Handbook for TQM and QCC

Volume I

Handbook
for
TQM and QCC

Volume I
What are TQM and QCC?

A Guide for Managers

Contents (Volume I)

Part II Quality Control Circle

Foreword

In this globalized world and business environment quality is the key to competitive advantage.

No man is a prophet in his own land, and this is particularly true of the work of Edward W. Deming. Deming's work and his original recommendations on quality were ignored in his homeland before Japanese business imported his ideas and made them work in Japan. Deming encouraged the Japanese to adopt a systematic approach to problem solving. He also encouraged senior managers to become actively involved in their company's quality improvement programs. His greatest contribution was the concept that the consumers are the most important part of a production line. Meeting and exceeding the customers' needs and requirements is the task that everyone within an organization has to accomplish. Quality means satisfying customers' requirements continually. In addition, the management system has to enable everyone to be responsible for the quality of his output to his internal customers.

During the period 1955—60, following the visits of Deming and Joseph M. Juran to Japan, the Company-wide Quality Control (CWQC) movement started to develop. Kaoru Ishikawa was its leader, and this movement asserts that quality refers to more than product quality alone. It also takes in after-sales service, quality of management, the company itself, and human life. Ishikawa also made a significant contribution to the development of Total Quality Management (TQM). The other quality management gurus such as Crosby, Deming and Juran have shaped the dimensions, practices and basis of the concept, but none have gurus actually coined the term TQM. By the end of 1980s, TQM
concept had become a recognized part of quality-related language.

Total Quality Management includes a number of management practices, philosophies and methods to improve the way an organization does business, makes its products, and interacts with its employees and customers. Kaizen (the Japanese word for continuous improvement) is one of those philosophies. Other recognized TQM practices are:

Japanese 5-S Practice (Seiri, Seiton, Seiso, Seiketsu and Shitsuke; which stands for Structurize, Systemize, Sanitize, Standardize, and Self-discipline); Business Process Re-engineering (BPR); and Quality Control Circles (QCCs).

The success of Japanese business in Canada, Latin America, and the United States as well as in Europe is attributable to TQM, a concept now widely practiced throughout Asia

In this context, and as a knowledge exchange between Asia and Latin America and the Caribbean, the Japan Program organized a workshop on the topic of Quality Control at the IDB's headquarters in December 1999.

As a follow-up activity, to develop and disseminate the Total Quality Management and Quality Control Circle (TQM/QCC) system in Latin America and the Caribbean, the Japan Program of the Inter-American Development Bank (IDB) has entrusted the Development Bank of Japan (DBJ) and the Japan Economic Research Institute (JERI) with the task of producing a TQM/QCC handbook.

It is hoped that this publication will be useful and we welcome readers' comments and suggestions for improving this manual.

Kaname Okada
Chief of the Japan Program
Inter-American Development Bank

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Introduction

Until around 1950, Japanese products were perceived worldwide as being very inexpensive, but with poor quality. By the 1980s, products made in Japan were known all over the world for their high quality and reliability. What happened during those three decades?

Also in the 1980s, U.S. companies were gradually losing their industrial competitiveness, so they and the U.S. government undertook a series of revolutionary movements that included thorough exploitation of Japanese quality management. The subsequent recovery of U.S. industries in competitiveness is well-known. An anecdote for their successful recovery was the *big three* (automobile companies)'s revival in the 1990s. What had they found in Japanese management practices and which parts contributed to the recovery?

Are such events only incidents of the past? We do not think so. They are relevant to contemporary questions on *quality management* that are shared around the world.

Historically, *quality control,* in its modern terms, was born in the U.S., and Japan, in its high economic growth period, imported and developed that concept as *Total Quality Control (TQC)*, which later evolved as *Total Quality Management (TQM)*. Contrary to many misunderstandings, TQM is not a tool merely for big companies or the manufacturing sector; it is a way of managerial thinking for any type of corporation.

The *Quality Control Circle (QCC)* method, a *Japanese-made* institutional development tool by which employees continuously strive for improvement in their work, usually functions as an integral part of TQM. More generally speaking, the QCC method can serve to enhance people's problem-solving skills in organizations that have not yet introduced TQM as a leading management policy: not only in profit-making organizations but also in non-profit organizations, public administration, associations, and any voluntary group. However, QCC functions best as part of TQM, and company-wide quality management through TQM is the most effective way to sustain QCC activities in an organization.

Are TQM and QCC *Japanese* things? Are they effective only in some cultures in the world? Our answer is a firm, "No!" They are not and should not be perceived to have such a narrow scope. Our firm belief is that they are applicable anywhere because they invoke universal values, and this is why this handbook has been produced. In our view, TQM and QCC values are much more than so-called *Japanese management*.

Pursuit of quality management never stops. We face more and more tasks in controlling and improving quality in the increasingly integrated world. Requirements of the ISO 9000 series are representative of that truth. We are certain that TQM and QCC can contribute tremendously to any institution that has become conscious about quality management, including those doing so through compliance with the ISO 9000 series.

HOW TO USE THIS HANDBOOK

Nature of the Handbook. This two-volume handbook is a guide for people at all levels who have wide-ranging desire to improve the quality of work in their organizations. It is a *basic manual cum explanatory guide*—that is, it aims at providing not only hands-on know-how to install and implement Total Quality Management and Quality Control Circle programs but also explanations as to why and in which ways they are useful for organizations. In order to establish appropriate objectives, one must first completely understand what is to be tackled. TQM and QCC do not come in a one-size-fits-all manual, yet they are not complicated. They merely require that the decision-makers in an organization be really convinced of the usefulness of the well-elaborated and standardized methodology.

Target Readers. Volume I is intended for managers: explaining what TQM and QCC are all about and how to install and implement them in their organizations. It targets many levels of decision-makers, from *top managers* of corporations to *middle-level managers* functioning as division heads. Its topics range from the theoretical concept of TQM to practical knowledge on QCC—showing managers how these quality concepts have developed worldwide, how QCC activities have contributed to the development of company-wide quality management, and what kinds of benefits QCC may bring.

