Brown & van der Wiele (1996) and Finn & Porter (1994), which claim that companies benefit from the use of self-assessment.

5.3 Further Research

In the following sections two areas of future research are presented. First, some follow-up research to this study is presented. Second, a new problem area is identified, called the spreading effects.

5.3.1 Follow-up

One possibility of further research is to perform a follow-up study on how financial performance will have developed for the quality award applicants in comparison with the branch indices and the competitors in the years to come. One could also study award recipients in other countries in comparison with branch indices and competitors, in order to make comparable studies between countries and different types of awards. Moreover, a financial analysis, using a similar method to that presented in Paper I, of units within companies that have applied for an in-company quality award is another possible future area of research.

Case studies analysing the effects and experiences of in-company quality awards, using a similar methodology to that in Paper III, represent another possibility for future research. Paper III is based on a case study on a unit within a company that still has an in-company quality award. By also studying a unit within a company that has ended its in-company quality award, a more complete picture of in-company quality awards would be obtained.
5.3.2 Spreading Effects
This study indicates that a successful implementation of TQM results in improved financial performance. However, there are only a few companies in Sweden that have implemented TQM successfully, if one uses receiving a quality award as a proxy for a successful implementation of TQM. The implementation of TQM has been of great research interest, see, for example, Hansson (2001). If a successful implementation of TQM improves financial performance, why are more organisations not trying to implement TQM? One idea for future research, in this context, is to study the spreading effects of working with quality awards.

One aim of quality awards is to recognize good practice in organisations with the help of competition-like events, see Bergman & Klefsjö (2002). Quality award recipients receive a great deal of publicity for their way of working in general and for their TQM implementation in particular after the announcement of the recipients. Quality award recipients are in many cases obligated to have an “open house” to inform other organisations about their way of working. Other forums, such as presentations and seminars, are also frequent in order to let other organisations know about the quality award recipients’ way of working. Other organisations may be influenced by the work of the quality award recipients, and may hence start to work with self-assessment and a model for performance excellence. Whether or not quality award recipients influence other organisations in their work connected with TQM and its values, methodologies and tools, and the extent to which they might do so are ideas for future research.

Moreover, during the work connected with quality awards, examiners from different organisations are involved in assessing the organisations participating in the quality award. These examiners may transfer their knowledge of this work on quality awards to the organisations of the examiners. The organisations of the examiners may be influenced by the knowledge of the examiners, and hence start to work with self-assessment and a model for performance excellence. The effect of the knowledge of examiners that is obtained during work connected with quality awards on the organisations of examiners has not yet been completely investigated, and is hence also an idea for future research.
References


Paper I

The impact of TQM on financial performance

by

Henrik Eriksson and Jonas Hansson

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The impact of TQM on financial performance

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Abstract
The question whether an adoption of Total Quality Management (TQM) improves the financial performance has been discussed for several years. Various studies have been conducted to examine the impact of TQM on financial performance, but there is still disagreement concerning the effectiveness of TQM. This paper presents a study of Swedish quality award recipients, which are compared to branch indices and to identified competitors. The comparison concerns the development of different financial performance indicators. The study indicates that the award recipients as a group outperform the branch index and their identified competitors on most of the studied indicators.

Background
Total Quality Management (TQM) has been acknowledged as an important subject in management theory and practice during the last decades. The use of TQM among many western organisations has been relatively high during the nineties, see for example Lawler et al. (1995). However, the relationship between TQM practices and improved financial performance is discussed frequently in the TQM literature. Results have been published, which argue that TQM investments result in an improved financial performance, see, for instance, Shetty (1993), Hendricks & Singhal (1997), Easton & Jarrell (1998), Handsfield et al. (1998), Samson & Terziovski (1999), Reed et al. (2000), Allen & Kilmann (2001), Tena et al. (2001) and Wrolstad & Krueger (2001). Bergquist & Ramsing (1999) argue, on the other hand, that it is difficult to establish a relationship between TQM and the performance of the company. Results have also been published, presenting a more negative picture of TQM implementation benefits. Eskildson (1994) states, based on survey results, that many organisations do not succeed with their TQM efforts. The two main reasons are here argued to be vague definitions of TQM and inappropriate implementation. Also, Harari (1993) argues, based on own experience, that TQM programs are ineffective, and that at best one third of the TQM programs have achieved significant improvements.
The differentiation among research conducted, to outline financial benefits of TQM implementation, imply that the area needs further investigation. The approaches used to determine the benefits of TQM programs, and to find a relationship between TQM and the financial performance, also differ between the different studies. One approach to measure the effects of TQM investment on financial performance is to compare companies that have received a quality award against companies that have not received any quality award, see, for example, Hendricks & Singhal (1997). These two researchers use American companies in order to measure the effects of successful TQM implementations on financial performance. The approach to study the financial performance development of quality award recipients has not been used, according to extensive literature, on Swedish quality award recipients. Such a study would be a complement to earlier studies, also considering the facts that Sweden and the US have different company cultures and that the award models are somewhat different.

As many still argue whether TQM programs are profitable, the purpose of this study is to form an opinion if companies in Sweden that successfully have implemented TQM have a better financial performance development than median branch indices and their stated competitors.

**Theory**

TQM is frequently mentioned in discussions concerning quality and, according to Hodgetts (1996), all enterprises, regardless of size and financial status, are involved in the quality revolution. There exist many descriptions of the concept of TQM, but few clear definitions. For example, Oakland (1989), describes TQM as “an approach to improve competitiveness, efficiency and flexibility for a whole organisation”. Dale (1994) and Huxtable (1995) describe TQM as an important management philosophy, which sustains the organisations in their efforts to obtain satisfied customers. Some argue that TQM is a management approach, while others state that TQM is a management system. In this article, the definition by Hellsten & Klefsjö (2000) is used. They define TQM as “a management system in continuous change, which is constituted of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources”. For example, the core values of TQM are values, such as, customer orientation and committed leadership. Core values are also the basis of the quality award models. Self-assessment that is used when applying for an award can be seen as a methodology, and the criteria booklet of the Malcolm Baldrige National Quality Award and the Swedish Quality Award can be considered as examples of tools.
Lascelles & Dale (1991) identified six levels of adoption of TQM. These levels are Uncommitted, Drifters, Tool Pushers, Improvers, Award winners and World-class, see Figure 1.

It is argued by Lascelles & Dale (1991) that these levels are not necessarily the stages through which organisations pass on their TQM journey, rather they are characteristics and behaviours which organisations display in reaction to TQM. In level 5, Award Winners, the organisations have reached the stage of being able to compete for a quality award and some recipients of quality awards can be found in this level. At this stage the organisations have reached a point in their total quality maturity where they have developed the kind of cultures, values, trust, capabilities, relationships and employee involvement in the business that are required to receive a quality award (Lascelles & Dale, 1991). Ghobadian & Gallear (2001) use among other criteria, the receiving of a quality award as a measurement for a successful implementation of TQM. Hendricks & Singhal (1997) also use the receiving of quality awards as a criterion for a successful implementation of TQM programs. According to Lascelles & Dale (1991), the last level, World-class, which is only reached by a handful organisations, is characterized by the total integration of quality improvement and business strategy to creatively delight the customer.

There are many similarities between the existing national quality awards. Almost all of the existing national quality awards are carried out in the three evaluation dimensions of approaches, deployment and results, see Chuan & Soon (2000). The Swedish Quality Award model, which was inspired by the Malcolm Baldrige National Quality Award model, has many similarities with the latter. However, there are also differences between the two award models. For example, the Swedish
Quality Award model puts more emphasis on the evaluation and improvement in all the criteria addressed and on the practice of TQM principles in all organisational activities. There is also relatively more emphasis on the organisation’s impact on society, and on the organisation’s commitment to the customers compared to most other national quality award models (Chuan & Soon, 2000).

Performance can, as well as TQM, be defined in many different ways. The definition, provided by EFQM (1999) is used in this article. EFQM (1999) defines performance as a measure of attainment achieved by an individual, team, organisation or process. There are many different indicators to measure the performance. This article sets out to measure TQM’s impact on financial performance. In Hendricks & Singhal (1997), six indicators of the financial performance were used to illuminate the impact of TQM. These were: Change in operating income, Change in sales, Change in return on assets, Change in return on sales, Change in total assets and Change in number of employees. Easton & Jarrell (1998) also use similar indicators, Net income, Operating income, Sales and Inventory, to evaluate the impact of TQM on the financial performance.

