Swedish quality: a historical perspective and reflections for the future

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Swedish quality: a historical perspective and reflections for the future

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Abstract

Purpose – The aim of this paper is to investigate the development of the quality movement in Sweden since the mid-20th century. The authors are convinced that a summary of the Swedish quality journey so far will offer important lessons for further quality improvements in Sweden and elsewhere.

Design/methodology/approach – The authors study how the quality movement has been included in the industrial agenda and how it has been adopted in student curricula and in research. The authors have a focus on how business leaders have learnt, adopted, adapted and innovated with respect to quality development. often in collaboration with academia.

Findings – Although the quality movement has fit well with the Swedish culture and that successful corporate leaders have successfully used the specific cultural characteristics there is still a lot to be learnt with respect to the public sector, where the ideas from the quality movement have problem to overcome institutional barriers.

Research limitations/implications – The study is limited to the Swedish context.

Practical implications – There is a serious need to revitalize the public sector by getting leaders and politicians to understand the need for systematic quality improvement.

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There are obviously many more individuals and several more initiatives and events having influenced the Swedish quality journey during the time period we have tried to describe. Limiting our account due to a lack of space has been very difficult, and the discussions between us three authors have sometimes been long and hard. We apologise to anyone who thinks we have made mistakes and encourage you to contact us with your comments. Thank you!

The authors want to thank two anonymous referees and the editors for their valuable insights and many superb comments and suggestions, which have considerably improved this article. The authors also like to thank their copy editor Rikard Ehnsiö for his excellent work.

Social implications – If future Swedish achievements with respect to healthcare and other social welfare elements are to once again become world-class, the public sector needs to be open-minded and collaborate with the industrial sector and academia to find cost-effective strategies for making quality improvements. However, the private sector must also be alert not to be overtaken by some highly active Asian countries.

Originality/value – Swedish large companies have been very successful in applying quality leadership – however, in the public sector, this has not been the case. Suggestions for improvement are made.

Keywords Swedish evolution of quality, Improvement, Leadership, Total quality management

Paper type General review

1. Introduction

The modern quality movement took off in the US in the early 20th century with Walter Shewhart's (1891–1967) pioneering work (Shewhart, 1931, 1939). Since then, it has gone through many transformations, where the most dramatic influences are certainly those originating from Japan when American engineer Homer Sarasohn (1916–2001) and his colleagues on behalf of the occupation forces introduced American ideas as part of the reconstruction of the Japanese industry after World War II (Wood, 1989; Fisher, 2008). Later, Edwards Deming (1900–1993) and Joseph Juran (1904–2008) would also make important contributions. These American ideas were then transformed under the influence of earlier manufacturing experiences, Japanese culture and governmental policies to fit the Japanese context (Georgiev and Ohtaki, 2020). After the Japanese successes, these ideas returned to the USA. However, due to the different perspectives of the observers, they brought back different stories to the USA explaining the success of the Japanese industry. The response in the US industry was slow due to the need to overcome institutional barriers and build new institutional arrangements and organisational routines to improve quality (Cole, 1999; Dory and Schier, 2002).

Competition from the reconstructed Japanese industry forced the industries in many other countries to adopt new approaches to improve quality (Van Ham and Williams, 1986). However, the quality movement has developed differently in various countries. Some examples can be found in the special issue of *Quality Engineering* (1999:3).

Cultural studies, such as the World Value Survey (2023) and Hofstede *et al*. (2010), show that the Swedish national culture differs from other countries in several ways. Frequently highlighted aspects include that Swedes have a strong belief in individual rights and independence, a deep respect for laws and rules and a high level of trust in public institutions. Swedish society is also characterised by relatively short power distances, which means less hierarchical organisations and extensive informal communication. This probably contributed to Sweden already at an early stage being open to international cooperation, which, in turn, opened up the country to trade and knowledge exchanges with many countries. This led to Sweden and Swedish leaders enjoying a relatively prominent role globally, despite Sweden being a small country.

In this paper, we describe and reflect on the quality movement in Sweden since the mid-20th century. This includes how quality-related concepts and methodologies from abroad have influenced and been practiced in the Swedish private and public sectors. Successful business leaders have leveraged specific cultural characteristics when adopting and adapting new scientific quality initiatives. These leaders have had a great impact on their companies while also influencing others. Below, we mention some of these leaders and their quality strategies. We also discuss the creation of the Swedish Institute for Quality (SIQ) as well as how ideas from the quality movement have been adopted in student curricula and further developed in academic research. Sweden was one of the first countries to establish academic

research and education in this field at the university level with professorships specifically focused on quality and quality improvement. Academic research and practical applications were then developed through a fairly strong and rewarding collaboration between the industry and academia.

Our view of what we refer to as total quality management (TQM) is that it is a management system consisting of values, methodologies and tools aimed at "a constant endeavour to fulfil, and preferably exceed, customer needs and expectations in a sustainable and cost-effective way, by continual improvement work, in which all involved are committed, focusing on the processes in the organisation and their customers" (Bergman *et al.*, 2022).

It should be noted that the authors of this paper have been heavily involved in developing the Swedish quality movement: Bo Bergman and Bengt Klefsjö, who held the first two chairs in this area, and Lars Sörqvist, an associate professor at the Royal Institute of Technology and president of Sandholm Associates, the leading consultancy firm in the field of quality.

Table 1 presents some pivotal events in developing the Swedish quality movement and where these events are discussed in the article. Section 2 describes the initial quality-related initiatives in Sweden up until the appointment of the first Swedish professorship in the field of quality. Section 3 covers the second half of the 1980s when a significant part of the future development of the Swedish quality movement was founded: industrial initiatives, governmental initiatives, the founding of SIQ and decisions to create new professorships. In the following sections, we abandon the chronological order as Sections 4–7 focus on important industrial initiatives, academic development, quality in the public sector and developing Swedish Quality Award (SQA) models, respectively. Finally, the current situation is described in Section 8, whereas Section 9 presents some reflections and lessons for the future.

2. Early initiatives

Sweden is a small country in which influences from the rest of the world have always played an important role and ideas concerning quality and quality improvement are no exception in this regard. Here, we present some of the most important early events and their outcomes.

2.1 Official governmental investigation

Already in 1949, the Swedish Government's official investigation report SoU, 1949:18 *Quality research and consumer information* ("Kvalitetsforskning och konsumentupplysning") discussed how to manage consumer interest. This represented an effort to assess the quality of specific products by creating test laboratories rather than seeking to determine how to achieve such quality. At this time, there was a strong desire to market "Swedish Quality" as a national brand by means of "Made in Sweden" (Glover, 2023; Alexius and Löwenberg, 2012).

2.2 Creation of the Swedish inspection engineer's association

At the end of the 1940s, the Swedish Association of Engineering Industries ("Sveriges Mekanförbund", SMF) suggested that a professional society such as the American Society for Quality Control (now called the American Society for Quality) should be created (Jonsson, 1960). In 1950, Robert Kristensson (1896–1975), professor of industrial economics at the Royal Institute of Technology in Stockholm, participated in an exchange programme with New York University. The exchange partner was Joseph Juran (1904–2008), who at the time authored the first edition of his *Quality Control Handbook* (Juran, 1951). In a chapter of this book, Juran emphasised the importance of organising for quality in all parts of the organisation. He argued that the statistical methodologies emphasised at the time were important but not enough.

