

# Future development of the quality profession

**Dr Lars Sorqvist**

Vice president International Academy for Quality  
Associate Professor, Royal Institute for Technology, Stockholm, Sweden  
President, Sandholm Associates, Stockholm, Sweden

## Abstract

*Today the roles and organization for quality looks very different in different companies. Many manufacturing companies have a traditional quality department with a quality manager who leads the work. Service organizations usually don't have a tradition of managing quality and arranges business development initiatives in many different ways. A lot of companies use concepts like Lean and Six Sigma and focus on roles like Lean Coaches and Black Belts. When comparing the roles of quality management in different companies they tend to look very different. This development has resulted in a situation where it is difficult to compare, learn and exchange experiences. Many people working within the field of quality have a weak feeling of belonging to a profession. This is very clear when comparing with people working in professions like finance, HR or IT.*

*An important question is how the quality profession should develop in the future. How should the work be organized and named? What should the role of quality be in future companies? Who should be the quality manager in the future and what should the purpose of this role be? What issues and challenges will be of importance for a quality manager in the future? This paper will discuss these questions. The paper will describe the questions and discuss possible ways to act. The paper is based on the author's more than 20 years of experiences from international consulting and worldwide research as well as from a recent study carried out at the Royal Institute of Technology in Stockholm where 550 quality managers were interviewed about their role and situation.*

## 1. Background

A long time ago the quality initiative was an inspection department in the manufacturing area of industrial companies. The responsibility of this department was to find out and control if the quality of goods purchased, produced and delivered was correct. Later quality became a management question. People realized that there were immense opportunities in quality. The cost of poor quality makes it financially interesting to work with quality. The possibilities to improve customer value and satisfaction attracted many companies. As an effect, most companies organized a quality department. The work was led by a dedicated quality manager that also became part of top management. In most manufacturing companies this became a normal way of working with quality.

Over time quality management developed from product quality issues to business and process issues. Quality became a vital part of leadership on all levels in a successful organization. Quality management more and more covered many important leadership tasks. This made it more difficult to point out what quality really is, which skills and methods are related to quality and which are just management.

At the same time quality initiatives started to spread to new business areas, areas that didn't have a historical background in quality. The service sector developed rapidly and quality became an important issue when customers started to make demands on the services that were delivered. The same happened in public organizations like hospitals, schools, the military, governmental organizations etc. In part, the quality development in those sectors was influenced by the development in the industrial sector. Partly new ways of acting and thinking were developed, quality work was often organized and named in completely different ways. Instead of quality management people often talked about business development, organization development, etc. Even if the intention was similar this made it difficult for people to see the similarities and get a feeling of belonging to a common profession. Today there are some concepts that are common within different industries as they have been accepted and popular within many different business areas. An example of this is the concept of Lean that today is used

in many industries, from automotive industry to hospitals. Many concepts are still isolated to different industries or organizational cultures.

A very important question is what will happen in the future? What kind of development could we expect within quality management in the future? How will the future role change for people working with quality? This paper will not give any final answers to those questions but will discuss the situation and present important factors that will affect the development and are of great importance to keep in mind.

The primary background of this paper is the experiences of the author and the results of the Swedish SQMA (Swedish Quality Management Academy) future study and a KTH (Royal Institute of Technology) study about the role of the quality manager within Swedish industry. Besides this many other studies have been analyzed like the ASQ Future Study.

## 2. What is quality management?

Quality management is defined as coordinated activities to direct and control an organization with regards to quality (ISO 9000:2005). Quality is defined as fulfilling the needs and expectations of customers. Quality management is a way to manage an organization with focus on its customers, to act in a way that creates customer value and benefits for customers. Quality management is based on a belief that success is achieved when right quality is delivered in every step, internally and externally. Focus is on attaining satisfied customers and effective processes.

Quality management has core values. Things like committed leadership, involvement of people, customer focus, process orientation, continuous improvements, a system approach, management by facts and a long-term perspective are often mentioned when explaining what quality management is. When comparing different models for quality management those core values differ, but are still representing the same idea (see figure 1).