Volume II is a practical guide for starting QCC. Under the full support of management that is sold on TQM and QCC, focal persons or units of quality management (regardless of whether they were already in place or were newly appointed to install TQM and QCC) will take the lead in promoting QCC movements and educating employees on QCC techniques. Those focal persons are called facilitators. In the implementation process, leaders will usually be selected by the individual Circles, which are formed in frontline operation or administrative units. This volume is for these practitioners (facilitators and Circle leaders). It will direct them on how to carry out daily QCC activities and how to tackle common problems that facilitators as well as Circle leaders and members often find difficult to solve.

Both Volume I and Volume II attempt to explain TQM and QCC to the degree required for their respective targeted readers. Note that the technical aspects of implementing the QCC method are kept to a minimum in Volume I, whereas the description of QCC tools, techniques, and tips are compiled in detail in Volume II. However, any manager interested in QCC practices may find Volume II also useful, and any frontline operator interested in TQM or the QCC concept may want to refer to Volume I. The authors assume that Volumes I and II will be always distributed as a set, not in a separate manner, to ensure this type of multiple use.

Another type of reader may be persons who are interested particularly in QCC—for example, people who are working in organizations where quality management has already been firmly established but are searching for ways to strengthen employee participation. Such persons may be eager to learn about the QCC concept, but not necessarily all the aspects of TQM. Or, readers may belong to a voluntary group or association and be

looking for problem-solving methods for the group. These persons may also find QCC to be the right answer. Such readers are recommended to focus on Volume II, and, depending on their interests, occasionally refer to Part 2 of Volume I, (e.g., on parts such as chapter 7, which describes QCC benefits).

This handbook also is meant for readers with different types of concerns than those of *implementers*—that is, readers who are willing to *support,* technically or financially, the implementers of quality management. Examples are government policy makers; business associations; academic persons; international or domestic donors; or any other private or public institutions that support quality management of the corporate sector. Indeed, introduction of TQM and QCC in a country is only possible with the help of such supporters, particularly in the case of small- and medium-sized companies; so the authors strongly desire that the handbook contribute to raise awareness on TQM and the QCC concept among those supporters. These types of readers may find interesting both the descriptions about the historical background of TQM and QCC and the supporting institutions in Asia, both in Volume I and Volume II.

For Readers in Small Organizations. Finally, a note for readers who manage or belong to relatively small organizations that may want to introduce TQM or QCC. Technical explanation of institutional arrangements of TQM and QCC in this handbook may appear, to their eyes, to be relevant only to medium- or large-sized enterprises—for example, QCC, as a company-wide movement, is implemented by various units and groups with several layers: steering committees, QCC offices, facilitators, Circle leaders, members, and so forth. However, adapting those explanations for less stratified organizations is not a difficult task, and small organizations can implement QCC in a manner appropriate to their size, once readers gain core knowledge on QCC methodologies and minimum institutional requirements. Because the Handbook is targeted at a broad range of readers, some of its parts have to be comprehensive.

AS MATERIAL FOR AN INTRODUCTION SEMINAR

This handbook's design enables a reader to start self-learning, but its best expected application is as a material for a seminar that either introduces TQM and QCC or explains QCC as an institutional development tool. In such a case, the reading of this handbook in its entirety after the seminar will be even more beneficial.

TQM and QCC seminars are typically organized so as to present the material to managers and facilitators in separate groups. A half-day seminar for managers may be organized by QCC resource persons, utilizing figures and charts in Volume I as presentation materials. And perhaps a three-day seminar for facilitators could include figures and charts in Volume II and introduction of discussions and exercises. Any subsequent guidance to facilitators from QCC resource persons may not particularly require organized materials.

A seminar for Circle leaders may be organized as another undertaking, once pilot Circles are identified in an interested organization. Circle leaders are typically instructed on QCC implementation in a one-day seminar, after which the facilitators provide the guidance.

Abbreviations

ANSI	American National Standards Institute
APO	Asian Productivity Organization
AQP	Association for Quality and Participation
CCS	Civil Communications Section
CEO	Chief Executive Officer
CL	Center Line
CWPM	Company Wide Productive Maintenance
CWQC	Company Wide Quality Control
5M1E	4M1E + Measurement (or Money)
5S	Sorting, Systematizing, Sweeping, Sanitizing, Self-discipline
5W1H	What, When, Where, Who, Why, How
4M1E	Man, Machine, Materials, Method, Environment
GDP	Gross Domestic Product
GHQ	General Headquarters
HAM	Honda of America Manufacturing
IAQC	International Association of Quality Circles
IBM	International Business Machines Corporation
ICQCC	International Convention on QC Circles
IEQCC	International Exposition of Quality Control Circles
ISO	International Organization for Standardization
ISO/CD	International Organization for Standardization / Committee Draft
JIS	Japanese Industrial Standards
JUSE	Union of Japanese Scientists and Engineers
NBC	National Broadcasting Company
NIST	National Institute of Standards and Technology
NPO	National Productivity Organization
NTT	Nippon Telegraph and Telephone Corporation
PDCA	Plan-Do-Check-Act
PM	Productive Maintenance
QC	Quality Circle
QCC	Quality Control Circle
QCRG	Quality Control Research Group
SL	Specification Lower Limit
SME	Small- and Medium-sized Enterprise
SOP	Standardized Operational Procedure
SQC	Statistical Quality Control
SU	Specification Upper Limit
3Mu	*Muda* (wastefulness), *Muri* (excessiveness), *Mura* (dispersion)
TPM	Total Productive Maintenance
TQC	Total Quality Control
TQM	Total Quality Management
WWI	World War I
WWII	World War II

Volume I Part I

Total Quality Management

1 Quality Assurance in the 21st Century

Understanding the importance of quality is the first step in starting to learn quality management. This first part of the handbook attempts to look at quality in a holistic manner: Why do we talk about TQM and QCC now? What do we mean by quality? What do we seek? How do we measure quality? Atsushi Otaki has identified seven factors of quality: physical components, functional elements, human elements, time elements, economic factors, productive elements, and market factors (Otaki 1993). This chapter examines how quality management can be pursued by introducing TQM and QCC.

1-1 Why TQM and QCC now?

1-1-1 The Road to TQM

Until around 1950, Japanese products were perceived in markets all over the world as being very inexpensive, but with poor quality. By the 1980s, the same markets were recognizing *made in Japan* as a sign of high quality and reliability. What happened during those three decades?