Table 1. Pivotal events in the development of the Swedish quality movement

Year	Pivotal event	Section
1949	Swedish governmental investigation on "Swedish Quality"	2.1
1949	Swedish Association of Engineering Industries suggests a professional association such as ASQC	2.2
1950	Joseph Juran participates in an academic exchange programme with the Royal Institute of Technology	2.2
1952	Launch of the Swedish Inspection Engineers' Association ("Kontrollingenjörernas förening", KIF)	2.2
1966	EOQC congress in Stockholm with presentations by Joseph Juran	2.3
1966	Joseph Juran visits Electrolux	2.3
1966	KVALITET, Nordisk tidskrift för kvalitetskontroll og industriel statistik (Quality, Nordic Journal for Quality Control and Industrial Statistics), 1966–1968	5.7
1969	Publication of Sandholm (1969) *Kvalitet. Begrepp, ekonomi och teknik*	2.5, 5.7
1971	Launch of Björklund & Sandholm (now Sandholm Associates)	2.5
1972	Lennart Sandholm introducing international training programmes	5.5
1976	Master's programme on quality and maintenance engineering at Linköping University	2.7
1980	Publication of Sandholm (1980) *Kvalitetsstyrning*	5.7
1982	Untenured professorship in reliability at the Royal Institute of Technology/Bo Bergman	2.7
1983	Professorship in quality technology, Linköping University/Bo Bergman	2.7
1985	Meeting led by Minister of Industry Thage G. Pettersson	3.2
1986	Launch of the National Committee for Swedish Quality	3.2
1986	Reftmark appointed to carry out an investigation regarding education and research related to quality	3.2
1986	Launch of the Service Research Center ("Centrum för Tjänsteforskning", CTF), Karlstad University	5.4
1987	ISO 9000 accepted and translated into Swedish by the Swedish Institute for Standards (SIS)	
1987	Report UHÄ 1987:5 "Quality management – education and research"	3.2
1988	"Proposal for an organisation supporting Swedish quality" by Reftmark	3.2
1989	"The first national research programme in quality management" by Alänge et al.	3.3
1989	Launch of the Swedish Quality Index	3.4
1990	Launch of the Swedish Institute for Quality (SIQ)	3.3
1990	Professorship in quality technology, Luleå University of Technology/Bengt Klefsjö	5.2
1990	First issue of the *QA Magazine* published (after 1993 *Kvalitetsmagasinet*)	5.7
1990	Untenured professor at Royal Institute of Technology/Lennart Sandholm	5.3
1991	Publication of Bergman & Klefsjö *Quality from Customer Needs to Customer Satisfaction* (first edition in Swedish)	2.7
1991	Publication of Helling (1991) *Världsmästarna – en ny generation av tillverkningsföretag*	4
1991	Launch of Swedish Quality Award	3.3, 6.1
1992	First Swedish Quality Award recipient/Manufacturing Division of IBM Sweden	6.1
1993	Professorship at Chalmers University of Technology, reliability specialisation/Holger Rootzén	5.1
1997	The Federation of Swedish County Councils introduces the quality award QUL for healthcare	6.3
1999	SKF professor in TQM, Chalmers University of Technology/Bo Bergman	5.1
2000	Publication of Magnusson et al. (2000) *Six Sigma – The Pragmatic Approach*	5.7
2002	The first Swedish Six Sigma Conference organised by Sandholm Associates and SIQ with support from Volvo, Ericsson, and SKF	5.5
2006	The Vinnvård programme created (founding for healthcare improvement research)	7.1
2012	Launch of the Swedish Quality Management Academy (SQMA)	5.6
2018	SIQ Management Model presented	6.2

Source: Authors' own work

As a response to SMF's aspiration, although probably also being influenced by Juran and his ideas, Kristensson in 1952 co-founded the Swedish Inspection Engineers' Association ("Sveriges Kontrollingenjörers Förening", KIF) together with Olle Jonsson (1917–1988), an inspection manager in the defence industry, and a few additional inspection managers. Kristensson became the first chairman of the association, which by 1959 had more than 350 members (Jonsson, 1960). Nowadays, after some name changes, KIF is since 1985 known as the Swedish Society for Quality ("Svenska Förbundet för Kvalitet", SFK).

There was a great emphasis on inspections in those early days. In fact, as late as the 1970s, inspection departments were separated from manufacturing departments and operators had a limited ability to inspect their own work. This was even the case in the aerospace industry until the early 1980s.

2.3 European Organisation for Quality Control congress in Stockholm in 1966

In 1966, Lennart Sandholm (born 1932), quality manager at Electrolux, invited Juran to speak at a European congress in Stockholm co-organised by KIF and the European Organization for Quality Control (EOQC), now EOQ. Impressed by Japanese quality management practices, especially QC circles, Juran warned of a quality threat from Japan and predicted that they would take the number one position in the world in terms of quality within two decades (Juran, 1967; Butman, 1997).

During his visit to Stockholm, Juran also presented a seminar to the top management at Electrolux. This seminar strongly influenced the view of quality issues in Electrolux and probably in many other companies as well (Sandholm, 2013a, 2013b).

2.4 Hans Werthén

Hans Werthén (1919–2018) was very young when he played an active role at the forefront of developing television in Sweden. In 1956, he became vice president of Philips in Sweden and vice president of Ericsson in 1963.

Werthén was appointed CEO of Electrolux in 1967, which at that time experienced extensive quality problems and significant market challenges. Quality had previously been a knowledge area in manufacturing, primarily involving inspection activities, whereas Werthén decided to make quality a matter for upper management. He understood that the solution was to focus on the customer and give quality the highest priority. In a TV interview, he summarised his strategy as: "The trick to doing business is to be welcomed back". Under his leadership, the term "quality" gained a new meaning.

Through his leadership, Werthén served as a role model in the field of quality and inspired many other Swedish leaders to adopt a new type of leadership. He was probably the first Swedish business leader to fully understand the power of systematic and fact-based quality work, something he personally took responsibility for (Sandholm, 2013a, 2013b).

The results show just how successful his efforts were. When Werthén took over as CEO in 1967, Electrolux had 19,000 employees and was characterised by significant quality problems. When Werthén resigned as the company's chairman in 1991, its employees numbered 130,000 and its products were considered market-leading in terms of quality (Sandholm, 2013a, 2013b).

See Uggla (2008) for a description of Werthén and his leadership philosophy.

2.5 Lennart Sandholm and his collaboration with Joseph Juran

During the late 1960s, there was a noticeable increasing interest in quality issues in Sweden, especially in the engineering industry. At this time, Sandholm in 1967 published the first modern Swedish textbook on quality. He left Electrolux in 1971 and in the following year, he

and Olle Björklund (1923–2010), manager at the Military Telecom Laboratory ("Försvarets Teletekniska Laboratorium") launched Björklund and Sandholm AB (currently Sandholm Associates). It became one of the first European consulting and training companies in the field of quality management. When Sandholm informed Juran that he was going to leave Electrolux and become a consultant, Juran's immediate response was: "Excellent! Then I will come to Sweden and give my courses and seminars within your company" (Klefsjö & Sandholm, 2004). This was the beginning of a long collaboration between Juran and Sandholm, which Juran also appreciated. "It was a joy to work with him – he was a superb organiser, and his integrity was absolute", Juran said (Juran, 2004). Sandholm and Juran became very good friends and Juran came to visit Sweden 31 times as a result, which was more than any other country.