<b>MBNQA</b>	<b>EFQM</b>	<b>SIQ</b>	<b>ISO 9004</b>
Visionary leadership	Leading with vision, inspiration & integrity	Committed leadership	Leadership
Customer-driven excellence	Adding value for customers	Customer orientation	Customer focus
Organizational and personal learning	Succeeding through the talent of people	Competence development	
Valuing workforce members and partners		Participation by everyone	Involvement of people
	Developing organizational capability		
		Process orientation	Process approach
Managing for innovation	Harnessing creativity & innovation	Continuous improvement	Continual improvement
		Prevention	
Agility	Managing with agility	Faster response (reactions)	
Management by facts		Management by facts	Factual approach to decision making
Systems perspective			System approach to management
Focus on results and creating value	Sustaining outstanding results		
		Interaction	Mutually beneficial supplier relationship

		Learning from others	
Societal responsibility	Creating a sustainable future	Public responsibility	
Focus on the future		Long-range perspective	

Figure 1. A comparison of core values of different business excellence models that explains what quality management is. In this figure the US Malcolm Baldrige National Quality Award (MBNQA), the European Foundation for Quality Management model (EFQM), the Swedish Institute for Quality model (SIQ) and the International Standardization Organization model (ISO 9004) are compared. There are some minor differences but the general meaning of quality management is the same.

### 3. Basic dimensions of quality management

Originally three major dimension of quality management were pointed out by Juran in the Juran Trilogy: quality planning, quality control and quality improvement (se figure 2). Quality planning covers all activities performed before production of goods and services that are necessary to deliver good quality. This includes things like understanding customer needs and expectations, development of products, development of processes etc. Quality control covers all activities needed for keeping the actual quality level. This has to do with traditional quality assurance activities like management systems, audits, following-up, inspection etc. Quality improvements cover all activities needed for continuously finding new opportunities to improve, solving problems, leading change etc.

Historically quality work was mostly quality control. Traditional quality work covers mostly different quality assurance activities. The major role of the quality organization was to administer the quality management system and to identify nonconforming products and behaviors. Later people discovered the potential in improving product quality and to develop business excellence. This started in Japan right after World War II when Japanese business leaders realized the need for quality improvements and business development influenced by American experts like Joseph Juran and Edwards Deming. This led to an comprehensive improvements focus in Japanese industry during the 1950s and 1960s. During the 1970s and 1980s focus on quality improvements also moved to the western world as business leaders in the west realized the Japanese success. At first focus was on what Juran called “little q”, product quality, later on focus shifted to “big Q”, which includes quality in the entire organization, what we today call business excellence.

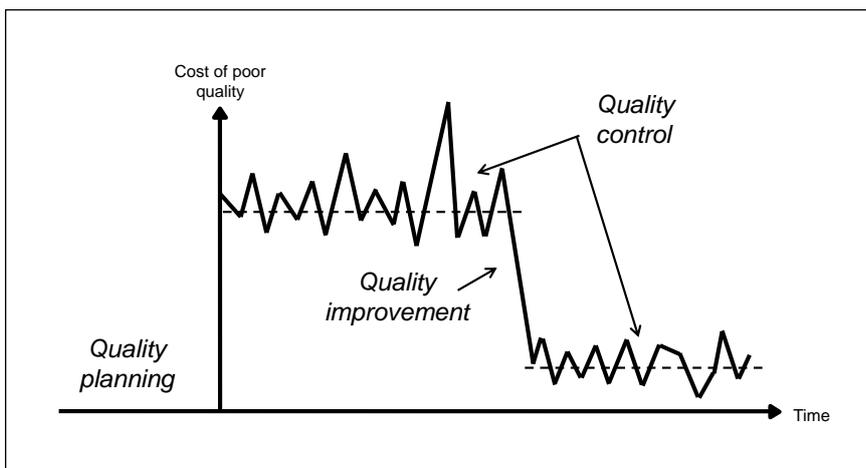


Figure 2. Jurans Trilogy describes the three dimensions in an organization’s quality work.