**Methodology**

**Definition of Successful Implementation of TQM**
One of the first issues to be solved, when studying the impact of TQM on the financial performance, is what a successful implementation of TQM constitutes. Hackman & Wageman (1995) have, for example, provided a measuring framework, which can be used to test if TQM has been properly implemented. This framework was used in a qualitative study by McAdam & Bannister (2001) in order to determine if the framework of TQM was perceived to be implemented. Hendricks & Singhal (1997) and Ghobadian & Gallear (2001) use the receiving of a quality award as a criterion for a successful implementation of TQM. The same proxy was used in this study because the qualitative case study approach by McAdam & Bannister (2001) was considered to be inappropriate due to the subjective judgement of what a successful implementation of TQM constitutes. Also, it was the intention to make a comparison with the results of this study with those of the Hendricks & Singhal (1997) study. Further, as shown in Figure 1, quality award recipients show a TQM maturity (Lascelles & Dale, 1991), and one can therefore argue that these companies have successfully implemented TQM.

**Selection of Companies**
In this study, all Swedish companies that have either received the national, a regional or an in-company quality award were included. The
regional and in-company quality awards are to a large extent based on the Swedish quality award criteria. The information about which companies that had received a quality award in Sweden was collected from the Swedish Institute for Quality (SIQ), which is the organisation managing the Swedish Quality Award. Only companies that are profit-driven were included in the study, because non-profit organisations do not always strive to increase the financial performance due to other business incentives. A total number of twenty-one companies conformed to these criteria. In some cases a unit of a larger company had received a quality award. In these cases the total company was included in the study if the unit that had received the award had 40% or more of the total number of employees of the company. This limitation was set to get as many of the award recipients as possible included in the study and yet not decrease the reliability of the study. It can be argued that if 40% of the company has implemented a TQM program, the rest of the company should to some extent also have been working with TQM. Further, since the authors wish to study the development of the financial performance after the award announcement, only companies that received an award in year 1999 or before were included in the study (for quality award recipients later than 1999 no sufficient data are yet available). Seventeen companies conformed to the above-described criteria. The exclusions that were made were due to the following reasons:

- One award recipient was closed down by their foreign owner and the production was moved abroad
- One award recipient presented the financial figures in a way that made comparisons impossible
- Two award recipients constituted less than 40% of the company that provided the financial figures

The companies that were included in the study came mainly from the manufacturing industry and had a relatively large number of employees, see Table I. The classification by the Commission of the European Communities regarding the size of companies was used (0-9 employees, 10-49 employees, 50-249 employees and 250 or more employees).
Table I  The table shows which year the companies in the study received the quality award, as well as type of business and the number of employees.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of companies</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>0-9 employees</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>10-49 employees</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>50-249 employees</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>250+ employees</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Manufacturing industry</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Service industry</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

Selection of Comparisons
To assess the financial benefits of implementing TQM, it would be ideal to compare the actual companies’ performance with the performance that would have been the case if the companies had not implemented TQM. Since it, in this study, was impossible find or construct such ideal comparisons, two other comparisons were chosen.

First, each company that had received a quality award in Sweden was individually compared to respective branch index in order to make a valid comparison regarding the financial performance. Different branch indices for different sizes of companies regarding total number of employees were available through Statistics Sweden (SCB). Each company that had received a quality award was therefore separated into different sizes (based on the number of employees) and branches.

Second, a comparison was performed with the award recipients’ stated competitors, i.e. each award recipient was individually compared with one of its competitors. This comparison gives an idea how the quality recipients have developed in relation to their competitors. Only one competitor was identified for each company that had received a quality award. In those cases, when a competitor could not be identified or the competitors to the company were a non-Swedish company, no competitor was included in the study. In those cases, when the award recipient stated that they had many competitors, the competitor that was closest in size was selected. These two comparisons give an indication of the benefit of a successful implementation of TQM.

Selection of Indicators
The following indicators were used in order to study the performance development for the companies included in the study:

1. *Percentage change in sales.*
2. *Return on assets,* which is the result after financial income and financial costs divided by 0,7 multiplied by non-taxed reserves
plus assets. This indicator is, according to Hendricks & Singhal (1997), an efficiency indicator, which is based on the assumption that implementing an effective TQM program increases the revenues.

3. **Return on sales**, which is the operating income divided by sales. This indicator is based on the assumption that an effective TQM program will increase the revenues. Lemak & Reed (1997) discuss the advantage of using operating income instead of net income to ascertain the impact on financial performance of TQM. They state that operating income is a better measure of performance than net income since it is not greatly affected by accounting methods, tax strategies, or financial structure.

4. **Percentage change in total assets**.

5. **Percentage change in number of employees**. The opinions differ among TQM experts regarding what impact TQM has on this indicator, as well as change in total assets. Some claim that TQM requires investment in people and capital, resulting in an increase in employment and total assets. Others believe that TQM programs increase the effective productive capacity of the company because of process improvements and reduction in defects, rework, and waste among other things. This improvement could result in a decrease in employment and total assets (Hendricks & Singhal, 1997).

The indicators chosen and the approach for calculating and comparing them with the control groups differ to some extent compared to the study by Hendricks & Singhal (1997). Change in operating income was not included in our study, since some of the companies, both award recipients and their competitors, showed a negative operating income on some occasions. Due to the fact that it is impossible to calculate a change in operating income from a negative result, expressed in percentages, this indicator was excluded. If change in operating income, expressed in percentages, would be studied, and the companies that showed a negative operating income would be excluded on the occasions when they developed positively from a negative point of departure, the result from the operating income indicator would be biased. However, return on sales, which was included in this study, is defined as operating income divided by sales. Hence, the change in operating income is, to some extent, reflected in this indicator. Hendricks & Singhal (1997) excluded, when calculating the operating income, the years that the companies showed a negative operating income. However, one can argue that this gives a biased result. The number of companies included in our study is far less than in Hendricks & Singhal (1997), since the number of award recipients is much less in Sweden than in USA, and the bias of excluding companies would therefore turn out to be even more severe for this study.
The same problem of calculating change, expressed in percentages, with negative numbers as departure also concerned the indicators *return on sales* and *return on assets*. The annual change of these indicators was not calculated. Instead, the results (the actual “value” in *return on sales* and *return on assets*) for the competitor and the branch index were subtracted from the indicator of the particular award recipient. Thereafter, a median value of the differences was calculated. This procedure was used for all the years included in the study.

The use of medians when comparing the performance indicators was based on the fact that the medians are more robust than average values to problems concerning outliers, wide tails or different forms of skewness.

The other indicators, *change in sales*, *change in total assets* and *change in numbers of employees* were calculated in the same way as by Hendricks & Singhal (1997). The change of these indicators for the competitor and branch index was subtracted from respective change of these indicators of the award recipient. Further, the median value of the difference between the award recipient and their stated competitor and branch index was calculated to give a general reflection of the development.

The indicators of the award recipients and respective competitor were found in annual reports available mainly from the companies and the Swedish Patent and Registration Office (PRV).

**Selection of Comparison Periods**

A six-year period, divided into one implementation period and one post implementation period, was studied regarding these indicators. The implementation period was defined as starting four years before the company received the quality award and ending two years before the award, see Figure 2. Since the applicants of the quality award start describing their activities and results approximately one year before the announcement of the recipient in order to hand in the application on time and give examiners and judges time to evaluate the application, it can be argued that the activities and results described in the application should be in place one year before the announcement of the recipient of the award. Hence it is most convenient to start the post implementation period one year before the announcement of the recipient of the award. The post implementation period started one year before the award was received and ended one year after the award, see Figure 2.
In the GAO (1991) study, 20 companies that were among the highest-scored applicants in 1988 and 1989 for the Malcolm Baldrige National Quality Award were evaluated. The companies in the GAO study realised the initial benefits with TQM after two and a half years. Hence, after a three-year implementation period, the companies in this study should be able to show possible benefits with TQM regarding the studied indicators. Also, the indicators were collected, if possible, after the post implementation period until year 2000, in order to see possible progress after the post implementation period (i.e. it is possible to study the development of the indicators after the post implementation period for the companies that received a quality award before 1999). This results in the fact that that the development of the indicators can be presented up to two years after the award announcement.