2.6 Early influences from Japanese quality management

In the 1980s, Japanese high-quality products in sectors such as electronics, cameras and cars significantly impacted the Swedish industy, thereby pushing management to prioritise quality. This led to invitations being sent to Japanese quality experts such as Shoji Shiba (born 1933), Shigeo Shingo (1909–1990), Kaoru Ishikawa (1915–1989), Yoshio Kondo (1924–2011), Yoji Akao (1928–2016), Noriaki Kano (born 1940) and others to visit Sweden. Several of these individuals were invited by Sandholm.

Starting in the early 1980s, many Swedish industry representatives and research associations visited Japan and the USA to study Japan-inspired TQM. For example, Sandholm started to organise trips to Juran's annual IMPRO conference in 1983, whereas the Chalmers University of Technology arranged for industrial delegations to visit Japanese companies (Lundgren and Alänge, 2000). The study visits to Japan had mixed results. It has been said that the Japanese industry was extremely secretive, whereas a British researcher claims that the visitors, eager to find a "magic potion", did not spend enough time examining what was behind the Japanese success (Macdonald, 1998). After returning home, efforts focused on implementing various methodologies rather than on understanding the quality culture and systems approach at, for instance, Toyota. The rise and fall of QC circles serves as a notable example, peaking in Sweden in 1984. For more on early influences from Japan and the USA on Swedish quality, see Lundgren and Alänge (2000).

2.7 Creation of an education and research agenda at Linköping University

Measures were taken in the 1960s to establish a university in Linköping, and an engineering faculty was created in the 1970s. Collaborating with the Swedish Association of Engineering Industries ("Sveriges Mekanförbund", SMF), the faculty launched a specialisation in quality and maintenance technology. Lennart Sandholm and Karl-Edward Johansson (born 1942), who had a PhD in production engineering, developed the curriculum and were the primary teachers starting in 1976. SMF also proposed a professorship in quality technology, which was created by the university and the government. In 1983, Bo Bergman was appointed professor by the Swedish Government and left his part-time professorship in reliability engineering at the Royal Institute of Technology, where he had worked since 1982.

Supported by industry, SMR, SFK and colleagues Bergman and Johansson created a research and education agenda with a strong industrial focus for a Division of Quality Technology. However, it was not until 1990 that this agenda could be called a TQM programme with defined processes covering the most important activities with regards to their respective customers. This development is described in Bergman (1987), Bergman and Klefsjö (1991), Bergman and Johansson (1991), Bergman and Klefsjö (1994a, 1994b), Bergman (1995) as well as in the division's activity reports (1985–1998).

The division interacted not only with the industry but also with other research areas such as material engineering, business administration, production engineering and marketing research. The division also played an important role in an industrial PhD school – the International School of Management and Industrial Engineering (IMIE) – and was part of a European master's programme in TQM.

Bergman describes his time as a professor at Linköping University:

> I am the most proud of our strong interaction with the industry through project work carried out by MSc and PhD students, MSc theses, industrial networks led by PhD students, annual conferences (Quality Meetings, "Kvalitetsträffar"), and international research conferences of special interest to the industry, to PhD students, and to our research (Bergman and Klefsjö, 1991; Gustafsson *et al.*, 1997; Axelsson *et al.*, 1999; Bergman *et al.*, 1999a, 1999b). A testimony of our impact is described 30 years later by Lars Nilsson, CEO of the consultancy firm C2 Management, who became a dedicated quality improvement leader and trainer for life (Gotby Eriksson, 2023).

Bergman supervised 15 PhD students in Linköping, six of whom have become full professors in quality management or related areas, such as systems engineering, marketing research, service management and business administration. He also played an active role in the creation of SIQ (Section 6.1) and as a member of its advisory board. Bergman left his position in 1998 and moved to the Chalmers University of Technology (Section 5.4). The research group has since been led by Professor Jens-Jörn Dahlgaard (born 1943) followed by Professor Mattias Elg (born 1968).

3. Creating a platform for the future

A number of Swedish initiatives were launched in the early 1980s to create a firm foundation for the continual development of quality awareness in Sweden. Some quality-related initiatives were launched in the industry and several governmental and industrial collaborative projects were carried out. These led to the creation of the National Committee for Swedish Quality, the SIQ and government initiatives to create new professorships in the field of quality.

3.1 Some early industry leaders and their initiatives

3.1.1 Invar Kamprad and IKEA. Ingvar Kamrad (1926–2018) founded the world-renowned company IKEA when only 17 years old. His leadership, deep-rooted in Swedish traditions from his native region of Småland, has inspired many subsequent leaders. He had a strong feeling for the needs of his customers as well as a firm belief in the ability of his employees. He argued that "there is always someone who knows better than you. As a manager, you are responsible for the decisions, but to make these decisions, you have to listen to people around you". Here, we want to emphasise that while the Swedish concept of "medarbetare" is often translated as "employees", the connotation is more like "those working together". He considered all employees "a family" and emphasised that "together, we are stronger!" Kamprad's leadership style is described by Jeppsson (2021).

IKEA's most important success factors are low costs and a strong customer focus and it maintains low prices by constantly seeking out new and innovative ways to develop products and processes. For quite a long time, there has also been a strong focus on sustainability. Kamprad and IKEA have in many ways practiced modern quality management using simple, understandable Swedish phrases without Japanese words. For instance, he presents "continual improvements" as "Most things still remain to be done. A glorious future!" (Bergman *et al.*, 2022).

Today, principles from six sigma and lean are used to develop the business systematically. It is interesting to note that many of the philosophies behind these methodologies align very well with the mindsets found in IKEA ever since its inception. This is likely a major reason for the company's fantastic success journey.

3.1.2 Jan Carlzon and service *management*. Jan Carlzon (born 1941) was in 1981 appointed CEO of Scandinavian Airline Systems (SAS), a consortium of the national airlines of Denmark, Norway, and Sweden. Under his leadership, SAS turned large financial losses into healthy profits within a year. In 1983, shortly before Carlzon left, SAS was declared "Airline of the Year" by the respected magazine *Air Transport World*.

Carlzon had a strong focus on the customers and how to give them the best possible service: "We have been excellent at flying airplanes. Now we will be equally excellent at flying people". The staff members were less seen as cogs in the machinery and more as individuals with agency. Those who worked with customers were given the mandate to solve problems that might appear. Carlzon was convinced of the importance of delegating responsibility. He was highly capable of communicating internally with staff members and externally with the media and he noticed every staff member he met at the office and greeted everyone. This thinking in terms of delegating power and influence was new at the time (Carlzon, 1985, 1987).

Carlzon was heavily influenced by Swedish researcher and consultant Rickard Normann (1943–2003), who made important contributions in the fields of service management and service quality. Specifically, Normann emphasised that customer value is only created when the product is used by the customer (Normann, 2001).