For a long time people in the quality area have been talking about the importance of “doing things right from the beginning”. In practice quality has mostly been a manufacturing and production question. Still, quality initiatives are usually rather weak in areas like marketing, sales, R&D and product development. Areas where quality is

being built in to the services and goods that later are to be produced. Many of the activities included in quality planning are because of this still missing. Recently a growing interest for concepts like DFSS, LPD and Innovation has arisen. Maybe this could be the starting of a new era in quality management.

#### **4. Key competence areas of quality management**

There is no generally accepted model that defines the competences of quality management. The effect of this is that people working with quality have rather big differences in competence and experiences of all the tools, methods and techniques used in quality management. If comparing with other important support competences in an ordinary organization like finance, HR and IT this becomes very clear. In such competence areas most people leading this work and acting like specialists have 3 to 6 years of university training within their subject area and many years of practical experiences. In a recent Swedish study that was performed at the Royal Institute of Technology, 550 quality managers in the Swedish industry were interviewed about their role and competence. Most of them had general university training in engineering, but the specific training in quality management was in average just one week. Most of these quality managers had a lot of practical experiences and knowledge's from their workplace, but this to a big extent gave them a limited view of what quality management really encompasses. Some managers were Lean specialists mostly focusing on waste reduction, other Six Sigma experts that fought variations with statistical tools and many were limited to working primarily with quality management systems and ISO 9001 certifications.

Early on the development of competence and learning among employees was treated as an important factor in quality management, even if very few organizations really treated this factor seriously. In Japan an important responsibility was taken by JUSE in the late 1940s by introducing national training programs in quality and quality related tools. This was an important success factor in Japanese quality development that early on created a common framework of quality knowledge and thinking in Japanese industry. This made the quality profession strong and united in Japan. In the west ASQ started with the first national competence certification programs 1968 in the U.S. and EOQ did the same 1995 in Europe. The U.S. certification program has become relatively successful with more than 120 000 individuals being certificated. In Europe very little has happened compared to this.

If comparing those certification programs and bodies of knowledge with each other both differences and similarities are found. Looking at more traditional quality activities included in quality control/assurance there are many similarities in tasks and tools for handling QMS, auditing, inspection, following-up, risk preventive activities and use of quality tools and statistical methods. When comparing methodology and tools for quality improvements the picture is similar. If for instance comparing a typical Six Sigma Black Belt training program with the Japanese QC-basic course many of the tools and techniques for identifying, solving problems and taking actions are the same or very similar. Other areas differ more or are even missing totally. Skills related to quality planning like new product development and customer related issues are often much more vague. Leadership and employee related issues are also rather different when comparing programs.

Some leading companies have developed ambitious internal training programs to train all quality professionals to raise the competence level in the company and create a common framework of knowledge. A good example of this is SKF that in 2007 developed SKF Quality Academy. As a start all quality professionals in the company were put on a 22-day internal training program divided into 5 blocks during 2 years. The experience from this was very positive. Besides this SKF has a corporate business excellence program. This program is based on Six Sigma and Lean with common roles and competences.

One possible way of defining key competence of quality management is to study competence frameworks for quality managers and professionals. Based on an analysis of the ASQ body of knowledge for a quality managers, the EOQ certification scheme for quality management personnel, JUSEs training programs, SKF Quality Academy, the Lennart Sandholm quality manager course and the study of quality managers in Swedish industry done at the Royal Institute of Technology the following key competence areas were identified (se figure 3).