Mass production systems were developed mainly by U.S. industries in the early 20th century. Other countries that were then emerging as new powers adopted variations of this *scientific management* of companies according to their individual contexts. For example, in Japan, rationalization of management in factories was substantially advanced in the 1930s, but imports of goods and ideas from advanced countries were squeezed as the nation approached World War II. After the war, the devastated Japanese economy moved vigorously to restore its previous production level through full-on importation of technologies and ideas from the U.S. and Europe.

In the postwar period, Japanese industries absorbed many modern concepts on management either through the General Headquarters (American occupation headquarters representing the Allied Forces) or directly from various foreign countries. The quality management systems were typical examples. However, *Japanese-made* still had a connotation of being inexpensive but with poor quality until the early 1950s. The nation's wealth was yet meager: Japan's GDP per capita in 1950 was similar to those of Colombia, Greece, Mexico, Malaysia, and the Philippines, and way below those of Argentina, Brazil, and Chile. A number of factors contributed to reversing the notorious reputation of Japanese products in the subsequent two decades: development of applied technologies, creative reception of imported systems, successful introduction of industrial policies in harmonization with the private sector, expansion of world trade, gradual liberalization of domestic markets for foreign capital, and so on. Among them, what calls our particular attention in relation to management systems is Japan's 1950s and early 1960s adaptation of U.S.-type quality management. This reception was not passive; Japanese companies modified the concepts:

Statistical Quality Control (SQC) was transformed in Japan as Company-

Wide Quality Control (CWQC) or Total Quality Control (TQC), and Productive Maintenance (PM) as Company-Wide Productive Maintenance (CWPM) or Total Productive Maintenance (TPM). Whereas the original concepts of SQC and PM assumed that only expert staff members would be in charge of quality control of products or maintenance of equipment, the Japanese adaptation was to apply those methods to whole sections of companies.

There were two important underlying perceptions of top managers who put forward these movements: strong commitment to quality and particular emphasis on human resources. Management in Japanese companies made sure that its visions and its ideas about company missions were disseminated to all employees, from frontline operators to middle managers, in the belief that employees were the most valuable assets in companies. Then, what were the management tools that enabled company-wide movements focusing on quality improvement? The most important vehicle was the Quality Control Circle (QCC) concept, in which small groups of frontline operators follow problem-solving processes to cooperatively solve various problems in the workplace.

Throughout the 1960s and 1970s, TQC and QCC were practiced with strong initiatives and commitment of management in many sectors—particularly management in export-led manufacturing companies, which substantially increased their presence in world markets. After the late 1970s, in line with rapid foreign direct investment by Japanese companies, so-called *Japanese management* was exported to foreign countries. To be fair, we cannot say that the quality management was the sole factor for vigorous expansion of production and export; however, it was one of the major factors as many observers concur (Miyamoto et al. 1995). In the 1980s, the strong competitiveness of the Japanese export sector produced a huge trade surplus and some conflicts in the U.S. and European markets. There was much talk about an *over-presence* of Japanese companies. The TQC practiced by these companies evolved, with much refinement, to Total Quality Management (TQM) in the late 1980s, as laid out in the following sections.

The record of Japanese companies in the domestic and foreign markets in the 1990s is much more complicated. The long economic recession that began in the Japanese economy in the early 1990s, together with the lower growth of the world economy and trade, seriously affected Japanese companies, and a discrepancy in productivity between some competitive manufacturing sub-sectors and the protected service industries emerged. Japanese companies have lost some competitiveness as a whole, which has evoked an extreme view in the world that *Japanese management* is no longer effective. And since *Japanese Management* is deeply associated with TQM, a perception has emerged that the successes accredited to TQM up to the 1980s are somewhat dubious. However, this is an obvious mistake. The need for quality management has been only increasing, and the fact that Japan's economy is troubled does not undermine the potential of TQM and QCC.

1-1-2 Quality Management in a Changing World

Across nations and regions, companies are facing new challenges in a changing environment. First, the integration of world markets has been rapidly proceeding. With open market economies in many parts of the world, overseas production has been accelerated—goods can now be produced anywhere in the world where the cost of production is the cheapest. Such globalization of markets has affected not only exporters and importers but also domestic players, even small companies, in many ways: price competition has become tougher, product diversification is in higher demand, safety and reliability of goods have become indispensable, higher standards of quality in developed countries are also being applied to markets in developing countries, and so on.

A second challenge to providers of goods and services is that their *stakeholder* base has been substantially broadened, and consequently, their social responsibilities have enlarged. The requirement for environmental consideration is a typical example. Another one, *product liability* legislation, has become prevalent in many economies, making goods and service providers much more accountable for their work than they were a decade ago.

Third is an increasing need for companies to focus on accountability and transparency of management in order to demonstrate good risk management. The chance that a company could have its reputation damaged overnight has increased, because society today has a highly developed information network that can easily proliferate public mistrust. In fact, examples of foul play by renowned companies, both domestic and international, can be found easily (e.g., Firestone Bridgestone [U.S., 2000], Mitsubishi Motors [Japan, 2000], Snow Brand [Japan, 2002], Nippon Ham [Japan, 2002]). Companies have been forced to retreat from the market or at least temporarily set back because of fraud.

Fourth is a proliferation of complications related to *customer satisfaction*. Customer needs continue to evolve in line with the diversification of lifestyles, and high quality and functionality are expected of every product. With information technology far developed compared to a decade ago, availing much more product information, customers are demanding more *real value* in products. In addition to price and usability, factors such as fashion and uniqueness are involved. World markets being more integrated, consumers now have a wider selection of goods and services with which to satisfy their appetites.