3.1.3 Ericsson quality. Hans Werthén returned to Ericsson in 1981, now as chairman of the board, a position he held until 1990. Ericsson experienced significant quality problems at the beginning of the 1980s and Werthén strongly supported Ericsson's president Björn Svedberg (born 1937) when it came to addressing the challenges. Together, they introduced a new leadership style in Ericsson based on follow-ups and delegating authority, which differed a great deal from the previous and more hierarchical leadership style.

Sture Ögren (born 1945), a quality manager at Ericsson, developed a three-phase programme after visiting Japan. The first phase, "Ericsson Quality", was launched in 1983 and had a strong focus on customer-defined quality with a focus on internal customers. The second phase focused on third-party certification. The third phase was intended to transform Ericsson into a TQM company and was led by Vice President Jan Stenberg (1939–2015). Even though all 22,000 employees were trained, the results were limited as the programme was seen as a headquarters product. For more details on the Ericsson initiatives, see Gummesson (1987) and Lundgren and Alänge (2000).

3.2 Governmental initiatives

By the early 1980s, Swedish competitiveness had decreased in relation to other OECD countries, which led to some important governmental initiatives.

Sven-Olov Reftmark (1926–2016), CEO at the Philips factory in Norrköping, moved to the Philips headquarters in Stockholm in 1982. As part of Reftmark's new position, he was to stay in contact with important technology and scientific institutions in Sweden. This resulted in him being a part of a collaboration between the National Office of University Education ("Universitets- och Högskoleämbetet", UHÄ) and the Swedish Government in 1984. Convinced that an increased focus on quality was vital to the survival of many companies, he brought up quality issues in these meetings. In May 1985, the Swedish minister of industry, Thage G. Pettersson (born 1933), gathered representatives from various areas to a meeting (Lundgren and Alänge, 2000). The conclusion was that forceful steps were needed in

Sweden to increase awareness and competence related to qualit. In November 1986, a national quality campaign was initiated through the launch of the National Committee for Swedish Quality ("Nationalkommittén för svensk kvalitet"). The Committee was financed by the Ministry of Industry and headed by its secretary-general Bengt Norström (born 1945) and with His Royal Highness Prince Bertil (1912–1997) serving as honorary chairman (Reftmark, 1987). The National Committee paved the way for the SIQ as well as to further develop research and education concerning quality and quality improvement.

Reftmark was in October 1986 assigned by UHÄ to become an "investigator of questions related to education and research within the field of quality" (Lundgren and Alänge, 2000), and the results were presented in March 1987 in the report UHÄ 1987:5 titled *Quality management – education and research* ("Kvalitetsstyrning – utbildning och forskning"), which stated that university level programmes were inadequate. The need to train people in quality management was only to some extent met by internal programmes and consultants, whereas the role of universities was quite unclear. Some of the recommendations presented in the report included establishing at least one quality professorship at each major university and that every student in a master's programme in engineering and business administration must take at least one introductory course in quality management.

3.3 Swedish institute for quality

At the beginning of 1988, the National Committee asked Reftmark to come up with ideas on how to design a permanent organisation for promoting the development of quality in Sweden (Lundgren and Alänge, 2000). In the report, *Proposal for an organisation supporting Swedish quality* ("Förslag till organisation för svensk kvalitetsutveckling"; Reftmark, 1988), he suggested that the new organisation should be independent and deeply rooted in Swedish society, something that the National Committee had managed to become during its short life.

The new organisation, the Swedish Institute for Quality ("Institutet för kvalitetsutveckling", SIQ), was created in December 1990 as a joint research institute, which would engage in research and development, education and information, as well as conducting commissioned research and assisting members of a stakeholder organisation ("Intressentföreningen").

The government and the stakeholder organisation were to provide funding in equal amounts. Furthermore, the members of the stakeholder organisation were to be recruited from different sectors of society and include representatives from public and private companies, employers' and employees' associations and organisations with strong ties to quality practices. A special advisory board was also established ("Rådet för kvalitetsutveckling") to support SIQ with knowledge and experience from various sectors of society. A group with representatives from a number of universities and the industry published a national research programme to serve as support to SIQ, see Alänge *et al.* (1989).

Johnny Lindström (born 1946), Associate Professor at the School of Business Administration at the University of Gothenburg, served as CEO of SIQ between 1991 and 2004, see more in Bergman *et al.* (1999a, 1999b).

An important task for SIQ was to create a national quality award in Sweden, similar to the Malcolm Baldrige National Quality Award (MBNQA), which was successfully established in the USA in 1987 and which had already had a significant impact on knowledge and practices related to quality management in the USA. On the development of the SQA, see Section 6.1.

During its first two decades, SIQ had a fairly significant impact on Swedish awareness regarding the necessity for quality improvement. Important influencers were the SQA and the associated large annual conference Winning Leadership ("Vinnande Ledarskap"), where the best organisations participating in the SQA and many other well-known individuals gave

presentations that attracted many participants who, in turn, influenced each other. Furthermore, supporting networks, training award examiners, external courses, published pamphlets and a broad public discussion in newspapers were winning concepts. Unfortunately, the visibility of SIQ has been a bit more limited in the past decade.

3.4 Swedish Quality Index

As the first country in the world, Sweden in 1989 launched a national customer satisfaction survey carried out on an annual basis. This index was named the Swedish Customer Satisfaction Barometer (SCSB). It is now called the Swedish Quality Index (SQI) and is owned by SIQ. Goods and services from the private and public sectors are included in the study. SCSB was developed by Claes Fornell (born 1947), who later also developed the American Customer Satisfaction Index (ACSI) and has inspired several additional national quality indices. For the methodology behind the index, see Fornell (1992).

It should be noted that the SQI is essentially a brand quality index. Early definitions of quality often relate to individual products (goods and services) and the characteristics that customers find important. Today, however, the focus is on the customer's experiences with the product over time. It is not even about a single product but all products linked to a specific brand and the corresponding customer experiences. In this sense, quality becomes a concept extending over time and thus more of a process than a static concept (Bergman *et al.*, 2022; Sörqvist and Bergendahl, 2021). Customers often choose products based on their brand affiliation.

4. Industrial adoption of quality management insights

The concept of lean production became popular in the early 1990s with the publication of *The Machine that Changed the World* by Womack *et al.* (1990), which was based on the research carried out by the International Motor Vehicle Programme, mainly derived from Toyota. Jan Helling (1937–2022), a Swedish engineer at Saab Automobile, was linked to the programme and emphasised the need for a cultural shift in the Swedish car industry (Helling, 1991). As a result of its extensive automotive industry, Sweden quickly adopted a great deal of the lean concept. This section highlights key industrial applications and leaders crucial in relation to quality developments in Sweden, thereby illustrating the successful integration of quality management principles into the national culture (Bergman *et al.*, 2022).

4.1 Asea Brown Boveri Ltd, Percy Barnevik and Bert-Olof Svanholm

In 1988, ASEA and Brown Boveri merged to form ABB (Asea Brown Boveri Ltd), a major power industry company. CEO Percy Barnevik (born 1941) made significant adjustments to create an efficient company. Barnevik decentralised and streamlined operations, in a 1991 interview stating that: "We operate as lean as humanly possible. It's no accident that there are only 100 people at ABB headquarters in Zurich. The closer we get to top management, the tougher we must be with headcount" (Taylor, 1991). For more on his leadership style, see Barnevik (2011).