- Customer focus, value creation and effectiveness
- Strategy and business excellence
- Organizing and planning for quality
- Leadership for quality and continuous improvements
- Employeeship and cultural development
- Improvement methods, concepts and tools
- Process management and process orientation
- Quality initiatives in different functions
  - Quality in sales and marketing
  - Quality in new product development
  - Quality in purchasing
  - Quality in production
  - Quality in services
- Methods for assessments and analysis
- Quality management system and quality audits
- Research and future development of quality management

*Figure 3. Typical competence areas for a quality manager that also could be seen as representative for competence areas within quality management.*

## **5. Different programs and initiatives for quality management and continuous improvements**

Today the quality profession, in at least the western countries, is dominated by different quality and improvement related concepts that have strong brand names. Examples of such concepts are Lean, Six Sigma, ISO 9001, etc. These concepts usually include helpful and important tools and methods. The problem is that the goal too often has become to primarily implement the concepts. Not because of an understanding that the organization needs what the concept is about, but more because the specific concept is popular and many other organizations are using it. Organizations are acting based on trends and fashion of the day instead of on their actual needs and strategic decisions. The result of this is often that quality initiatives fail to deliver the good results expected.

The main reason to this is that the level of maturity in quality is still low in many organizations. Over time it is possible to see that the length in time of the trends is becoming longer and longer. Some of the popular concepts during the 1980's just lasted a few years. Lean and Six Sigma, the most popular concepts today, have existed for more than 25 years. Hopefully this is an indication that the future quality work will be more mature and the need for trendy concepts and methods will be less. Hopefully a situation where the choice of methodology is made based on knowledge and understanding of the actual need in the specific situation. An important step in this direction would be if new models were developed that integrate the actual concepts with each other in a natural and logical way. Today such initiatives have just started within EOQ. Another area is the vocabulary, to get a more natural relation to quality related methods and tools it would probably help by changing from popular brand names like Six Sigma, Lean, ISO 9001 etc to words with natural meaning like problem solving, process development, management system etc.

## **6. Roles and organization for quality**

Quality and continuous improvement work can be organized in different ways. When studying successful companies *slightly different* quality organizations are identified in different companies. There are *anyhow* three general roles that an effective organization for quality and improvements is based on: a steering role, an executing role and a supporting role. The steering role is the manager of the organization within which quality work is organized. This role has the total responsibility for quality and oversees that all necessary activities are performed in the right manner. In a company this means that every manager on every level in the organization should be in charge of quality and continuous improvements within his or her organization. The executing role

includes all employees that have responsibility for quality in their own work and who also take active part in local improvement activities and cross-functional improvement projects. The supporting roll consists of quality managers, specialists and coaches that have deep knowledge and experience in quality related tools, methods and techniques. The members of this role also support managers and employees as specialists and coaches within their knowledge area.

In the average company there is today a rather unclear organization for quality. Too often management is not taking the responsibility they should. Lack of management commitment and participation is a very common problem. Quality and continuous improvements are not natural issues that managers on all levels of the organization spend a lot of time and effort on. Quality has too often not become part of strategic management. Employees are not involved in quality and improvement initiatives as much as they should. People are not taking full responsibility and are not instructed to give priority to quality in their daily work. Quality specialists as quality managers and improvement coaches don't have all the knowledge needed. The supporting roll is not given the right conditions and resources to carry out the work it is supposed to.

Over time the development of the quality organization has been positive. In many companies the organization for quality has become more structured. Quality managers have today often got a position in the management team. It is common that companies have implemented a role structure for improvements and problem solving, in many cases built on the Six Sigma role model with Sponsors, Master Black Belts, Black Belts, Green Belts and Yellow Belts. But even if many positive things have happened there are still a lot to do in the future to get a well-functioning infrastructure for quality and continuous improvements in the average company.

Another organization-related question is the names of the roles in a typical quality organization. As mentioned above there is today no standardized way to name the different roles, this creates confusion and lack of feeling of belonging to a profession. It is important to develop more common roles and names in the future. It is also of importance to take different actions to build a stronger profession for people working with quality. In this area strong industry organizations play a very important role.

## 7. Contradictions in quality management

There are several contradictions between important factors in quality management. Factors that are of great importance but are *contrasts* to each other and because of that are difficult or impossible to focus on at the same time. Such contradictions are often critical, as they need new ways of working to be solved. Some critical contradictions in future quality management are:

*Creating robust processes and at the same time agility.* A central issue in quality management is to create robust processes that are stable over time and can resist a situation with external variations. Important is to find good working procedures and to standardize work tasks. Today and in the future it becomes more and more important to act fast on changes. Customer needs, the competition situation, globalization and other factor increase this importance over time. An important challenge for the future is to create robust processes that at the same time are easy to change.