Overall, the current business environment has become much more complex, and elements concerning quality of products and services that were not considered as crucial for business success a decade ago, now are. As noted earlier, TQM provides a powerful platform on which companies apply quality management not only at the production or service delivery levels, but also on a company-wide scale. Therefore, TQM's potential needs to be exhausted more completely than it ever has. At the same time, the TQM concept will

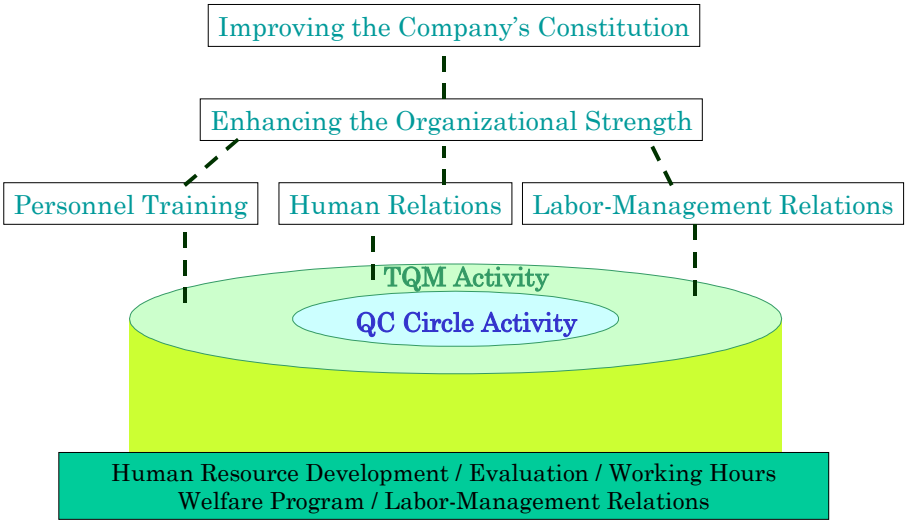
obviously have to be responsive to the evolving business environment.

1-1-3 QCC

Taking as a given that TQM is an effective management tool, figure 1 indicates its framework and how QC Circle activities can be placed in it. A QC Circle activity is a small group activity for the voluntary performance of quality control within a workshop or any other unit.

From the standpoint of promoting quality management at the institutional level, QC Circle activity constitutes part of TQM. But it is not just an ingredient; it is a central vehicle, so to speak, by which to implement company-wide quality management. QCC activity can be implemented also by any organization that does not yet have special focus on TQM, bringing about many benefits. However, in order to sustain it or apply quality management to all business activities in an organization, TQM, or an equivalent company-wide system involving strong commitment in quality management, is a must.

Figure 1 **Relationships in Improving the Company's Constitution and QC Circle Activity**

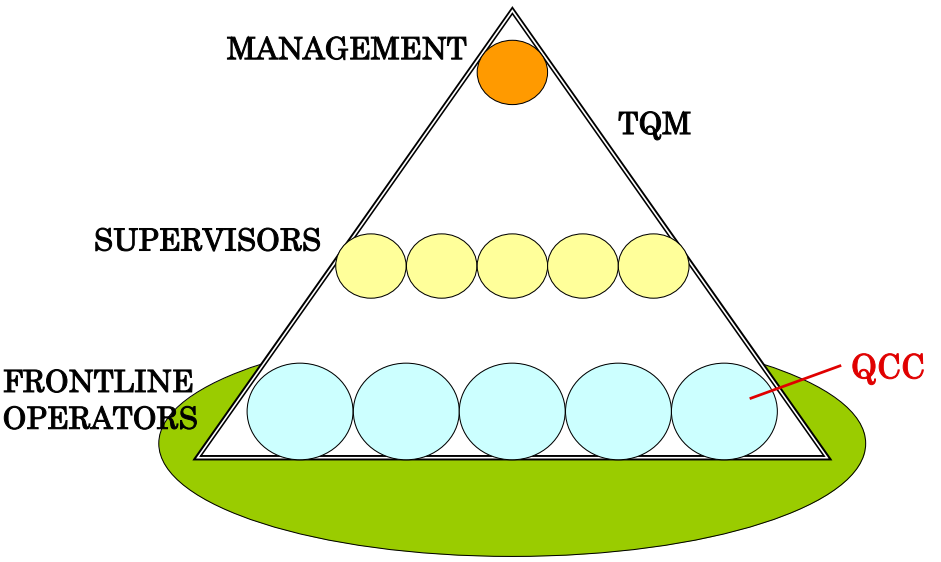


Adapted by authors. TQM Committee 1998

Figure 2 shows the relationship between TQM and QCC from the viewpoint of hierarchical structure of a company. This interpretation should be valid for all types of institutions, regardless of scale. For a relatively small company, the hierarchy merely becomes simpler, involving a smaller number of Circles and a simplified system for supervising employees. In any case, the top management should be committed to enhancing quality in the overall business, and frontline operators should continually improve the quality of their work through Circle activities.

Obviously, the ultimate mission for companies, again regardless of their scale and sector, is to survive in the competitive environment. To do so they need to achieve customer satisfaction. A company-wide effort for customer satisfaction integrating the QCC concept as an indispensable part of TQM is the answer forwarded by this handbook. QCC details will be discussed in part 2 of this volume.

Figure 2



(from University lecture by Noriharu Kaneko, 1995)

1-1-4 TQM, and QCC as a Part of It: Toyota's Case

Some companies have developed their own concept of quality management and have been evolving it with the changing business environment. Those companies exhaust significant resources over time in implementing, reviewing, and reorganizing quality management, but are eventually rewarded by their self-generated efforts. Among companies that are successful in quality management, what seems common is management's commitment and establishment of a clear vision, regardless of the type of business. Toyota's pursuit of quality is a good example. Toyota has utilized TQM, and QCC as a part of it, efficiently. We describe this case only as an example of success in the history of TQM and QCC, and not as a standard or specific model to be followed in all cases.

TQM and the "NEW QC Circle Activity" of Toyota Today

Year 1936 ***Model AA***

First passenger car for the masses realized in Japan

Year 2001 ***Estima Hybrid***

Ecological car with focus on saving energy and reducing air pollution

Total Quality Management at Toyota

Toyota, today's number one company in the Japanese automobile industry, continues to strive daily to maintain and improve its current position. Competitiveness in the Japanese automobile market is at a very high level, for it includes Nissan, with high-level technologies; Honda, a worldwide known brand; Mitsubishi; Isuzu; Mazda; and other major companies, including American and European. Among these competitors, Toyota has maintained and improved the leading position over the years. And this positioning has been the result of a harmonized effort, from the top executives to the floor operators who work in the factories every day.

Toyota constantly strives to improve production and sales by viewing business in the long term. The most important characteristic of Toyota's management is by all means management's continued commitment to *quality*. Quality assurance at Toyota is understood to mean the quality that makes customers willing to buy products, confident in using them, and satisfied with their performance. To achieve this, in 1961 Toyota introduced the Total Quality Control method, which is considered one of the most important factors of the company's success. TQC goes beyond product quality to also include improvement in management as a whole. The impetus for introducing the method was Toyota's poor results in its rivalry with Nissan, another major automobile company in Japan. Compared to Nissan's Bluebird (a particular car's name), Toyota's Corona had many technical problems, and instead of gaining shares Toyota only gained a poor reputation. Toyota hoped to make use of TQC as a tool to increase both the value of the company itself and the knowledge of each employee.