**Exclusions of Observations**

Some observations were excluded due to the following reasons:

- Two quality award recipients of the year 1999 were excluded for the year after the post implementation period due to the fact that no current data were available
- No Swedish competitor could be identified for four of the award recipients
- No branch indices could be constructed for two of the award recipients within the insurance and real estate business
- No branch indices were available between –5 and –4 for the indicators of Number of Employees and Total Assets
- No branch indices were available for one award recipient for –4 and for one award recipient for –3, due to few companies in the branch indices
Tables II and III present the number of comparisons made for the different indicators and for the different years.

**Table II**  The number of comparisons performed for the different years for the indicators of return on assets and return on sales.

<table>
<thead>
<tr>
<th>Year</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award Recipient - Competitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Assets</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Return on Sales</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Award Recipient – Branch index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Assets</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Return on Sales</td>
<td>15</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>

**Table III**  The number of comparisons performed for the different years for the annual percentage change in number of employees, change in total assets and change in sales.

<table>
<thead>
<tr>
<th>Year</th>
<th>-5 to -4</th>
<th>-4 to -3</th>
<th>-3 to -2</th>
<th>-2 to -1</th>
<th>-1 to 0</th>
<th>0 to 1</th>
<th>1 to 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award Recipient - Competitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Employees</td>
<td>10</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Total Assets</td>
<td>10</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Sales</td>
<td>10</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Award Recipient – Branch index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Employees</td>
<td>-</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Total Assets</td>
<td>-</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Sales</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>

**Results**

Two main types of results are presented below. First, the development of the indicators of the award recipients in comparison with the competitors and the branch indices is presented on an annual basis (see Figures 3 to 7). Second, the indicators of the award recipients in comparison with the competitors and the branch indices are presented as a median during the implementation period and the post implementation period (see Figures 8 and 9).
Annual Comparisons
In Figures 3 to 5 the indicators, change in sales, change in total assets and change in numbers of employees are presented.

Figure 3  The piles show the median differences of change in sales between the award recipients and the competitors, and between the award recipients and the branch indices, during different years. Zero indicates the year of the award announcement. A positive percentage means that the median award recipient outperforms its competitor or branch index.

Figure 4  The piles show the median differences of change in total assets between the award recipients and the competitors, and between the award recipients and the branch indices, during different years. Zero indicates the year of the award announcement. A positive percentage means that the median award recipient outperforms its competitor or branch index.
Figure 5  The piles show the median differences of change in number of employees between the award recipients and the competitors, and between the award recipients and the branch indices during different years. Zero indicates the year of the award announcement. A positive percentage means that the median award recipient outperforms its competitor or branch index.

As shown in Figures 3 to 5 the award recipients outperform their competitors and branch indices for the indicators of change in sales, change in total assets and change in total number of employees for most of the studied years. The indicator, change in sales, shows the largest difference between the award recipients and the competitors and the branch indices. Also, between the year of the announcement and one year after the announcement ("0to1"), the award recipients outperform their competitors and branch indices for all three indicators.

In Figures 6 and 7 the return on sales and return on assets are presented.
The award recipients outperform their competitors and branch indices for most of the years, see Figure 6 and 7. A positive trend for the award
recipients can also be identified for the indicator of return on assets in comparison with their competitors.

**Period Comparisons**

Figures 8 and 9 present the median value of the indicators of the award recipients in comparison with the competitors, and the branch indices during the implementation period and post implementation period. As an example, the difference between the award recipients and the competitors for the indicators of percentage change in sales during the implementation period was calculated by, first, subtracting all the percentages changes in sales of the competitors from respective award recipients. Second, the median difference was calculated, including all the differences between the award recipients and the competitors for the indicator of change in sales for all of the years in the implementation period. This median difference is represented in the first pile from the left in Figure 8. The same procedure was used for the other comparisons, indicators and periods.

![Figure 8](image)

**Figure 8** The figure shows the median value of the differences between the award recipients and the competitors, and between the award recipients and the branch indices of the indicators during the implementation period. A positive percentage means that the median award recipient outperforms its competitor or branch index.

Figure 8 shows that the award recipients outperform both the competitors and the branch indices for the indicators of change in sales and return on sales during the implementation period. On the other hand, this is not the case for the other indicators.

To investigate the precision of the median values, reflected in Figure 8, confidence intervals, with a 95% confidence level, were created. The
confidence intervals are non-parametric, and accordingly not based on any distributional assumptions. These confidence intervals are presented in Table IV.

Table IV  The table shows the confidence intervals with a 95 % confidence level for the indicators and the comparisons with the competitors (Comp.) and the branch indices (Index) during the implementation period.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sales</th>
<th>Total Assets</th>
<th>Number of Employees</th>
<th>Return on Sales</th>
<th>Return on Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comp.</td>
<td>Index</td>
<td>Comp.</td>
<td>Index</td>
<td>Comp.</td>
</tr>
<tr>
<td>Upper Limit</td>
<td>8.64</td>
<td>10.30</td>
<td>5.50</td>
<td>3.66</td>
<td>2.75</td>
</tr>
<tr>
<td>Lower Limit</td>
<td>1.38</td>
<td>2.53</td>
<td>-1.98</td>
<td>-20.37</td>
<td>-4.29</td>
</tr>
</tbody>
</table>

The wider confidence interval, the less accurate is the estimation of the median value. If the interval contains 0, a significant difference between the award recipients and the competitors, or between the award recipients and the branch indices cannot be shown. However, if the confidence interval does not contain 0, there is a significant difference between the award recipients and the competitors, or between the award recipients and the branch indices. Hence, for the indicator of change in sales, there is a significant difference, with a 95 % confidence level, between the award recipients and the competitors, and the branch indices, in that sense that the award recipients increase their sales more than the control groups during the implementation period. The same result is also shown for the indicators of return on sales and for the return on assets, when comparing the award recipients with the branch indices.
Figure 9  The figure shows the median value of the differences between the award recipients and the competitors and between the award recipients and the branch indices of the indicators during the post implementation period. A positive percentage means that the median award recipient outperforms its competitor or branch index.

As shown in Figure 9, the award recipients outperform their competitors and branch indices for all the studied indicators during the post implementation period.

Table V shows the confidence intervals, at a 95 % confidence level, for the indicators presented in Figure 9.

Table V  The table shows the confidence intervals with a 95 % confidence level for the indicators and the comparisons with the competitors (Comp.) and the branch indices (Index) during the post implementation period.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sales</th>
<th>Total Assets</th>
<th>Number of Employees</th>
<th>Return on Sales</th>
<th>Return on Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>Comp.</td>
<td>Index</td>
<td>Comp.</td>
<td>Index</td>
<td>Comp.</td>
</tr>
<tr>
<td>Upper Limit</td>
<td>7.83</td>
<td>8.45</td>
<td>8.31</td>
<td>7.50</td>
<td>10.34</td>
</tr>
<tr>
<td>Lower Limit</td>
<td>-3.51</td>
<td>1.26</td>
<td>-8.55</td>
<td>-2.43</td>
<td>-6.31</td>
</tr>
</tbody>
</table>

During the post implementation period, and for the comparison between the award recipients and the branch indices, there is a significant difference, in that sense, that the award recipients outperform the branch indices for the indicators of change in sales, number of employees, return on sales and return on assets. However, there is only a significant difference for the indicator of return on assets, when comparing the award recipients with the competitors during the post implementation period. On the other hand, one can argue that the
comparison with the branch indices reflects the reality better than the comparison with the competitors, since the branch indices include many companies from that specific branch.

**Discussion**

One of the incentives with this study was to investigate the development of financial performance of quality award recipients compared to their stated competitors and median branch indices. Figures 8 and 9 show an improvement between the implementation period and the post implementation period for all of the studied indicators except for the indicator change in sales. However, the differences between the two periods are not that large. This could be due to the fact that quality award recipients might have been high performing companies even before the implementation of TQM.

This study does not reflect an ideal comparison between companies that have successfully implemented TQM (award recipients) with companies that have not (competitors). When looking at the comparison between the award recipients and their competitors, the quality work of the competitors is a possible bias. This is due to the fact that at least some of the companies are known to have been working with TQM, although they have not applied for any type of award. The same situation is also a possibility for the companies that constitute the branch indices.

The exclusions discussed in the methodological section might also have influenced the result of this study. Yet the exclusions are relatively small and should not have influenced the results to a large extent.