ABB simultaneously underwent an operational change influenced by Japanese quality and production philosophy. In ABB Sweden, the T50 Programme, led by the Swedish CEO Bert-Olof Svanholm (1935–1997), aimed to develop processes for higher efficiency and shorter lead times, symbolically cutting all lead times in half. This was successful due to a clear leadership and a strong commitment (Boman, 1992).

In addition, ABB tested a six sigma initiative and hired Mikel Harry (1951–2017), a pioneer of Motorola's six sigma, supported by division vice president Kjell Magnusson (born 1943). Magnusson later became a six sigma consultant and trainer in Sweden. Influential six

sigma applications were also led by Peter Häyhänen (born 1955) at Ericsson Microwave (Magnusson *et al.*, 2000/2003).

4.2 SKF, Mauritz Sahlin and Tom Johnstone

Mauritz Sahlin (born 1935) joined SKF in 1972, serving as CEO from 1985 to 1995. He promoted a strong quality awareness and emphasised TQM and extensive training for all 44,000 employees. Workers were involved in quality improvement teams to solve daily problems. This approach significantly boosted SKF's profitability (SKF Annual Report 1995).

A lean-based "channel concept" was introduced to improve efficiency and effectiveness by creating streamlined production flows. Organised as channels, work followed the flow from raw material to customer, thus resulting in better oversight, increased speed and greater efficiency. This approach also prepared the company for a future process orientation (SKF Annual Report 1995).

In addition to contributing to SKF's success through personal commitment and active participation, Mauritz Sahlin also influenced and stimulated the quality movement in a large number of additional Swedish companies. This was partly due to his work on the boards of companies such as Investor, Scania, Sandvik, SEB, Statoil and SKF, and partly due to his strong commitment to the Swedish quality movement. A key element here was Sahlin's important position as the long-standing chairman of the judges' committee for the SQA.

Tom Johnstone (born 1955), originally from Scotland, spent his entire career at SKF. In 1996, he became president of the Automotive Division, and in 2003, he was appointed CEO of the SKF Group, a position he held until 2014. Since then, Johnstone has been an active board member of several companies, such as Husqvarna, Wärtsilä, Investor, Volvo Cars, Northvolt and Electrolux.

Already at an early stage in his career, Johnstone recognised the power of systematic improvement. As president of SKF's Automotive Division, he implemented six sigma supported by Italian quality expert Riccardo Dell'Anna (1955–2005), his vice president at the Automotive Division, who had also been the president of the European Organization for Quality (EOQ). As CEO, Johnstone turned six sigma into the foundation of SKF's improvement journey, championed by Magnus Johansson (born 1955), previously the CEO of SKF Sweden. Extensive training involved all managers, including Johnstone himself, and emphasised facts-based improvement, which led to positive results being reported to the shareholders (Sörqvist and Höglund, 2017).

Johnstone also contributed significantly to integrating sustainability into SKF's long-term strategy. He launched the BeyondZero programme and the SKF Care framework, leveraging six sigma to advance sustainability. SKF's global leadership in sustainability is widely recognised (https://evolution.skf.com/on-the-plus-side/).

4.3 Scania and Leif Ostling

Leif Östling (born 1945) began his career at Saab-Scania and became head of the Scania division in 1989. When Scania was separated from Saab in 1994, he became CEO and led the company until 2012, after which he became CEO of Volkswagen's truck division, the new owner of Scania. In 2016–2018, he served as chairman of the Confederation of Swedish Enterprise ("Svenskt Näringsliv").

Scania in the 1980s faced high production costs, poor quality, and employee dissatisfaction, with a 25% staff turnover and 15% sick leave. Östling, visiting Toyota in Kentucky, was inspired and realised its significance for Scania's future development, thus transforming Scania using Toyota's quality principles. Personally, he was also heavily influenced by Eiji Toyoda (1913–2013), president of Toyota. This collaboration led to the

creation of the Scania Production System, which significantly boosted productivity. Östling spent a great deal of time to really understand what this job entailed and what it required of the company and himself as its top manager. Toyota also benefited from this by learning from Scania's expertise in terms of modularisation, something crucial for customisation (Johnson and Bröms, 2000).

Scania's leadership approach involves managers not only setting goals but also supporting the organisation in developing methodologies to achieve these goals. Managers focus on what should be done and how to do it, which differs from traditional goal-setting roles. This approach requires that managers coach, engage and support employees in their work on continual improvement. However, about a quarter of the managers were unable to adapt to this new leadership style and had to leave their managerial positions (Östling, 2019, 2021).

During Leif Östling's tenure as CEO, Scania became one of the most successful and profitable truck manufacturers in the world. Scania's remarkable success has inspired many companies in Sweden and other countries to develop their leadership, customer focus, improvement capabilities and quality. An example of this is that in addition to Scania, Volvo, MAN, Navistar and Mercedes-Benz's truck division are today led by CEOs previously working as senior managers at Scania. Even outside the truck industry, former Scania managers have contributed to successfully developing quality.

After leaving his positions in the business sector, Östling chose to engage in developing the quality of the Swedish public sector (Section 8). Through this strong focus on Sweden developing quality by means of a substantial personal commitment and extensive private donations, Leif Östling further cements his role as one of the most significant leaders in Swedish quality history.

5. Academic education and research

5.1 Education and research at the Chalmers University of Technology

Starting in the mid-1980s, the Chalmers University of Technology began to offer undergraduate TQM courses led by Sverker Alänge (born 1951). Chalmers also actively participated in TQM education for industry managers through Champs (Chalmers Advanced Management Programmes), which started to offer TQM programmes in 1992. These programmes responded to the frustration that only a few Swedish industry managers fully understood TQM.

An initiative from manufacturing industries in the west of Sweden in the early 1990s led to the decision to create two professorships at Chalmers: one in reliability and one in TQM. Holger Rootzén (born 1945) became professor of reliability in 1993. However, the second one was not created until 1998, now as the result of an initiative from SKF, originally as a result of Mauritz Sahlin's efforts. In 1999, Bo Bergman became the SKF professor in TQM. He continued his work from Linköping at Chalmers, with extensive MSc and PhD education and industrial collaborations, and an additional 12 PhDs were awarded. SKF's funding ended with Bergman's partial retirement in 2013. The quality management research group at Chalmers is now led by Professor Ida Gremyr (born 1975), one of Bergman's previous PhD students.

5.2 Education and research agenda at the Luleå University of Technology

The Luleå University of Technology already from the start included concepts such as reliability and statistical quality control in curricula related to mechanical engineering. Bengt Klefsjö (born 1943), one of the first four teachers launching the university in 1971, was responsible for these quality-related areas. When the government provided funding for a chair in quality technology and management in Luleå, Bengt Klefsjö, with a PhD in

mathematical statistics, was in 1990 appointed by the government as the second Swedish professor in quality technology and management.