Toyota's TQC method—requiring full-scale participation, from the top managers to the floor operators—soon proved to be successful and won the Deming Prize in 1965, followed by the Japan Quality Control Awards in 1970. The work toward the Deming Prize had many effects on Toyota. The quality of products improved remarkably and resulted in fewer defects in the production process. Maintenance and improvement of quality went from an orientation on post-production inspections to one emphasizing quality in the

production process. Toyota's sales improved in the domestic market as well as overseas. The reduction in production cost was reflected in reduced car prices, which the customers welcomed, and sales improved. Improvement was also seen at the management level from the viewpoint of human relations and cooperation.

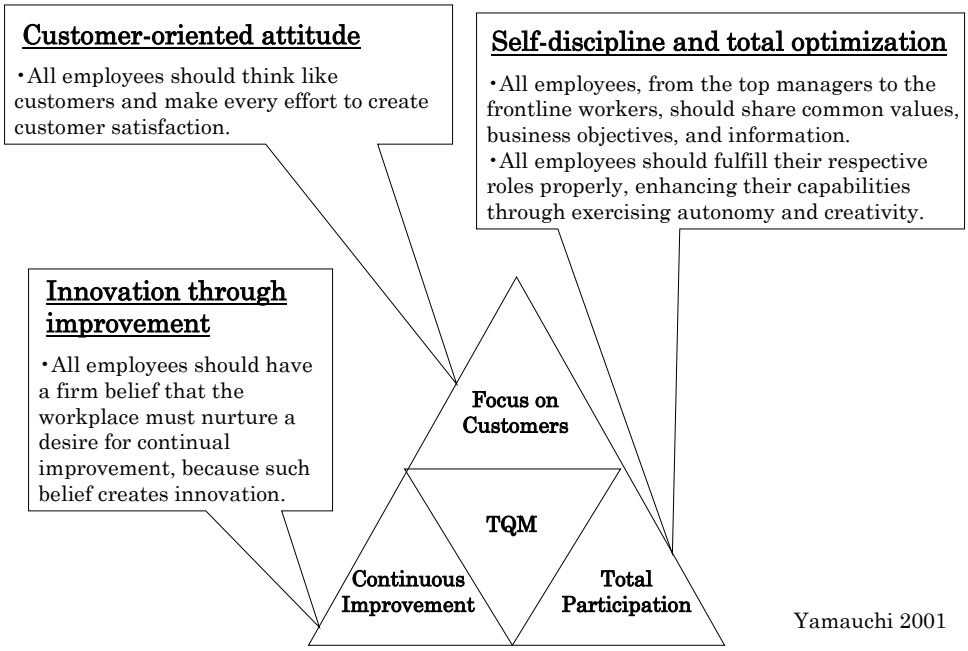
In the mid 1990s, TQC in Japan was reviewed, and the term *control* was changed to *management* and the positive details of TQC were succeeded to TQM. Also the notion that TQM was not wholly equal to management was renounced, giving way to the view that management must keep in mind the TQM way of thinking when managing a company. So in 1995, TQC at Toyota became TQM, which was redefined as an activity to energize people and organizational units and to change the nature of the company so that it could respond flexibly to changes in the business environment.

As shown in figure 3, Toyota's TQM consists of the integration of three main points that must be present in order for the company to succeed: focus on customers, continual improvement, and participation by all employees. Focus on customers means that customer needs are more important than employee needs. As customers' needs continue to increase, product quality and operator skills must continue to improve. Also customer complaints cannot be answered from a company point of view. The view of customers is likely to be different and must be known if their trust is to be secured.

Since customers are not likely to ever be completely satisfied, the workplace must nurture a desire for continuous improvement. The employees must keep thinking about how to obtain better quality, better evaluations, and a better working atmosphere. If everyone is satisfied with the current status and does not seek improvement, no kind of approach is likely to succeed.

Finally, TQM cannot be done by only a few employees; it must be accomplished by the teamwork of the whole company. When all of the employees understand their positions in the field and know what is expected of them, they are likely to have confidence in themselves and will participate in further activities aggressively. As for their daily work, employees need to know why they are doing a particular job and what the intended result is. Without this vision they will not be motivated to think unconventionally or to work extra hard for improvement. They need to feel trusted and appreciated as employees.

Figure 3 **Toyota's 3 Basic TQM Perspectives**



Yamauchi 2001

Quality Control Circles in Toyota

Toyota implemented QC Circle activity to educate its employees in the TQC method. A QC Circle is a way to improve the work of each operator and the working place as a whole by training everyone to think through and discuss solutions. With the spread of this method throughout the company Toyota's quality improved remarkably.

From its beginning in 1962, the framework for Toyota's QC Circles involved all personnel in every factory, from the top managers to the floor operators. The mere introduction of QC Circles emphasized the importance being placed on quality improvement, and the concept soon spread throughout the company. In 1967 Toyota's QC Circles adopted a theme of Zero Defective Merchandise Activity, competing amongst themselves to reduce the numbers of defective products. By 1974 the essential goals were met and new Circles were formed and new themes were set. However, it was at this time that the activity came to be systematic and more concerned with winning prizes than with making good use of the QC Circle activity method. Despite the Circles' well-deserved reputations and highly refined presentation skills, the core of their activity had been forgotten.