For the branch indices, there was another problem that might have influenced the result of this study. For manufacturing companies with fewer than 20 employees and service companies with fewer than 50 employees, for the years before 1996, the branch indices are based on random samples of companies. This result in the fact that the companies included in the branch indices vary up to year 1996 for five of the award recipients. However, according to the authors of this article, the negative effect of this is limited since the branch indices still should reflect the general picture.

**Conclusion**

During the implementation period the award recipients do not necessarily perform better than their competitors and the branch indices. On the other hand, the award recipients perform better than their competitors and branch indices on all studied indicators during the post implementation period. For example, the award recipients show a
significantly higher return on assets than their competitors and the branch indices during the post implementation period of TQM. Also, the indicators, change in sales, change in number of employees and return on sales, show that the award recipients outperform the branch indices during the post implementation period. The findings indicate that the financial performance, measured by the stated indicators, develop more advantageous for companies that have successfully implemented TQM, than their branch indices and stated competitors.

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References


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1 Lascelles & Dale (1991) use the term of Total Quality Improvement (TQI) instead of Total Quality Management (TQM). TQI is, according to the authors, an enabling mechanism based on continuous improvement that incorporates the strategic components that drive the entire business organisation. TQI are required to reach the vision of TQM.

2 I.e., in year –4 all companies that constitute the branch indices are included, but for the following years, up to year 1996, the branch indices only constitute those that happened to be included in the random sample. The minimum number of “–4 year companies” that constitute the branch indices is 5 since that is a requirement set by SCB to compute the median values.
Paper II

Effects of in-company quality awards on organisational performance

by

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Effects of in-company quality awards on organisational performance

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ABSTRACT The relationship between Total Quality Management (TQM) practices and improved performance has been frequently discussed in the literature. In this paper, the costs and the effects of in-company quality awards on the performance are discussed and analysed. The paper covers a survey of Swedish companies that use or have used in-company quality awards to stimulate TQM efforts and thereby to improve the performance. The study cannot show any strong evidence of improved performance for units that applied for the in-company quality award. In contrast to units that have not applied, some units that have applied for the in-company quality award considered that the results related to performance have improved greatly. One large positive effect perceived by the participating units was increased customer orientation while the largest costs were put on the description of activities and the improvement work itself.

Introduction

The relationship between Total Quality Management (TQM) practices and performance is discussed frequently. For example, some researchers state that TQM programs are ineffective (Harari, 1997). Bergquist & Ramsing (1999) and Przasnyski & Tai (1999) argue that it is difficult to establish a relationship between TQM and the profitability of the organisation. On the other hand, results have also been published, which state that a successful implementation of TQM resulted in increased performance of the organisation, e.g. Lemak & Reed (1997) and Hendricks & Singhal (1999). Some of the research of the relationship between performance and systematic TQM efforts is conducted by comparing companies that have made quality investments - often quality award recipients - with other “control companies”, which have not made such an investment, e.g. Hendricks & Singhal (1997) and Bergquist & Ramsing (1999).

One way to stimulate a company culture based on the core values of TQM is to work with a quality award. Today, the spectrum of different quality awards is quite large and covers international, national, regional, branch-wise and in-company quality awards. Some examples of quality awards that have been used by many organisations and are relatively widespread are the Malcolm Baldrige National Quality Award (MBNQA) and the European Quality Award (EQA). In many countries, however, the development of national quality awards is still new or non-existent (Chuan & Soon, 2000). For a thorough list
of quality awards and a comparison between different awards, see for example Hagen (2000) or Vokurka et al. (2000).

Svensson & Klefsjö (2000) have suggested different phases of the award process. They argue that the self-assessment that is used in the award process has four phases, similar to the Deming cycle. The first phase, “planning”, includes asking questions like: Why should we perform a self-assessment? When should the work be done? Who should be involved? Which model should be used as a basis for the description? The second phase, “do”, consists of obtaining a description of the organisation’s way to work. The third phase, “study”, consists of the analysis of the description and the fourth phase, “act”, consists of planning for improvements. These phases are similar in the different kinds of awards, e.g. international, national, regional, branch-wise and in-company quality awards.

The main difference between these awards is the group of units and companies that the award is aimed at. For example, only units within an organisation can apply for an in-company quality award, while the national quality award is open for all organisations/units in the country. One possible benefit of an in-company quality award in comparison with a national quality award is that it is easier for units to benchmark and learn the best practices since access to the recipient of an in-company quality award is easier. Further, van der Wiele et al. (1996) claim that both internal and external learning in terms of best practices and transfer of ideas is taking place when performing self-assessment, and this procedure contributes to the improvement of the performance of organisations.

Myers & Heller (1995) claim that eighty percent of the organisations within AT&T have used its in-company quality award, called the Chairman’s Quality Award (CQA), to assess each other. Based on the process and criteria of Malcolm Baldrige National Quality Award, the CQA process consists of site visits and award criteria like leadership, strategic quality planning and customer focus. The in-company quality award of AT&T shows great increase in average scores from the units that applied over the years (Myers & Heller, 1995). However, it is not clear whether the increase in average scores for the in-company quality award of AT&T comes from improved bottom line results or if the units improve the process, including writing skills, when applying for the award a second and third time. In another paper, Hannukainen & Salminen (1998) discuss Nokia’s current state analysis program, which has many similarities to the in-company quality awards in this paper. This program is tailored to fit Nokia and consists of five different areas; leadership, customer, planning, process and people. By this successful program, Nokia challenge its people around the globe to establish the most challenging performance targets based on their self-assessment of process capability.

Today, there are some companies in Sweden that are working with in-company quality awards. There are also companies that have ended or are ending their
work with in-company quality awards. Our literature studies indicate that no independent evaluation has been made to estimate the costs and effects of in-company quality awards, and to investigate if in-company quality awards in fact increase the performance of the company. In this paper, the impact of in-company quality awards on performance is analysed by studying units that have applied for an in-company quality award and comparing these units with units that have not applied for an in-company quality award concerning the effects on the performance. In addition, other relevant effects of the in-company quality award are studied and the costs associated to the work with in-company quality awards are estimated.

Method

In Sweden, there are five companies that have or have had an in-company quality award. One of these companies, the Swedish Telecom (Telia), ended its in-company quality award in 1995. This company was not included in the study due to the difficulties for the people within the company to remember and estimate the effects and costs of the in-company quality award. Further, Vattenfall that have had an in-company quality award was not included in the study due to large re-organisations. In this case, the re-organisation made it impossible to reconstruct the original units that once applied for the in-company quality award.

A questionnaire was chosen in order to collect the data. The questionnaire will also serve as an input to further qualitative studies on effects of in-company quality awards, which will validate the results from this study. The study covers in total three different companies, the Swedish National Road Administration (“Vägverket”), Sydkraft (a supplier of electricity) and the Swedish Post (“Posten”). The questionnaire was sent to 77 units within these three companies. The respondents of the questionnaire were heads of these units. The response rate to the questionnaire was 66%.

When evaluating the performance it is crucial to first identify appropriate key-indicators. Input regarding appropriate key-indicators came mainly from the General Accounting Office study, GAO (1991), which is often referred to in the literature discussing benefits of TQM. In the GAO study, 20 companies that were among the highest-scored applicants in 1988 and 1989 for the Malcolm Baldrige National Quality Award were evaluated in four different groups of key-indicators:

- customer satisfaction indicators (called key-indicators of customers in this study)
- operating indicators (called key-indicators of processes in this study)
- employee indicators (called key-indicators of employees in this study)
- financial performance indicators (called key-indicators of owners in this study).
Similar areas of key-indicators are also used in the Balanced Scorecard (Kaplan & Norton, 1996). Bergquist & Ramsing (1999), and Zairi et al. (1994) also use these key-indicators in order to determine the effects of TQM practice on the performance. See also Shetty (1993), who makes a thorough discussion concerning the results of the GAO study. The main result from the GAO study and articles discussing the results from the GAO study is that TQM practices do improve bottom line results. The GAO study showed further that better employee relations, improved operating procedures, greater customer satisfaction and an increased financial performance were achieved through TQM practices.

In order to find out if the key-indicators from the GAO study were appropriate in this study, the quality managers of the surveyed companies were used as a reference group. As a result, some of the key-indicators from the GAO study were not included in the questionnaire, while others were added to better describe the companies’ activities and results. However, the groups of key-indicators remained the same.