When the quality group was established in 1990, the group of mathematical statisticians led by Professor Kerstin Vännman (born 1946) left the Department of Mathematics and joined the quality group. When the group of statisticians in 2003 returned to the Department of Mathematics, the group from environmental management under the untenured professor Jan-Ola Burman (born 1948) joined the quality group. Thus, the very first division of quality and environmental management in Sweden was established. Klefsjö and the group for quality technology and management, together with students and PhD students, continuously tried to work internally according to the values, methodologies and tools they taught students as well as managers in the industry and public sector. In that way, according to Klefsjö:

> We increased the level of trust, proved that the quality management ideas we taught were powerful also in the academic world, while at the same time getting experiences from practical implementations. We carried out evaluations and measured the "Student Satisfaction Index" (SSI) on all our courses and published the results on our website. The next time the course was offered, we presented the previous SSIs and explained what we had changed and how. We also produced an annual report every year. Initially, we aimed to show our external guests who we were and what we had done. However, I soon realised that the internal purpose of summarising everything we had done to create internal pride was equally important. We also created an internal quality management system called "Our Routines" as well as many other things, which I am very proud of today. With the three processes "undergraduate teaching", "postgraduate teaching", and "research" as the corners of a triangle linked to the "exchange of knowledge with society" in the middle, we illustrated our mission to "contribute to the development of society".

This group had a strong focus on society by, for instance, collaborating with the industry and the public sector in research projects, annually organising public conferences, being the organiser of the Quality Award in Northern Sweden (Section 6.3), and offering external courses; for example, together with Sandholm Associates (Sandholm, 2013a, 2013b).

Klefsjö himself was also involved in establishing the SQA (Section 6.1) and was a member of the judges' committee from 1992 to 2007. Klefsjö had also established a close collaboration with Bo Bergman in Linköping already in the mid-1970s. More than 50 years of collaboration have led to a large number of jointly published articles and books.

After Klefsjö's retirement in 2008, the quality management research group in Luleå has been led by Professor Bjarne Bergquist (born 1965).

5.3 Quality research and education at other universities

At the Royal Institute of Technology (KTH) in Stockholm, quality pioneer Lennart Sandholm became an untenured professor in 1989, developing a popular quality management programme. Lars Sörqvist took over in 1998.

Many teaching and research groups on quality management have emerged since the turn of the century. At Mid Sweden University, Håkan Wiklund (born 1962) established quality management as a research area, quickly expanding with support from the Luleå University of Technology. Wiklund now leads a large research group together with professors Ingela Bäckström (born 1963) and Kristen Snyder (born 1964).

Except for the universities already mentioned, quality research and education groups exist at universities attached to the Swedish Quality Management Academy (SQMA) (Section 5.6).

5.4 Quality research at business schools

Despite general inertia among business schools after the UHÄ report 1987:5 (Reftmark, 1987), the Service Research Center (CTF) at Karlstad University, established in 1986 by

Professor Evert Gummesson (1936–2023), stood out. Led by Professor Bo Edwardsson (born 1952), the focus of the CTF on service quality expanded under subsequent leaders, including Professor Anders Gustafsson (born 1964) and the current Professor Per Kristensson (born 1969). Renowned for service management research, CTF, along with work by Rickard Normann, Evert Gummesson and Professor Christian Grönroos (born 1947) at the Hanken School of Economics, forms the Nordic School of Service Management, thus in a sense bridging service marketing, management and quality.

5.5 Training at Sandholm Associates

In Sweden, Sandholm Associates has trained over 60,000 individuals as well as introducing the Sandholm Associates Quality Manager Course in 1989 (Sandholm, 2013a, 2013b). In the early 2000s, Sandholm Associates together with Volvo, SKF and Ericsson introduced six sigma in Sweden by means of conferences and seminars.

Sandholm Associates has since 1972 offered international quality management training programmes in cooperation with UNIDO and SIDA, offering training for over 15,000 leaders from 79 countries (Sandholm, 2013a, 2013b). In 1981, Sandholm Associates also pioneered quality management training in China.

5.6 Swedish Quality Management Academy

In 2012, SIQ together with Swedish university quality management research groups formed the SQMA. Presently led by Professor Anders Fundin (born 1974), SQMA fosters collaborations, research and courses among 11 universities. Many projects involve industry and public sector partnerships. Learn more about SQMA at https://en.siq.se/forskning-sqma/sqma/.

5.7 Educational material

Anders Hald (1913–2007), professor of statistics at Copenhagen University 1960–1982, launched a journal aimed at supporting industrial statistics and quality control in the Nordic countries. In 1966, the journal changed its name to *KVALITET, Nordisk tidskrift för kvalitetskontroll og industriel statistic* ("Quality, Nordic Journal for Quality Control and Industrial Statistics") (Hald, 1955). However, the journal was only published until 1968.

In 1990, the first and still only Swedish magazine with a focus on quality was launched: *QA Magazine* (later *Kvalitetsmagasinet*). It is currently published six times a year in approximately 7,000 copies. The focus is on practical applications of quality concepts and methodologies.

No authoritative textbooks in Swedish seem to have been published until the book by Lennart Sandholm (1969). For its time, this book offers a good description of quality and related concepts and methodologies. The Swedish inspection manager Olle Jonsson, at that time chairman of the EOQC, wrote an insightful foreword. Sandholm also published the book Sandholm (1980), which is well known to many Swedish readers.

The books by Bergman and Klefsjö (1986) and Bergman and Klefsjö (1991) were published at a later stage. Bergman and Klefsjö (1991) is now published in its sixth edition – Bergman and Klefsjö (2020). Since its first edition, it has been published in more than 20,000 copies and has influenced many students and practitioners. An English edition of the book was published by McGraw-Hill in 1994 and is now published in its fourth edition with two new co-authors (Bergman *et al.*, 2022).

6. Swedish Quality Awards and their award criteria

6.1 Swedish Quality Award

The idea of launching a national SQA was discussed already when SIQ was established. In January 1991, a meeting was organised at IVA (Royal Swedish Academy of Engineering Sciences) in Stockholm with members from the Swedish industry, academia and representatives from the National Institute of Standards and Technology, which since its start in 1987 is responsible for the MBNQA in the USA. Based on American experiences and the enthusiasm of Swedish top managers, SIQ after this meeting decided to launch the SQA. The very first award in 1992 was handed over by the Swedish king to the Manufacturing Division of IBM Sweden. The criteria, according to which the participating organisations are evaluated, were initially heavily influenced by the MBNQA criteria but have over time been adapted to be more in line with the Swedish national culture and new quality management research, see Section 6.2.

Furthermore, the application rules of SQA differ from several other national quality awards. For instance, there are just two award categories "small organisations" and "large organisations". No distinction has ever been made regarding private or public organisations or between producers of services or goods. During a period of time, organisations participating in SQA could submit their applications according to any of the three award criteria from MBNQA, SQA or the EFQM Global Award (previously called the EFQM Excellence Award). In that way, SIQ emphasised that the award criteria were roughly equivalent and applicable to all types and sizes of organisations. For example, Volvo Trucks, with operations in many parts of the world, was awarded the SQA in 1998 jointly with Bulten Trading, with some 25 employees (SIQ, 1998). Up until 2023, three organisations in the school sector and four organisations from the healthcare sector have received the SQA.