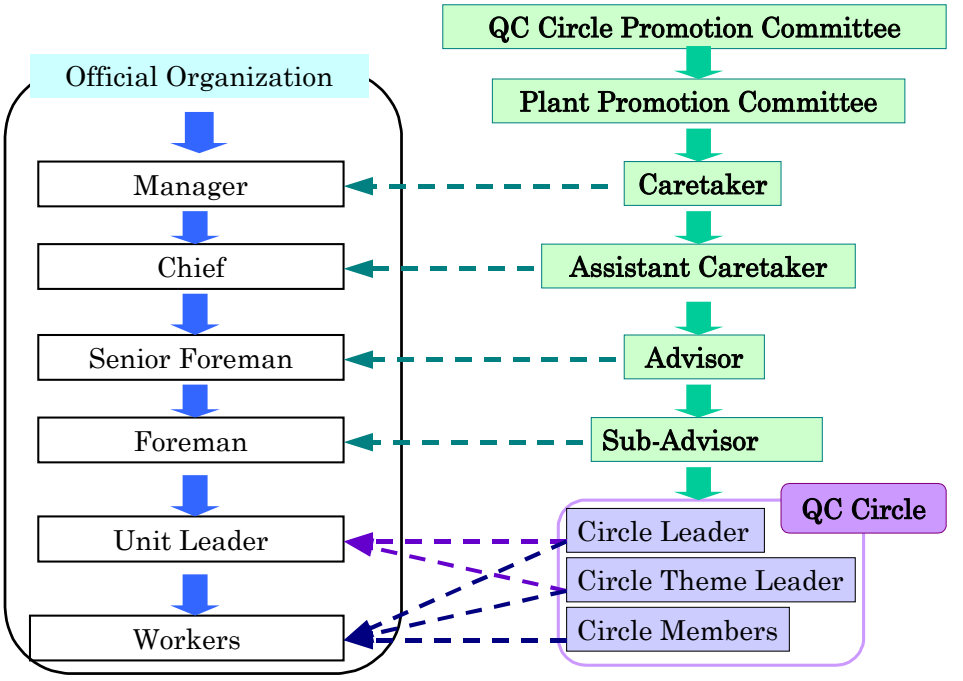
In 1993 Toyota introduced "NEW QC Circle Activity"—rededicating itself to core objectives, such as improving both individuals' skills and the working atmosphere. The operators were to feel pride in being part of the company and empowered to set goals in their daily work—mainly through a reshaping of attitudes toward work, quality, the company and customers. In essence,

Toyota was saying, "Let's return to the basics and accept the challenge once more," and the result was improvement both in the workplace and in corporate growth.

The employees were vital to the success of the New QC Circle Activity: they all had to participate in creating an atmosphere of positive action and were provided many opportunities to show their successes and exchange information with other circle members.

As of 2001, Toyota had approximately 4,800 Circles, all of them continuously aiming to improve the quality of their work and playing an important part in the company's success. Figure 4 shows both the terminologies used in Toyota's QC Circle hierarchy and the fact that all employees are involved. The figure is based on Toyota's actual QC Circle Structure; the QC roles (right) are carried out by the personnel indicated on the left.

Figure 4 **Organization of Toyota's QC Circle Activities**



Ohta 1984

Commitment of Management to TQM and QCC

Management in any company must be aware of how much its success is dependent on finding the best way to implement TQM and QCC to enhance its employees' knowledge and energy toward work. Management commitment is the main element for the success of a company and its QC Circles. As you can see in the case of Toyota, the management with the most influence in the company must know of the importance of quality. Because of Toyota's long history of success in QC Circle activities, its decision to

revamp them could not have been easy, yet it did so and was able to revive its original spirit of pursuit of quality.

The New QC Circle Activity in Toyota had to first be welcomed by management, and management had to be committed to the development of human resources so that it could guide the employees in setting high goals and provide them with opportunities to learn, think, and decide.

The tangible success of Toyota today is not the result of luck; it comes from the full-scaled effort of its employees. This was made possible through patient leadership that showed appreciation for hard effort and emphasized quality, self-training, and reflection on the customer's point of view.

Toyota's continued commitment is further evidenced by "The Toyota Way 2001" campaign (spearheaded by Mr. Fujio Cho, the president), which along with the constants—*Continuous Improvement* and *Respect for People*. Due to limited space the Toyota Way itself and its famous TPS (Toyota Production System) schemes will not be discussed furthermore in this text.

1-1-5 TQM and QCC in Hospitals

Some people tend to think of TQM and QCC as management tools only for *goods*-producing enterprises, i.e., the manufacturing sector; some perceive them as being relevant only to profit-making organizations; and others feel that they are appropriate only for big companies. Quite contrary to such misinterpretations, TQM and QCC have been successfully adopted widely in the service sector, small- and medium-size enterprises, public corporations, and non-profit making organizations (see chapter 3 section 4 *Various QC Circle Activities* in this volume).

This section shows how a health sector institution, a hospital, took up the challenge of adopting TQM and QCC, a good example of their relevance outside of manufacturing. This case and the others that follow were selected not because they were completely successful but because they represent how TQM and QCC are being applied in challenging frontiers.

Background: QCC and TQM in hospitals

The lessons learned from TQM and QCC in the manufacturing sector in the 1960s have been much appreciated in various other sectors, including health care and education. The health care sector became attracted for many reasons. First, there was no reason to doubt that it could parallel the proven TQM and QCC success stories. Second, the nature of hospitals' daily functions seemed an appropriate fit for the assimilation of improvement activities through small Circles: Hospitals comprise quite a few small units, each of which establishes standard working modalities, and close teamwork is required everywhere at all times. Also, most of these units have direct contact with the patients, their customers—some on a 24-hour basis. The QC Circle concept can find a home in this environment. Third, an

increasing number of accidents involving doctors, nurses, and paramedical personnel has caused patients to develop serious health problems, or even die—immediately in some cases, years later in others. Thus, concerns for quality in the health care sector have been increasing over the past ten years in Japan.

Even as these human errors increase in number, awareness has risen that they are preventable if quality management is always assured as a crucial factor in hospital operations. What then constitutes "quality medical services" and how do we achieve them? According to Mr. Masanori Kitajima, the director and administrator secretary of PL General Hospital, Osaka, Japan, quality medical services means "quality in each operation and in the system in which they are organized." Therefore, "improvement in medical service quality means to improve the quality of each operation and it has to be achieved through the participation of all employees involved in the hospital operations" (Kitajima 2003).

Specificities of operations in a hospital, where every employee contributes by individual specialty, have for a long time made it difficult to define quality in the work routine. In the case of Japan, the organizational structure of hospitals is vertical—that is, it's rather hierarchical, and employees do not communicate much horizontally. Therefore, according to Aso Izuka Hospital in Fukuoka Prefecture, Japan, a number of Japanese hospitals now face both management and operational problems. The introduction of TQM and QCC can play a vital role for improvement in this regard.

TQM has been gradually introduced in Japan's hospitals; now around fifteen to twenty have adopted the framework. Note here that two pathways are typically available for the introduction of quality management systems (explained in chapter 4)—one in which QCC is exercised without the TQM framework. Currently there are roughly 200 hospitals practicing QC Circle activities nationwide.