Two surveyed companies initiated in 1998 their in-company quality award and one company started in 1997. To be able to study the same time period for all the surveyed companies, 1998 was chosen as an approximate starting time for the development of the key-indicators. Hence, the respondents of the questionnaire were asked to estimate the development of the key-indicators from 1998 until the end of 2001. It took an average of two and a half years for the companies in the GAO study to notice the benefits with TQM. Therefore, a period of four years was considered to be enough time to study the results from the use of the in-company quality award.

The surveyed units that applied for the in-company quality award were also asked to estimate the work effort performed in each of the four phases identified by Svensson & Klefsjö (2000). In addition to these phases, training was included in the questionnaire. In order to apply for an in-company quality award the unit has to train its employees in TQM and self-assessment. Training was therefore identified as a fifth phase. Hence, the phases or costs that were included in the questionnaire were planning, training, description of activities, analysis of descriptions and improvements.

**Results**

The questionnaire was divided into four parts. First, all the respondents were asked to estimate the development of the key-indicators within the four groups of customers, processes, employees and owners, from the beginning of 1998 until the end of 2001. Second, the respondents that have worked with an in-company quality award were asked to state some effects of the in-company quality award and estimate the importance of the effect on customers, processes, employees and owners. Third, the respondents that worked with the in-company quality award were asked to estimate the costs of applying for an
in-company quality award with the phases suggested by Svensson & Klefsjö (2000). Fourth, all the respondents were asked to give some general opinions about in-company quality awards. The respondents of the questionnaire were divided into three groups:

a) units that have not applied for the in-company quality award
b) units that applied once for the in-company quality award
c) units that applied twice or more times for the in-company quality award

For a thorough presentation of the results from the questionnaire, including the development of all the key-indicators, see Eriksson (2002). However, the general development of the key-indicators and other relevant indicators that the unit used to measure the results within the four groups (customers, processes, employees and owners) are displayed in Figures 1-4.

![Key-indicators of Customers](image)

**Figure 1:** The figure shows the percentage of the answers for each alternative regarding the general development of key-indicators of customers. The units were divided into three groups: units that have not applied, units that applied once and units that applied twice or more times for the in-company quality award.
Figure 2: The figure shows the percentage of the answers for each alternative regarding the general development of key-indicators of processes. The units were divided into three groups: units that have not applied, units that applied once and units that applied twice or more times for the in-company quality award.

Figure 3: The figure shows the percentage of the answers for each alternative regarding the general development of key-indicators of employees. The units were divided into three groups: units that have not applied, units that applied once and units that applied twice or more times for the in-company quality award.
Figure 4: The figure shows the percentage of the answers for each alternative regarding the general development of key-indicators of owners. The units were divided into three groups: units that have not applied, units that applied once and units that applied twice or more times for the in-company quality award.

As displayed in Figures 1-4, only units that applied one or more times perceived great improvements for the four groups of key-indicators.

Part two of the questionnaire was used to analyse other relevant effects of the work with in-company quality awards. One large positive effect stated by the respondents that worked with the in-company quality award was increased customer orientation. To increase the customer satisfaction is also one of the main aims with TQM. Other effects that the respondents mentioned were increased focus on improvements, processes, quality, results and an increased comprehensive view of the business. Some of the perceived effects have many similarities to the core values in the self-assessment model used in the in-company quality awards, such as customer orientation, focus on improvements and processes.

In the questionnaire, the respondents that have worked with the in-company quality award were also asked to estimate the importance of the effects mentioned above for employees, processes, owners and customers. The respondents considered that the effects of the in-company quality award had largest importance to employees, while owners were ranked second, processes third and the smallest effect was on the customers. The strong impact that the effects had on the employees should be able to increase the TQM-culture within the units that applied for the in-company quality award, which can result in long-term advantages for the units.

Part three of the questionnaire included an estimation of the costs for the units with the in-company quality award. The median costs for the units applying for
the in-company quality award are displayed in Figure 5. The costs were divided into the different phases of the in-company quality award and into different years for the application.

![Figure 5](image)

**Figure 5:** The figure shows the median costs in Euro for the units that applied for the in-company quality award. The costs are divided into the different phases and into different years for the application.

The largest costs with the in-company quality award, according to Figure 5, were considered to be the description of activities and the improvement work that followed. However, the spreading was largest for the phase of improvements, but quite large for all the phases. The median cost for a unit to apply for an in-company quality award the first year was considered to be 58 000 Euro. The median cost increased to 64 000 Euro the second year, while it decreased to 46 000 Euro the third year the unit applied for the in-company quality award.

In part four, questions regarding the respondents’ general opinions of the in-company quality award were asked. Overall, 77% of the respondents that applied for the in-company quality award stated that they have a positive attitude towards the in-company quality award, while 62% of the respondents that have not applied stated that they have a positive attitude towards the in-company quality award. Only 4% of the respondents that applied for the in-company quality award had a negative attitude, and 15% of the respondents that did not apply stated the same attitude. The rest of the respondents had neither a positive nor a negative attitude.

Furthermore, 68% of the respondents that applied for the in-company quality award considered that the in-company quality award is profitable, while 42% of the respondents that have not applied considered, even if they did not apply, that the in-company quality award is profitable. In addition, 20% of the
respondents that applied for the in-company quality award did not perceive any profitability, and 25% of the respondents that have not applied shared that opinion. The rest of the respondents did not have any opinion regarding the profitability of the in-company quality award.

Discussion
In order to increase the reliability of this study and to make it possible for other people to repeat the study, the questionnaire and a more detailed description of the study is presented in Eriksson (2002). To increase the validity of the study two main activities were performed. First, the questionnaire was reviewed both internally and externally in order to correct possibilities of misinterpretations and other flaws. Second, a non-response analysis was performed. The main purpose of the non-response analysis was to investigate whether the opinion of respondents that did not answer in the first place differed from the ones that answered the questionnaire. Fifteen units that did not answer the questionnaire were randomly selected and asked if they could fill in the questionnaire. A higher percentage of the respondents in the non-response analysis stated that their unit had not applied for the in-company quality award. However, there was no clear evidence that the managers that did not answer the questionnaire in the first place differed in their opinion, regarding the key-indicators and their attitude to the in-company quality award than the group that did answer.

Conclusion
Even if this study includes units, which were not necessarily among the highest-scored applicants, like those included in the GAO study, some positive effects on the performance have been identified. Some units that applied for the in-company quality award experienced that the general development of the key-indicators were improved greatly for all the four groups of key-indicators, while none of the units that have not applied stated the same positive development. However, one may argue that the development of the key-indicators does not differ much between the groups of units. Some perceived positive effects of the in-company quality award have been identified, such as an increased customer orientation. The remarkable thing is that the identified effects had the largest importance to the employees and not to the customers, owners or processes of the company. The largest costs perceived by the respondents were the description of activities and the improvement work itself. Further, qualitative studies will be performed in order to validate the results from this study and to better understand the effects of in-company quality awards.

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References


Paper III

Experiences of working with in-company quality awards

by

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The paper has been submitted to The TQM Magazine.
Experiences of working with in-company quality awards

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Keywords: TQM, In-company Quality Awards, Self-assessment, Experience, Effects.

Abstract

One way to stimulate Total Quality Management (TQM) efforts in an organisation is to work with a quality award. This paper presents a case study, including both interviews and document studies, of a unit within the Swedish National Road Administration that has worked with an in-company quality award. The purpose of the case study was to study how a unit experiences and is affected by the work connected with an in-company quality award. Some positive experiences and effects were recognised, such as a perceived improved customer orientation, a comprehensive view, a degree of participation by everyone, systematic improvement work and an increase in the average score from the examiners. The perceived main disadvantage is the amount of work that the in-company quality award requires, especially in the phase of description of activities.

Background

Total Quality Management (TQM) has become a recognised and frequently discussed term in management literature. Some argue that TQM is a management approach, see, for example, Dale (1999), while others state that it is a management system, see, for example, Shiba et al. (1993) and Hellsten & Klefsjö (2000). The latter authors define TQM as a management system in continuous change, which consists of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources.

One way to work with TQM and its values, methodologies and tools, and thus try to increase customer satisfaction, is to apply for a quality award. Some examples of the criteria of quality awards that have been used by many organisations and are widespread are the criteria of the Malcolm Baldrige National Quality Award (MBNQA) and the European Quality Award (EQA). In many countries, however, the development of national quality awards is still new or non-existent, see Chuan & Soon (2000). For a thorough list of national and international quality awards and a comparison between different awards, see, for example, Vokurka et al. (2000) and Johnson (2002).