*Long-term focus in a short time world.* Quality management needs a long-term focus to give good results and effects. To a great extent it's a question of changing the culture in the organization and to develop both leadership and employeeship, to become really successful takes years of hard work. Today one of the biggest difficulties to handle is that most organizations exist in a very short time world, especially companies listed on the stock market. The demand for short-term profit and positive growth in stock value is very high. This often makes it difficult to continue long enough to reach expected results. Over time it seems like the short time focus is increasing, because of this organizations have to find ways to handle this problem in the future.

*Developing a strong quality profession and at the same time move/shift quality responsibility to management.* It is important to move responsibility for quality to management, to make managers on all levels in the organization committed and involved in quality work and to make managers ambassadors and trainers in quality. At the same time it is important to build a strong and competent quality profession within the organization. Those two

things can sometimes be difficult to do at the same time. Both those areas have to be developed a great deal in the future.

*Involvement of people and acting in an objective way.* Vital issues in a quality improvement program is inspection, assessments, control, audits and other activities carried out to find out if the level of quality delivered is correct. A central idea in such activities is that it should be done in an objective way. People should not be audited and inspected individually. Another central idea in quality management is that people should be involved in the work. Involvement makes people committed. This can be a contradiction. It is difficult to involve people and at the same time carry out big parts of the quality work in an objective way. The human side of quality is an area that probably has to develop a lot in the future.

*Create cost effective processes and focus on delivering customer value.* Quality management has two basic goals: to create customer value and to develop cost effective processes. Customer value has to do with meeting needs and expectations among different customers and get satisfied and loyal customer. Developing effective processes has to do with elimination of poor quality costs and waste and getting high productivity. Too often there is a contradiction between those two dimensions. Many quality programs focus much more on reduction of waste, increasing productivity and cost reduction than on customer value and satisfaction. Effectiveness is mostly seen out of a business and/or owner perspective than from a customer perspective. How resources are used is in focus not the value the customers get out of this. Quality management has to be more customer-oriented in the future.

*Working locally with a cross-functional perspective.* Everyone's participation and working with improvements all over the organization is central in quality management. Local improvement teams are often in focus. Important processes that create results are usually cross-functional. Quality initiatives have to be cross-functional. People have to work together over organizational interfaces with improvements. The need for cross-functional improvement project structures is strong. At the same time as there is a need for involving people in local quality activities it is a part of their daily work. To succeed, an organization at the same time has to do both things serious.

*Bottom-up and top-down.* Quality management has at the same time a top-down perspective where management aligns all efforts towards overall goals and a bottom-up perspective where all employees give ideas and proposals about improvement possibilities. In some organizations there is a strong local commitment for quality but a lack of top-management initiatives. In other organizations there is management commitment but lack of employee involvement. There is a need for both.

## **8. Future development and effects on quality management**

What will happen in the future is difficult to say. There have always been many experts and studies trying to predict the future and tell us what will happen. Sometimes they are right sometimes they are wrong. Predictions of the future are usually done by learning from changes going on right now and extrapolating this into the future. As long as things continue to develop the results will be good. If something totally unexpected happens they can be totally wrong. Sometimes different scenarios could be built to get a wider view of possible future happenings. Another way is to analyze different future studies and look for similarities and trends that could support each other in the prediction.

One extensive future study that has been carried out six times since 1996 is the ASQ Future Study. This study is focusing on future changes on a rather high level. If analyzing results from all six studies similarities and pattern can be found (see figure 4). Things like globalization, aging population, increasing speed of change, customer awareness and changes in the workforce seems to be factor, that with some smaller differences in different studies, mostly are in focus when talking about future factors affecting quality management.