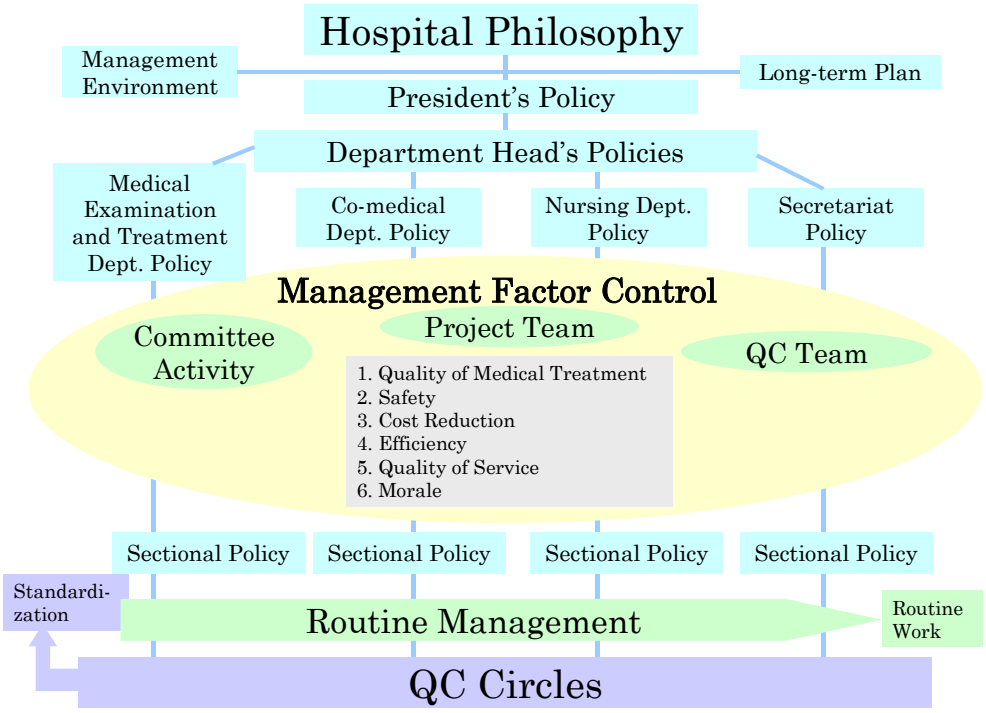
Case of PL General Hospital

PL General Hospital's history with QCC goes back to the early 1980s, when in addition to experiencing financial losses, the hospital was also suffering from low employee morale, which negatively affected teamwork in its operation. It had decided to enlarge its building, which it expected would result in increased numbers in both its patients and its employees. With those changes in the business and operational environment, the hospital in 1987 decided to introduce QCC, which was a none-too-easy step. The bottom-up nature of the QCC system tended to stifle voluntary actions or positive initiatives by employees. There was always a voice against a new system, particularly by middle management, who were then not so knowledgeable about QCC activities and thus were reluctant to entrust some of their authority or decision making to those under their management.

Within six years of implementation, however, some positive changes were recognized by management. One senior manager described "attitude changes that were apparent in the faces of the employees." The employees gradually responded to the need of this activity and began to recognize QCC as a part of their daily work routine. Consequently the quality of service dramatically improved, followed by profits in the financial statements. As tangible results, the problem-solving procedure (QC Story: further explained in chapter 6) contributed in various ways to cost reduction. For example, the standardization of bandages led to cost reduction of US$15,000 annually, and reduction in the usage of paper towel saved another US$42,000. Another important impact was intangible; interaction between patients and hospital personnel became frequent and pleasant and thus overall service quality improved.

The TQM framework in the PL hospital is shown in figure 5. Its structure facilitates direct dissemination of the president's policy to the heads of each department, who further disseminates it within their departments. The department sections then decide concrete action to implement the policy suggested by the president. This system is not intended to impose management policy, rather it attempts to provide a sound environment in which management policy can be well-incorporated at the operational level.

Figure 5 **TQM and Its Management System**



Kitajima 2003

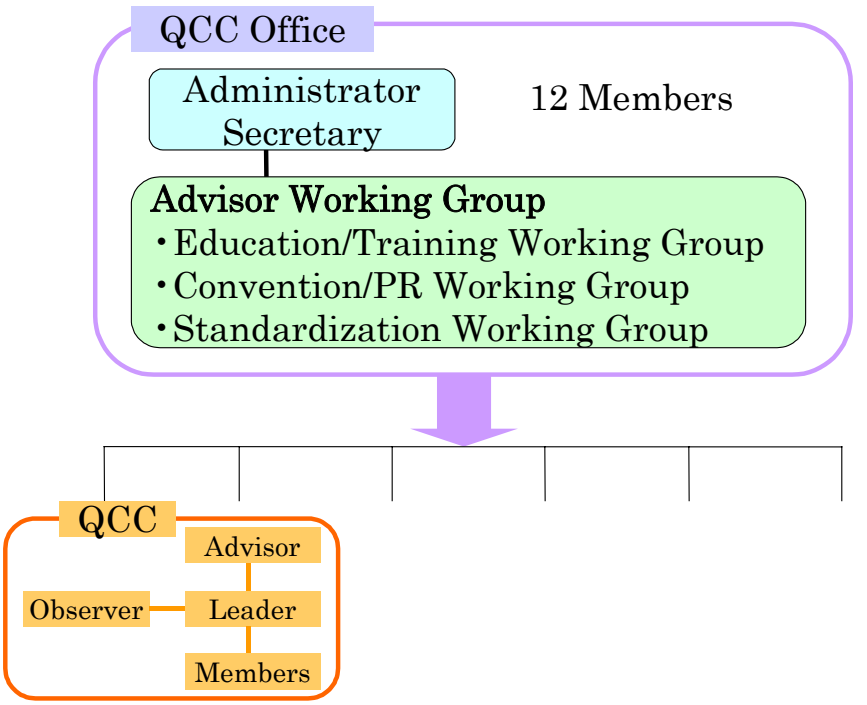
What are some tips for successful QCC activities? The key factors seem to lie in the methodological aspects of QCC activities, and first and foremost the firm commitment of management.