The Swedish Institute for Quality, SIQ, which was established in 1990, has had a large impact on quality development in Sweden. In 1992 the Swedish Quality
Award was launched by the SIQ. The Swedish Quality Award has influenced the establishment of several regional, branch-wise and in-company quality awards in Sweden. Most of these quality awards in Sweden are also based on the whole or parts of the SIQ Model for Performance Excellence. One main difference between the quality awards is the group of units and companies that the award is aimed at, or in other words, who are allowed to participate in the award process. For example, only units within an organisation can apply for an in-company quality award, while a national quality award is open for most of the organisations/units of the country. Today, there are mainly two companies in Sweden, the Swedish Post Office and the Swedish National Road Administration, which are working with an in-company quality award. There are also companies in Sweden that have ceased working with in-company quality awards. These include Swedish Telecom, and two electricity suppliers, Vattenfall and Sydkraft.

Due to the fact that in-company quality awards have not aroused great research interest, according to literature studies, a project is now in progress in order to study the effects of in-company quality awards. Earlier results of this project based on a questionnaire study, see Eriksson et al. (2002), showed that some units that had applied for an in-company quality award experienced that the general development of some studied key-indicators were improved greatly, while none of the units that had not applied stated the same positive development. To understand better how a unit experiences and is affected by the work connected with an in-company quality award, as well as to determine whether the results from Eriksson et al. (2002) could be verified, an in-depth analysis needed to be performed. Hence, the purpose of this study is to create an understanding of how a unit experiences and is affected by the work connected with an in-company quality award.

Theory
In this section, the main methodology and tool that are used in the in-company quality awards are presented. Hellsten & Klefsjö (2000) argue that methodologies are “ways to work within the organisation to reach the values” and that a methodology “consists of a number of activities performed in a certain way”. Hellsten & Klefsjö (2000) define tools as “rather concrete and well-defined tools, which sometimes have a statistical basis, to support decision-making or facilitate analysis of data”.

Self-assessment
Self-assessment can be regarded as a methodology, see Hellsten & Klefsjö (2000). Self-assessment has many similarities to the phases that an organisation goes through when applying for a quality award. Hence, self-assessment is used in this paper to describe the work connected with in-company quality awards. According to EFQM (1996), self-assessment is “a comprehensive, systematic and regular review of an organisation’s activities and results referenced against a model of business excellence”. 
Svensson & Klefsjö (2000) have suggested different phases of self-assessment, see Figure 1. They argue that the self-assessment procedure has four phases, similar to the four phases of the improvement cycle. The first phase, “plan”, includes asking questions like: “Why should we perform a self-assessment?” “When should the work be carried out?” “Who should be involved?” “Which excellence model should be used as a basis for the description?” This phase is developed further in Conti (2002), who claims that the organisation has to ask three questions (“Why?”, “How?” and “What?”) before initiating self-assessment. The second phase, “do”, consists of obtaining a description of the organisation’s way of working. The third phase, “study”, consists of the analysis of the description, often resulting in some form of feedback report based on the description. The fourth phase, “act”, consists of planning for improvements.

The effects and experiences of working with self-assessment have been studied earlier. For example, van der Wiele et al. (1996) identified, on the basis of data from 117 organisations that had experiences of self-assessment, the five most important reasons for organisations taking the initiative to start the process of self-assessment. These are:

1. to find opportunities for improvement.
2. to create a focus on the TQM model portrayed by the award criteria.
3. to direct the improvement process.
4. to provide new motivation for the improvement process.
5. to manage the business.

Moreover, Brown & van der Wiele (1996) show, on the basis of a national postal survey of self-assessment practices in Australia, that the reasons for
using self-assessment are mainly to find opportunities for improvement and to
direct the improvement process, while the goals for introducing self-assessment
are to improve business performance, to drive continuous improvement and to
increase quality awareness in all aspects of the business. According to Brown
& van der Wiele (1996), the organisations are positive in general to the results
of self-assessment. Moreover, Finn & Porter (1994) state, according to a survey
study, that companies are increasingly using self-assessment and that benefits
from this approach are quickly realised.

Samuelsson & Nilsson (2002) state, after studying nine large organisations, that
there is no universal methodology for self-assessment. On the contrary, their
findings indicate that several approaches to self-assessment are successful, as
long as they fit the organisation, are used continuously, and foster participation.
Moreover, van der Wiele et al. (1996) state that organisations use self-
assessment both on an internal basis, meaning that no external people are
involved in the assessment, and on an external basis.

**SIQ Model for Performance Excellence**
Many different tools have been developed in order to support self-assessment.
Swedish organisations have to a relatively large extent been using the booklet
with the SIQ Model for Performance Excellence, which is based on 13 core
values and consists of seven criteria, which are divided further into 27 sub-
criteria. The general framework and the criteria of the SIQ model are displayed
in SIQ (2002) and in Figure 2. The booklet with the criteria can be regarded as
a tool, see Hellsten & Klefsjö (2000). The criteria are based on core values
which are the foundation of TQM. The core values of the SIQ Model for
Performance Excellence are: Customer Orientation, Committed Leadership,
Participation by Everyone, Competence Development, Long-range Perspective,
Public Responsibility, Process Orientation, Prevention, Continuous
Improvement, Learning from Others, Faster Response, Management by Facts
and Interaction.

The SIQ Model for Performance Excellence, which was inspired by the
MBNQA model, has many similarities to the latter. However, there are also
differences between the two award models. For example, the SIQ Model for
Performance Excellence puts more emphasis on the evaluation of and
improvement in all the criteria addressed and on the practice of TQM principles
in all organisational activities. There is also relatively more emphasis on the
organisation’s impact on society and on the organisation’s commitment to the
customers compared with most other national quality award models, see Chuan
& Soon (2000).
**Methodology**

**Case Selection**

In order to perform an in-depth study of how a unit experiences and is affected by the work connected with in-company quality awards, a case study was chosen as the most appropriate strategy to collect data, see Yin (1994), who discusses relevant situations for different research strategies. Further, units that are and have been working with an in-company quality award for some time were prioritised in the case selection due to the fact that such units have a greater experience of the in-company quality award. A single case study, instead of a multiple case study, was chosen due to a restriction of resources and because the case study will also serve as a prelude to further studies on the subject, see Yin (1994). Finally, a unit within the Swedish National Road Administration that has been working with an in-company quality award since 1998, and has written three descriptions was chosen as an appropriate case study.

**Selection of Units of Analysis**

Before initiating a case study, one also has to decide how many units of analysis one wishes to investigate. In a holistic design one unit is examined, while in an embedded design more than one unit of analysis are examined. The sensitivity of the study increases as more units within the case are used, see Yin (1994). Hence, an embedded single-case design was chosen. To understand the experiences better and to obtain a broader picture of the work connected with the in-company quality award, and thus increase the sensitivity of the study, employees who had different levels of involvement in the self-assessment process and different levels of responsibility at the unit were interviewed and analysed on the basis of which perspective they possessed. This analysis was performed because employees with different perspectives, or in other words
with different levels of involvement and responsibility, probably look upon the work connected with the in-company quality award differently. In total, five semi-structured interviews were held. Four of the employees who were interviewed were taking an active part in working with the in-company quality award, while one did not participate in the work. Two of the employees who were interviewed had during different periods the responsibility of managing the work at the unit connected with the in-company quality award. The other two had mainly taken an active part in the description of activities (“Do” in Figure 1) and in the plan for improvements (“Act” in Figure 1). Further, one of the respondents was the head of the unit, while another one was the head of a division within the unit. The answers from the employees were analysed and compared on the basis of which perspective the employees possessed; e.g. their involvement in the self-assessment process and their level of responsibility at the unit. For example, the head of the unit was considered to have a high degree of responsibility at the unit, but only a medium involvement in the self-assessment process. The employee who did not participate in the self-assessment process was considered to have a low degree of involvement and a low degree of responsibility at the unit.

Selection of Inquiries
The results of Eriksson et al. (2002) served as an input for deciding which questions were going to be asked. As mentioned earlier, one intention of this study was to determine whether some of the results of Eriksson et al. (2002) could be verified. Therefore, some of the questions were similar to those asked in that study, while others were added to understand better the experiences of the in-company quality award. The studied experiences of the in-company quality award can be divided into three different consecutive steps or areas of questions, see Figure 3. First, what are the purpose and goal of working with the in-company quality award? Second, what does the self-assessment process of an in-company quality award look like? Third, and the main focus of this paper, what is the perceived outcome of the work connected with the in-company quality award? The perceived outcome of the in-company quality award was divided further into four different areas of questions, see Figure 3, and compared with other identified effects of the in-company quality award, mainly derived from the document studies of the work connected with the in-company quality award. For a detailed description of the questions of this case study, see Eriksson (2002).