	1996	1999	2002	2005	2008	2011
1	Changing values	Partnering	Quality must deliver bottom-line results	Globalization	Globalization	Global responsibility
2	Globalization	Learning systems	Management systems increasingly will absorb the quality function	Innovation, creativity and change	Social responsibility	Consumer awareness
3	Information revolution	Adaptability and speed of change	Quality will be everyone's job	Outsourcing	New dimensions for quality	Globalization
4	Velocity of change	Environmental sustainability	The economic case for a broader application of quality will need to be proven	Consumer sophistication	Aging population	Increasing rate of change
5	Increased customer focus	Globalization	Global demand for products and services will create a global workforce	Value creation	Demand for healthcare	Workforce of the future
6	Leadership	Knowledge focus	Declining trust and confidence in business leaders and organizations	Changes in quality	Environmental concerns	Aging population
7	Quality in new areas	Customization and differentiation	Rising customer expectations		21st century technology	21st century quality
8	Changes in quality practices	Shifting demographics				Innovation

Figure 4. Results from ASQ future study 1996-2011.

The SQMA (Swedish Quality Management Academy) study is another future study that was carried out 2012 in Sweden. The study was more specific than the ASQ studies and focused more on direct future challenges for the quality work. Technically it was performed in a similar way as the ASQ study where the Delphi technique was used. Totally 49 challenges were found. The top ten of those are shown in figure 5.

1. Shifting ownership of quality work from the quality assurance profession to management
2. Adapting the organization to rapid changes in the environment
3. Turning quality assurance work into a matter of strategic ownership
4. Developing an improvement culture in the organization
5. Ability to lead and implement change
6. Developing robust processes that are at the same time open to change
7. Understanding the needs and expectations of our stakeholders
8. Involving customers in improvement work
9. Optimizing the organization to achieve desired competitiveness
10. Building long-term relationships with the customer

Figure 5. The top ten challenges of the SQMA-study.

The challenges identified in the Delphi study were then analyzed and clustered in four major future challenges areas. Through a qualitative study those four areas were discussed with a number of selected business leaders who gave their comments about possible future challenges in quality management.

*Developing adaptability.* Future organizations have to develop a better adaptability to changes in markets and in customer demands. It is critical to get information about the actual situation and facts about what is important. One major success factor in many businesses is to be flexible and develop processes that can change fast and meet new situations.

*Developing customer collaboration.* Organizations have many important stakeholders with different needs and requirements that continuously change. It is very important for an organization to have correct information and knowledge about their customers. It is the customer that describes what creates value. Working close to customers and collaborating will be of high significance in the future to get access to this understanding.

*Developing accountability for quality.* Quality is a central strategic management issue that requires a strong management commitment. There is also a need for interplay between owners and management especially when the turnover rate of management individuals increases. Active owners and board members then become critical to create sustainable quality initiatives. Today quality is a responsibility often delegated to specialists. Management is not really taking on their role and responsibility. To be successful in the future this has to change.

*Developing leadership for change.* Change management is an essential, but also overlooked, dimension of quality. Future leaders have to develop their ability to lead change and develop a quality culture. To involve employees in deciding how to meet goals and visions is of high importance. Management has to focus much more on people and on their inner motivation.

## **9. Major factors effecting quality management in the future**

Based on the analysis of different future studies, knowledge of what is going on today and personal experiences, the author of this paper would finally like to point out and discuss six major factors that could be very important to be aware of when trying to predict future challenges in quality management.

*The Global competition situation.* Today rapid changes in quality and business excellence are going on in many regions. Especially in China and in India a lot is happening, countries that until now have been seen as low cost countries producing products with a quality level not really as high as the western and Japanese industry. Today a quality revolution is going on in those regions. The rate of improvement is high, the willingness to learn is on top and strong initiatives are taken by both companies and governments. We see something not so far from what we saw in Japan in the 1950s and 1960s. Already results are being observed, front line companies in China and India are already on the level of western competitors or have in some cases already moved past them. More will probably soon happen. This can create a huge quality crisis in the former “high quality and high prize countries”.