The SQA has during its 30 years had quite an impact on the awareness and the activities related to quality management. Unfortunately, the number of applicants to SQA has been rather low since a complete award application requires quite a bit of work. However, the award criteria have frequently been used as a source of inspiration and for different types of self-assessments. Hansson and Eriksson (2002) illustrate the financial benefit of receiving the SQA similarly to the international studies by Hendricks and Singhal (1996, 2001) and Boulter *et al.* (2013). Other experiences and benefits of participating in SQA have been discussed by Eriksson (2003, 2004) and Eriksson *et al.* (2016).

6.2 The SIQ management model

Based on scientific research (Eriksson *et al.*, 2016) and feedback from users of earlier versions of the criteria, a completely new version of the SQA criteria called the SIQ Management Model was published in 2018. Focus areas here include "presumptive customers' needs and expectations; leadership with a focus on economic, environmental and social sustainability; proactivity and collaboration with partner businesses; employeeship supporting a sustainable success". The SIQ Management Model (www.siq.se/wp-content/uploads/2022/11/2022_SIQ_Management_Model.pdf/) is based on the three pillars of "culture, structure, and a systematic approach". A foundation in the model is the six "success factors", which are said to characterise leading organisations: "Create value with customers and stakeholders; lead for sustainability; involve motivated employees; develop value-creating processes; improve operations; and innovate". The criteria in the model are linked to ecological, social and financial sustainability. The SIQ Management Model is in this way the first excellence model to take a big step into sustainability, which has gained international recognition.

6.3 Some additional Swedish Quality Awards

A number of regional and company-exclusive quality awards were also established for some time around the turn of the century. For instance, some cities and state-owned companies had their own internal quality awards based on the same ideas as SQA.

During the period 2002–2022, the Swedish National Agency for Education ("Skolverket") and later SIQ were responsible for the Quality Award Better School ("Kvalitetsutmärkelsen Bättre Skola"). For a number of years starting in 1997, a similar award for the health-care sector named the Quality Award Swedish Healthcare ("Kvalitetsutmärkelsen Svensk Hälso- och Sjukvård", QUL) was established. These awards were based on the same ideas as SQA but where the criteria had partly been adapted to the sector at hand.

The Quality Award in Northern Sweden ("Utmärkelsen Kvalitet i Norr") was a joint award during the period 1996–2000 between the two most northern counties in Sweden – Norrbotten and Västerbotten (Hellsten and Klefsjö, 2001). A pamphlet with simpler criteria, called "the Springboard", was developed to serve as a basis for this award. A key aim of the Springboard was to facilitate performing self-assessments for minor organisations and to be aware of modern quality management (Hellsten, 1997). This award, with financial support from the EU, also stimulated various forms of collaboration between the two counties (Nilsson, 1999).

7. Quality improvements in health care and society at large

7.1 Health-care sector

A health-care quality improvement movement emerged in Sweden in the late 1990s. Qulturum in Region Jönköping County, managed by Göran Hendriks (born 1964), led the development inspired by US initiatives and industrial quality improvement programmes, while Professor Boel Andersson Gäre (born 1951) initiated research in this area. The Jönköping Academy for Improvement of Health and Welfare in 2009 formed a collaboration between Jönköping University, Region Jönköping County and 13 municipalities.

Mölndal Hospital under Bibbi Carlsson (born 1943) in the 1990s had a reputation for having a strong patient focus and high quality. It had initiated a successful collaboration with the Division of Quality Technology at Linköping University. In 2001, Carlsson became head of the Association of Counties in Sweden ("Landstingsförbundet", LF), an organisation at that time serving healthcare management in Swedish counties and promoting health-care quality.

A Centre for Healthcare Improvement (CHI) was established in 2004 at the Division of TQM at Chalmers in close collaboration with hospitals in the Västra Götaland Region (VGR) (Lifvergren *et al.*, 2010). CHI was partly a result of quality improvement training at Sahlgrenska Hospital in Gothenburg attended by hospital managers, nurses and doctors in specialist training (Lifvergren *et al.*, 2010; Bergman *et al.*, 2015; Smith *et al.*, 2019). The centre is now led jointly by Andreas Hellström (born 1972) and Patrik Alexandersson (born 1974) in a close relationship with the quality management research group at Chalmers.

In 2005, the Swedish National Board of Health and Welfare ("Socialstyrelsen") realised the need for increased research on healthcare improvement. Together with two research foundations (Vårdalsstiftelsen and Vinnova), a research financing programme named Vinnvård was created. A meta-study on the impact of the Vinnvård initiative has been carried out by Karltun and Keller (2012).

7.2 Quality in society

An early social development programme was initiated in "Progressive Åseda", in which values, methodologies and tools from TQM were used to strengthen the entire community of

Åseda to turn depopulation into repopulation, see Helling *et al.* (1998) and Fredriksson (2003, 2004, 2005).

An approach similar to that in "Progressive Åseda" was also used in an international EU project in 2004–2006 between Jokkmokk in northern Sweden and the two English communities of Oak Tree in Bellamy and Ravensdale in Mansfield (Bergvall Kåreborn *et al.*, 2009). One result of this project is a handbook for using TQM at the community level (Svensson *et al.*, 2006).

A more utopian view of social quality development was introduced by Bergman and Klefsjö (2012) and expanded in Bergman *et al.* (2022). Similar concepts have also been discussed as the basis for the latest version of the SIQ Management Model (Section 6.2 and Deleryd and Fundin, 2020). The book Sörqvist and Lindsö (2024) also seeks to stimulate a more quality- and improvement-driven development towards sustainability.

8. Current situation

8.1 In the industry

"Made in Sweden" has for a long time been associated with high quality and reliability. The Swedish industry is still good at delivering high-quality products in demand on the world market. Swedish companies have exhibited a high level of innovation, adaptability and success in new areas such as IT, and a new group of skilled young innovators, engineers and entrepreneurs has emerged.

However, there are troubling signs that companies from an increasing number of countries have caught up with the ability of the Swedish industry to deliver high-quality products, in some cases having even surpassed it. This should be seen as an indication that the Swedish industry, despite current successes, does not exhibit the same speed in terms of improving quality as companies in several other countries (TechSverige, 2023).

Countries like China, South Korea and India have for a long time very systematically and ambitiously worked with quality. The focus has been on improving and developing. Many companies in these countries have evolved from producing cheap, low-quality products to manufacturing top-quality products. Initially, this concerned manufacturing goods for Western brands but over time, more successful domestic brands have been established, such as Alibaba, Huawei, Geely and Haier in China, the Rane Group in India and Samsung and LG Electronics in South Korea.

As we see it, it is crucial to understand the development of quality now taking place in China. In many ways, this reminds us of what happened in Japan. There is strong support from the political system, where there is a great understanding that quality represents a crucial basis for the country's long-term development and success. Extensive investments are made in quality-related research and education, whereas the top management in many companies takes the issue of quality very seriously and competent quality development processes are carried out at both the strategic and operational levels. China has decided to go from "Made in China" to "Created in China" (Xi, 2014). If these signals are ignored, we strongly believe that this will have dire consequences for Sweden and other European countries.

8.2 In the public sector

Swedish public services, such as education, health care and social care, have been considered world-leading. However, this positive ranking has gone down in recent years, and alarming signals indicate the current situation. In recent years, the Swedish welfare system has encountered increasing problems related to cost increases and decreased accessibility. Swedish medical results are excellent. However, access to Swedish health care is

approaching the bottom tier of the West, whereas elderly care is far from what it once was. Furthermore, the Swedish school system has fallen from a leading world position to an average level (OECD, 2023).