Figure 3  The figure shows an overview of the areas of questions that were asked about the experiences of the in-company quality award.
Results and Discussions of the Case Study

The Swedish National Road Administration is the central administrative agency charged with the overall responsibility for the entire road transportation system in Sweden. The unit studied within the Swedish National Road Administration, the Northern Region, is assigned the administration of the road transportation system in Northern Sweden, and has about 160 employees. In the following section, the results of the case study are presented and compared with earlier published results.

Purpose and Goal of the In-Company Quality Award

It has been mandatory for the units within the Swedish National Road Administration to work with the SIQ Model for Performance Excellence since 1998, and it has been possible to apply for the in-company quality award three times. The purpose of the work is to find areas where future improvements can be made in the unit’s activities. This purpose of self-assessment is also stated by many other organisations, see for example Brown & van der Wiele (1996) and van der Wiele et al. (1996). Some respondents claim further that they have succeeded in many of the improvement projects which were identified and prioritised on the basis of the feedback report, and thus fulfilled the goals of working with the in-company quality award.

Self-assessment Process of the In-Company Quality Award

All the respondents agreed that the diagram of the award procedure presented in Figure 1 provides a true picture of the work connected with the in-company quality award, and that the description of activities was the phase in the award procedure that needed most resources, see Table I.

Table I The table shows the phases which, in the employees’ view, needed most work, the next greatest amount of work, the next smallest amount of work, and least work in connection with the in-company quality award. The interviewed employees’ degree of involvement in the self-assessment and responsibility at the unit are shown in the first two rows.

<table>
<thead>
<tr>
<th>Degree of involvement in the self-assessment</th>
<th>High</th>
<th>High</th>
<th>Medium</th>
<th>Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of responsibility at the unit</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Most work</td>
<td>Description</td>
<td>Description</td>
<td>Description</td>
<td>Description</td>
</tr>
<tr>
<td>Next greatest amount of work</td>
<td>Analysis</td>
<td>Improvement Plan</td>
<td>Planning</td>
<td>Improvement Plan</td>
</tr>
<tr>
<td>Next smallest amount of work</td>
<td>Improvement Plan</td>
<td>Analysis</td>
<td>Improvement Plan</td>
<td>Analysis</td>
</tr>
<tr>
<td>Least work</td>
<td>Planning</td>
<td>Planning</td>
<td>Analysis</td>
<td>Planning</td>
</tr>
</tbody>
</table>

Different groups of employees were responsible for different criteria during the description of the activities. All the divisions within the unit were required to contribute at least one employee to this work, and these employees formed an internal quality network. During meetings, specially arranged for description of
the activities, the different criteria were linked together to give a better picture of the activities and results of the unit. One then ensured that the whole document containing the description of activities received the support of the rest of the unit, before applying for the in-company quality award.

The respondent who was the head of the unit (high responsibility) and the respondent who was the head of a division of the unit (medium responsibility) also considered that the plan for improvements, the analysis of the description and the planning were the phases that required the next greatest amount of work, the next smallest amount of work, and least work, respectively, after the description of activities, see Table I. One of the respondents did not have an active role in the work connected with the in-company quality award and hence did not answer this particular question. The results in Table I were strengthened further by the document studies. The unit performed an estimation of how many hours the unit worked with each phase per year. The result of this estimation is displayed in Table II.

Table II   The table shows the estimated number of hours during which the unit worked with the in-company quality award in each year and phase. The percentages within parentheses indicate what proportion of the total work connected with the in-company quality award each phase constituted.

<table>
<thead>
<tr>
<th>Phase/Year</th>
<th>Planning</th>
<th>Description</th>
<th>Analysis</th>
<th>Improvement Plan</th>
<th>Total for the year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>50 (4%)</td>
<td>850 (72%)</td>
<td>120 (10%)</td>
<td>160 (14%)</td>
<td>1180</td>
</tr>
<tr>
<td>1999</td>
<td>16 (1%)</td>
<td>720 (48%)</td>
<td>300 (20%)</td>
<td>460 (31%)</td>
<td>1496</td>
</tr>
<tr>
<td>2000</td>
<td>16 (1%)</td>
<td>740 (62%)</td>
<td>265 (22%)</td>
<td>180 (15%)</td>
<td>1201</td>
</tr>
<tr>
<td>Total for the phase</td>
<td>82 (2.1%)</td>
<td>2310 (59.6%)</td>
<td>685 (17.7%)</td>
<td>800 (20.6%)</td>
<td>3877</td>
</tr>
</tbody>
</table>

The results displayed in Table I and Table II verify one of the main findings of Eriksson et al. (2002), which showed that the description of activities and planning for improvements require most work of units that apply for in-company quality awards, with the difference that this study shows that the description of activities is the phase that clearly requires most work. A large amount of resources was spent on planning for improvements, as the unit had to agree on which improvement areas were to be prioritised and transformed into improvement projects. The improvement projects were thereafter communicated to the director-general of the Swedish National Road Administration and included in the plan of action for the unit. Both Conti (2002) and Svensson & Klefsjö (2000) argue that the first phase of the self-assessment procedure is important for success. However, the unit claimed that on average only about 2% of the total work connected with the in-company quality award was spent on this phase.

Moreover, all the sources for data collection – the estimation of the work connected with the in-company quality award on a yearly basis, displayed in Table II, the interviews, displayed in Table I, and the questionnaire study
presented in Eriksson et al. (2002) – indicate that most work is required the second time units apply for in-company quality awards, while two of these sources indicate that the third time required least work. Simpson et al. (1998) state that it is widely accepted that subsequent self-assessment is more successful than the first exercise. This could be due to the fact that more resources may have been spent on the self-assessment the second time. One source, displayed in Table II, shows that the first and the third time the unit worked with the in-company quality award, about a similar amount of work was demanded from the employees.

Effects of the In-Company Quality Award on the Stakeholders and Processes
Examiners have, on the basis of the SIQ Model for Performance Excellence, evaluated the unit on the three different occasions when the unit worked with the in-company quality award. The examiners have reached a consensus about the final score for each criterion. In Figure 4, the scores are presented which the examiners awarded the unit for the different criteria in the SIQ Model for Performance Excellence and for the different years. The examiners vary from year to year, and hence different examiners can be more or less generous in their scoring. Moreover, the employees who describe the activities probably improve the process, including their writing skills, the second and third time they are working with the quality award. Hence, it is not clear whether an increase in the average scores from the examiners is due to improved bottom line results. Due to these facts, one can discuss the possibility of a lack of reliability and validity concerning the examiners’ scoring. On the other hand experiences show that examiners have a tendency to be tougher in their judgement over time, see Heaphy & Gruska (1995).

Figure 4 The figure shows how many points the unit received for each criterion and each year.
However, Figure 4 shows that the unit has improved the results for each criterion, except between the first and the second year for the criterion of process management. Myers & Heller (1995), who discuss AT&T’s in-company quality award, called the Chairman’s Quality Award (CQA), conclude also that units which had previously applied for and worked with the CQA show great improvement in the average scores from examiners.

One of the respondents believed that organisations need to map and work with processes for some time in order to be successful in the work connected with a quality award. This could be one explanation for the negative trend concerning process management which is displayed in Figure 4. However, some respondents claim that they have reached an increased process orientation, that the work is more systematic now, and that this could be an effect of the work connected with the in-company quality award.

The results for customer satisfaction and human resource development are displayed in two different sub-criteria. The other results are presented in one result criterion. The development of the scores that the units received from the examiners for these result-criteria for the different years is displayed in Table III.

Table III  The table shows how the percentages given by the examiners for the different result criteria have developed since 1998.