*Digitalization* is effecting quality management in a major way. Digitalization totally changes the importance of quality. Earlier knowledge of a problem or failure was spread to a limited number of customers. Today millions of people all over the world can, in very short time, get knowledge about bad quality delivered by an organization. The effect of digitalization is that the level of poor quality costs for a specific problem in a short time has become much higher. The need for preventive actions, risk management, failure safe and robust processes have, because of this, rapidly increased. Even the need for inspection and quality control becomes higher. If the cost of a problem increases, the financially acceptable level of actions needed to avoid this problem, also becomes higher. Digitalization has because of this made quality more important in the future.

*Customer power.* For a long time the world has moved from a sellers’ market there customers were lucky if they got a possibility to buy, to a buyer’s market where customers have increasing power. This change seems to continue. Successful organizations often focus on the individual customer, talking about one-to-one marketing and offering customer specific products. The mass market seems to be decreasing. Customers are buying globally. Again digitalization plays a major role. New suppliers turn up on the market from new areas. Prizes are falling and the demands for high quality increases.

*Ownership responsibility.* Quality has become a strategic success factor for organizations. In the long run it will not be possible to survive as an organization if you are not delivering goods and services that really fulfill the needs and the expectations of the customers. It is not enough to work with quality management solely on an executive level in the organization. Quality has over time become a strategic question that has to be focused on in boards and among owners. This has in later years become even more important as it is very critical if a long-term focus on quality management shall be possible to keep. Especially as experiences show that the really successful organizations often have kept the same focus for many years. This is probably only possible if the board of a company continuously focuses on these questions.

*Leadership for quality.* A leadership focusing on customer value, quality and continuous improvements is critical for success. In business leading companies this kind of leadership is easy to observe. In the average company there is still a lot to develop, something that will be very important in the future development. This type of leadership is characterized by a very committed and involved managers who personally act as role models for what they want employees to do by. A leadership with employees in focus, the leaders listen to and show respect for people and give priority to training and learning. Good results and success stories are visualized and communicated. Leadership is coaching, supporting and creating opportunities for employees to do a good job.

*Employeeship with responsibility and involvement.* The employees of an organization have a vital role in quality management, to really succeed a quality culture should be developed. Everyone should have a clear responsibility for his or her work, and that correct quality always is delivered. People should have the knowledge, skills and experiences they need to do a good job and to continuously participate in improvement activities both locally and cross-functionally. People should questioning how things are being done and look for new and better ideas and improvements. People should respect each other and work together in effective teams. People should have a holistic view focusing on customers and processes. Successful quality programs have a strong human focus and put employees in the center. This human side of quality is today weak in many organizations and is an important area to develop further in the future.

*Need for quality in new areas.* In recent years several new business areas have developed fast like IT, the creative industry, biochemistry, the tourism industry etc. Quality and quality management usually becomes more and more important over time when a new business area becomes more mature because of several factors. Differences between competing products become smaller over time. Knowledge about products and understanding of their quality become better over time among customers. The competitive situation becomes harder. Weaker organizations disappear from the market. When those new business areas become more mature the need for more sophisticated ways for dealing with quality and quality related questions become much higher.

## **10. Conclusion**

It is not possible to exactly say what will happen in the future, but there are a number of things that seems realistic to be expected to happen. The quality profession must become stronger with more globally accepted roles and titles. The competence of people working with quality should be defined in a better and more homogeneous way. This is especially important in service and public organizations.

Different factors will probably affect the way of, and need for, working with quality management in the future. Stronger global competition, digitalization, customer power and need for quality in new industries will make quality management more important in the future and create new challenges. Responsibility for and ability to work with quality and quality management related questions among owners, managers and employees will be utterly critical to succeed.

## **References**

ASQ, *Future Study*, 1996-2011

ASQ, *The certified manager of quality*, 2013

EOQ, *Certification program*, EOQ webb

JUSE, *training program*, JUSE webb

SQMA, *Quality challenges demanding answers*, 2012

Rosendal S, *Kvalitetschefens roll och kompetens inom svenska organisationer och företag*, KTH, 2012