There is an increasing discussion in the Swedish debate concerning a quality crisis in the Swedish public sector. A very alarming picture of the situation in the public sector is presented by the commission for tax benefit ("Kommisionen för Skattenytta") initiated by the former industry leader Leif Östling (Section 4). Supported by a number of leading experts, researchers and leaders in the public sector, numerous reports have been published regarding the actual situation (www.skattenytta.se). They warn of an impending system collapse unless something drastic happens soon.

For instance, the Swedish health-care system uses some SEK 400 billion annually (about EUR 40bn), which is higher per capita than most other countries with the same life standard and corresponds to approximately 11% of the Swedish GDP. This is the fourth highest cost in Europe. Furthermore, the OECD has identified about 20% of this cost as "waste"; that is, included in costs related to poor quality (Shrank *et al.*, 2019; www.skattenytta.se).

Although there are successful quality initiatives in the Swedish public sector, such as the impressive improvement journey of the new Karolinska University Hospital under the leadership of Björn Zoega (born 1964) as described by Taheri (2024), much more needs to be done. However, transferring quality management ideas from the private sector to the public sector must be done carefully and sometimes with terminological adaptations (Lord, 2019; Bergman and Klefsjö, 2020).

The poor results in the Swedish public sector are often blamed on new public management (NPM), a vague concept characterised by Christensen and Laegreid (2001) as: "[…] loose and multifaceted and offers a kind of "shopping basket" of different elements for reform of public administration". The criticism that NPM has led to increased bureaucratisation, micromanagement and deteriorating working environments is due to the difficulties of applying the vague NPM concept without sufficient knowledge of how the various pieces should be put together to create an efficient system (Lord, 2019).

To change the situation, the Swedish Government appointed the Delegation of Trust-Based Governance, which in 2016–2020 sought "to spread knowledge about how governmental authorities can develop a more trust-oriented control in their operations". According to SOU 2019:43 published by the Delegation of Trust-Based Governance, the seven principles for trust-based governance are "trust, focus on citizens, room for actions, support, knowledge, openness, and long-term focus". We consider these principles to be very closely related to the values of TQM.

A dangerous effect of the current one-sided and largely unfounded debate on NPM and trust-based governance is that it has resulted in a polarisation between various important factors in the development of an organisation. Success requires both trust and a fact-based approach. Success is based on the interaction of both "hard" and "soft" elements so that the structure and culture of the organisation develop simultaneously.

We view "having trust in the staff" as a basic platform of TQM, mostly due to suitable supportive and committed leadership, which makes employees feel secure in their work and proud of what they create together with others. The goal is to help the employees grow as employees and individuals (Bergman and Klefsjö, 2022). A similar criticism of the Delegation's ideas of trust-based control and management has been published by Björk and Tengblad (2023).

8.3 Misleading focus?

When quality-related issues in the public sector are discussed, the focus is mainly on factors that do not correlate with quality improvement. Instead of focusing on developing better

leadership, organisational culture and structure, customer focus and ability to improve, the discussion mainly concerns the need for more resources, increased inspections and less privatisation.

There are most likely many reasons why Swedish quality has declined. One of these concerns current Swedish leaders and politicians not fully understanding the meaning and importance of successful quality management and not taking quality issues sufficiently seriously. In addition to this, we are entering a completely new situation characterised by accelerating changes and increased uncertainty. Economic, climate-related, social and geopolitical challenges are converging and placing greater demands than ever before on the ability to lead, improve and focus on meeting essential needs. Based on our experiences and conviction, TQM constitutes the foundation for future success.

9. Reflections and lessons for the future

The aim of this article is to present an overview of Swedish quality history from the 1950s up until the present and to describe the background of Sweden's historical successes with regards to quality. Hopefully, this can inspire organisations in both the private and public sectors, in Sweden and elsewhere, to improve quality and offer knowledge concerning what is required to succeed.

Based on a deeper analysis of the historical development of quality in Sweden, we identify important components that we now know constitute prerequisites for a successful quality culture. We consistently observe the importance of a strong and highly committed leadership based on a conviction to continually develop and improve products and processes. An interesting finding is that good leaders often have several young followers who, in turn, become good leaders. One example is Leif Östling whose younger colleagues at Scania have become leaders in many other truck manufacturing companies as well as in other positions in the European industry. Two very good examples are Christian Levin (born 1967), who is today CEO of both Scania and Traton, and Martin Lundstedt (born 1967), who is CEO of Volvo. They both lead their companies with a strong focus on quality and continual improvements.

We notice that a fearless and homogeneous culture without hierarchical blockages creates opportunities to collaborate across organisational and professional boundaries in win-win situations. We find a curiosity and openness in terms of assimilating new knowledge from the outside and a humility to listen to those who have been more successful. We also see a long-term focus on passing on what we have today in a better condition to the next generation. What we observe is very similar to what is communicated in many current quality award models.

When we analyse the quality-related decline in Sweden in recent years, primarily in the public sector, we find that we lack several properties mentioned above. Instead, we often see a narrow-minded leadership focusing on short-term results, trendy methodologies or expensive foreign management consultants promising to solve the problems. Far too often, we see an inability to absorb more profound knowledge regarding modern quality management and a reluctance to learn from researchers and genuine experts. We meet stressed organisations focusing more on putting out fires than on systematically solving problems and developing their business processes. Unfortunately, we observe an increased polarisation in Swedish society, declining trust and a culture where fears and selfishness take up more and more space.

In the public sector, furthermore, political decision-makers often lack sufficient knowledge with regard to modern quality management. Here, the focus is also on short-term results and the chances of winning the next election. In our view, current politicians do not

sufficiently support the industry's desire to transform into a sustainable society. Sustainability is obviously an important part of the concept of quality. For us, it is obvious that future generations are part of our customers.

Despite the partially dark clouds, we are convinced that much can be done to improve. Developments have never been a straight line over time. Crises and problems have occasionally hindered success. We are in a good position to use our knowledge concerning modern quality management to return to a leading position with regard to business and welfare. The history of Sweden proves that this is realistic, whereas at the same time, helping us learn how this might be done. This is not just something that concerns Sweden but also an opportunity for other countries to create welfare and a sustainable future.

However, Sweden has a non-hierarchical and open culture based on cooperation, creativity and trust, something that many other countries lack. This is highly valuable when successful improvement efforts need to be carried out. Hence, we are in a good position to change the trend and once again become more competitive in relation to new leaders in quality. However, a new leadership is necessary in many organisations to manage the creativity and entrepreneurship needed to create better conditions for systematic, long-term improvement efforts. These efforts must include customers as well as suppliers and other stakeholders in the system. However, personal engagement and the active participation of top managers are also necessary.

If these points are seriously considered, we are convinced that Sweden can return to a world-leading position in terms of quality.

We choose to end this article by borrowing some words from Joseph Juran, when he, as a result of his activities in relation to Swedish industrial quality management, was appointed honorary doctor at the Luleå University of Technology in 2004. He mentioned Japan, as a small nation, that has been a world leader in quality and added: "If Japan can be world leader in quality – why not Sweden? I must leave it to you to answer that question".

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