<table>
<thead>
<tr>
<th>Year</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results for Customer Satisfaction</td>
<td>5%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Results for Human Resource Development</td>
<td>5%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Other Results</td>
<td>4%</td>
<td>8%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Table III shows that the other results (results for main and support processes, co-operation with suppliers, and involvement in society and environmental considerations) improved in both years, while the percentages given by the examiners for the criteria of customer satisfaction and human resources development were only improved between the first and the second year of the self-assessment. Moreover, it was in the second year that the unit performed most of the work, and this improvement in the score could therefore be a result of that extensive work. The respondents claim that the unit has become more customer-oriented, even if that is not supported in Table III, and a better dialogue with the customers has been reached. However, some of the respondents state that it is difficult to see the positive effects for the customer yet. The customers of the unit are mainly the citizens that use the road transportation system. In the long run, however, an improved customer orientation should also have a positive impact on the owner, in this case the Swedish state, according to some of the respondents.

Effects of the In-Company Quality Award on the Core Values
One of the findings in Eriksson et al. (2002) is that the work connected with the in-company quality award has positive perceived effects on the acceptance of
the core values within the organisations. Hence, the core values were analysed further in this study, see Table IV.

Table IV  The table shows the three core values that the employees perceived to permeate the unit the most. One star indicates that the respondents perceived that the core value that permeated the unit partly depended on the work connected with the in-company quality award. Two stars indicate that the respondents perceived that the core value that permeated the unit depended on the work connected with the in-company quality award. The interviewed employees’ degree of involvement in the self-assessment and responsibility at the unit are shown in the first and second row, respectively.

<table>
<thead>
<tr>
<th>Involvement</th>
<th>High</th>
<th>High</th>
<th>Medium</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Core Value</td>
<td>Competence Development</td>
<td>Competence Development*</td>
<td>Competence Development</td>
<td>Participation by Everyone*</td>
<td>Competence Development*</td>
</tr>
<tr>
<td>Core Value</td>
<td>Management by Facts</td>
<td>Interaction*</td>
<td>Management by Facts</td>
<td>Management by Fact</td>
<td>Participation by Everyone*</td>
</tr>
<tr>
<td>Core Value</td>
<td>Customer Orientation*</td>
<td>Customer Orientation*</td>
<td>Committed Leadership</td>
<td>Customer Orientation**</td>
<td>Public Responsibility**</td>
</tr>
</tbody>
</table>

The involvement in the self-assessment or the responsibility at the unit does not influence, at least according to Table IV, which core values are perceived to permeate the unit. On the whole, competence development, management by facts and customer orientation are the core values that are perceived by the respondents to permeate the unit the most. The core value of customer orientation seems to be the core value that is perceived to be affected most by the work connected with the in-company quality award. The feedback report from the examiners from the three different years also strengthens this picture, as the examiners are more and more positive in their reports to the customer orientation of the unit. Studies have shown that customer satisfaction, one of the main aims of TQM, also has a significant positive impact on market value as well as accounting returns, see for example Andersson & Fornell (1994).

Advantages and Disadvantages of the In-Company Quality Award
Table V presents the perceived advantages and disadvantages of the in-company quality award. The respondents who have a high degree of involvement in the in-company quality award perceive that one of the main advantages is an increased comprehensive view of the business, while the respondents who have a medium involvement in the in-company quality award perceive that the work connected with the in-company quality award is a good learning experience for the employees involved. The work connected with the in-company quality award is also perceived to initiate improvement projects, which can result in an increased customer orientation, as well as an increased process orientation. These positive effects verify the findings of Eriksson et al. (2002).
The table shows the perceived advantages and disadvantages of the work connected with the in-company quality award. The interviewed employees’ degree of involvement in the self-assessment and responsibility at the unit are shown in the first and second row, respectively.

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Responsibility</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low</td>
<td>An increased comprehensive view of the unit</td>
<td>Resource-demanding</td>
</tr>
<tr>
<td>High</td>
<td>Medium</td>
<td>An increased comprehensive view of the unit. The initiation of improvement projects, which results in an increased customer orientation</td>
<td>Resource-demanding</td>
</tr>
<tr>
<td>Medium</td>
<td>Low</td>
<td>An increased customer- and process orientation. A good learning experience</td>
<td>Resource-demanding. Troublesome and formalistic demands from the SIQ model</td>
</tr>
<tr>
<td>Medium</td>
<td>High</td>
<td>A good learning experience. The start of systematic improvement work</td>
<td>Resource-demanding</td>
</tr>
</tbody>
</table>

The main criticism of the work connected with the in-company quality award is that it is resource-demanding, and hence requires a great deal of work from the employees who are involved in the self-assessment. The lack of resources when performing self-assessment is also recognised in Svensson (2002). However, it is not possible to see positive effects of the work connected with the in-company quality award without spending resources on the work.

Suggestions for Improvements of the In-Company Quality Award

Both the respondents who were involved in the work connected with the in-company quality award and the respondent who did not take an active part in the work stated that the information about the work connected with the in-company quality award did not reach the whole unit. Hence, one should pay attention to the lack of communication between different parties within the unit if one wants to improve the in-company quality award. Moreover, as shown previously in some areas of questions, the respondents experienced the work connected with the in-company quality award differently. This could be due to the fact that no common set of beliefs concerning the work connected with the in-company quality award has been communicated. By putting more emphasis on and devoting more work to the phase of planning, it is possible that the communication problems can be prevented.

In addition, the SIQ Model for Performance Excellence received some criticism from several respondents. The SIQ Model for Performance Excellence is perceived to be too bureaucratic and extensive, and other methods for identifying improvement areas could be applied by using other methodologies and tools requiring a smaller amount of resources, according to two of the respondents. One tool that was mentioned in this context was the Springboard, see Hellsten (1997) and Hellsten (1999).
**Discussion**

All the answers from the respondents are presented in Eriksson (2002) in order to increase the reliability of the study. To increase the validity of the study, the quality coordinator of the unit was contacted before the interviews to comment on the questions that were going to be asked. Further, the self-assessment procedure and the core values were explained to the respondents in order to decrease possible misinterpretations. Moreover, the respondents had the opportunity to comment on each area of questions in order not to neglect any important matter. An internal validation was executed as well, where colleagues of the author commented on the structure and the questions that were going to be asked in the case study. In addition, as an incentive to increase the validation, triangulation was performed to some extent for some areas of questions, as many different sources for data collection were used: the interviews, the document studies, and the questionnaire study described in Eriksson et al. (2002).

In future research, case studies at both the companies that still have an in-company quality award and at companies that have ended their in-company quality award need to be performed, in order to obtain a more complete picture of in-company quality awards and to validate the results of this study. In future case studies, some questions will be changed slightly. However, no major changes of the research design were identified as necessary.

The respondents of this case study, and at other units that work with an in-company quality award have in general a positive attitude towards the work connected with the in-company quality award, see Eriksson et al. (2002). Other organisations have also expressed a positive attitude towards self-assessment, see, for example, Brown & van der Wiele (1996). However, the results of this case study indicate that a large amount of resources is spent on the description of activities, and some respondents believe that, due to this fact, the unit does not have the time to actually perform and execute the identified improvements. As a result of this, the company and the unit will probably perform self-assessment every other year in the future in order to manage the actual improvement work that follows the self-assessment.

One advantage of an in-company quality award in comparison with other types of awards can be that “best practice” can more easily be transferred to other units within the company, due to the fact that access to other units is easier. One disadvantage of a competition, like an in-company quality award competition, can be that too much focus is on the scoring instead of finding and executing improvements. Conti (2001) identifies this problem, and states that if the goal of self-assessment is performance improvements, the best choice is to ignore scores and weights. Further, Conti (2001) argues that internal awards linked to self-assessment can indeed be a stimulus; they can drive interest and create the motivation to start. However, although awards certainly help to produce improvement at the beginning, the rate of improvement then tends to
slow down, according to Conti (2001). The veracity of this statement will hopefully be investigated by future research.

**Conclusion**
The main conclusion of this paper is that, even if the work connected with the in-company quality award requires a large amount of work, especially in the phase of description of activities, the customer orientation is perceived to increase as a result of the work connected with the in-company quality award. Some other positive effects were also recognised, such as an improved comprehensive view of the employees, a higher degree of participation by everyone and the initiation of systematic improvement work. These perceived positive effects are also reflected in an improvement in the average score from the examiners. These results verify and strengthen the findings of Eriksson et al. (2002). Even if the work involved in self-assessment, in this case in connection with an in-company quality award, is perceived to give positive results in alignment with other studies of self-assessment, the work connected with the in-company quality award can be improved. The main areas of criticism, and thereby possible improvement areas, concerning the work connected with the in-company quality award are a lack of communication and the bureaucratic and extensive SIQ Model for Performance Excellence.

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**References**