QCC Activities in PL General Hospital

Participation in QCC activities at PL General hospital is compulsory for all employees, except doctors, who participate on a voluntary basis as observers. Members participate in the activities both during and outside of their working hours. Allowance is made for overtime. A Circle consists of eight to ten people—sometimes within the same department, sometimes not. A supervisory person who is well-experienced in QCC activities serves as an advisor. Each advisor looks after eight to ten Circles and assists in individual QCC activities whenever one faces some difficult problems. Each QCC is obligated to complete one theme, which is compiled in a collection of case works and presented in the company-wide QCC convention every other year.

The core function of the hospital's QCC Office is to organize internal and external training for the members; publish monthly news, "Q-net"; and provide various information on QCC techniques and tools on a day to day basis. Members consist of an administrator secretary at the top and eleven advisors from different departments.

Figure 6 **QCC Activity in PL General Hospital**



Road to Success: Commitment by Management

Various crucial factors have contributed to the overall success of PL General Hospital.

Key Factors for Successful QCC Operation in PL General Hospital

- QCC Office Well-Established
- Innovative "Advisory" System
- Management's Clear Vision
- Effective Training
- Effective Participation in Internal and External Conventions
- Appropriate Incentives Provided
- High Motivation of Participants

First, the QCC Office and the QC Circles themselves must be well-established, and the roles of their individuals, clearly defined. In the case of PL General Hospital, the QCC Office works efficiently to promote QC activities in the organization. An "advisory" system, another innovation employed in PL hospitals, helps to disseminate knowledge within individual departments. The advisors, apart from their advisory roles, also form QCC working groups for three mainstreams: education and training, convention and public relations work, and standardization. They hold a meeting every month to discuss themes and solve problems.

Effective training is also crucial for QCC activities. In the case of PL General Hospital, internal training is conducted mainly for new employees. Participants learn what a QCC is and what tools and techniques they employ. The external training covers, among others, QCC tools and techniques and some PC skills necessary for QCC activities.

Active participation in internal and external conventions is an effective way to support QCC activities; Circles not only give presentations on their own efforts, but also learn from those of others. Incentives can be created in the form of convention awards for well-prepared, well-delivered presentations.

The commitment of management seems to be particularly important for the success of QCC operation. The clear vision of management needs to be impressed on all of the employees. Based on that vision, the Circle members will decide which themes to tackle. Revealing management's vision does not constrain the flexibility of QC Circles to decide the themes they want to tackle, rather it directs QCC operations in line with the management vision

and mission. The support of management is always strongly welcomed by QC Circle members. Management is also tasked with ensuring that standardization of activities is well-established and effectively organized.

1-2 What is quality?

Company efforts in terms of quality are in order to meet customer satisfaction. In theory, improved quality will increase the customer demand, which will lead to increased production and profit. What then is quality? What does the customer look for in terms of quality? What does *quality* mean to frontline operators?

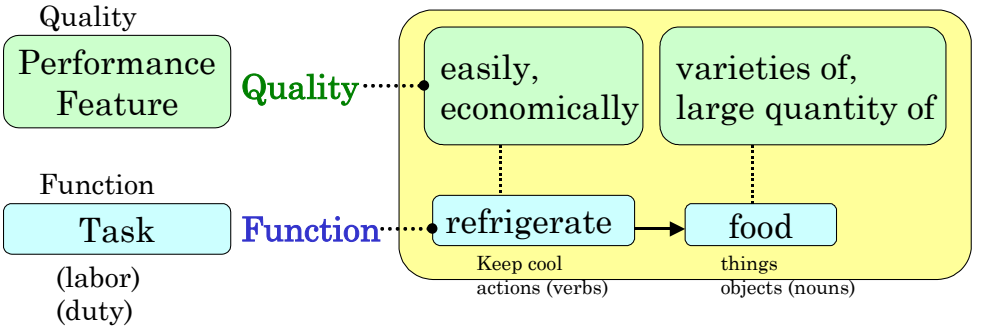
According to Kusaba (1995, 5) quality is a workmanship of various activities. In manufacturing activities, it is measured in terms of not only the product itself, but also the process of the production. In the case of sales, quality is not only the quality of the product, but also that of the services provided to the customer.

Quality is a function to meet objectives: for a clock, the objective of keeping time, for a telephone, of talking over distances, for a refrigerator, of keeping things cool. We do not buy a product for the product itself; we buy it for the particular function it performs. Its value is based on not merely appearance, but also usability.

Figure 7 **What is Quality?**

Quality = Workmanship of the product/service and its performance

Quality and functions required in a refrigerator



The function is the work of the entity and is expressed by objects (nouns) and actions (verbs). The quality is a feature (or performance standard) of the function and is expressed by modifiers such as adjectives and adverbs.

For example, as seen in figure 7, when people buy a refrigerator, they will look for one to keep foods in cool storage. In other words, they buy a refrigerator for the function to keep foods cool. However, keeping things cool is not the only function that customers require: they want things kept fresh and frost-free, and they want easy-to-use features, economical performance, and so forth. Such quality requirements are considered when buying a refrigerator. Quality is measured by

frequency, answering the question, "To what extent does the function meet the expected level of function?" Refrigerators offer features of convenience and freshness, in addition to their central function, and at some point the whole is judged by the consumer to be of good quality.

So far we have discussed function and quality from the consumer's perspective. However, when we ask ourselves questions about who creates and achieves quality, we reach an answer that "quality is a workmanship of various activities," as stated earlier in this chapter. Among the various steps and actors involved in achieving quality, we will now focus on frontline operators and their perspectives, as this is where QC Circle activities have the greatest impact.

Basically quality means the same to both consumers and frontline operators, yet one has to note that the function of quality is perceived differently by frontline operators. For frontline operators, most crucial to achieving good quality is to first understand the importance of the standardized operational procedure (SOP), then implement and maintain it. The SOP follows the Plan-Do-Check-Act (PDCA) management cycle, standardizing the most preferable outcome and resulting in a cycle of continuous maintenance. (The details of the cycle will be further discussed in chapter 1 section 3-1.) The result of the standardization is that frontline operators create a consistent outcome, which can be called quality. This quality is exactly the notion perceived by consumers.

So far we have discussed what quality really is, what people expect in it, and how it is perceived by frontline operators. So, why is quality so appreciated among the many factors?

Figure 8

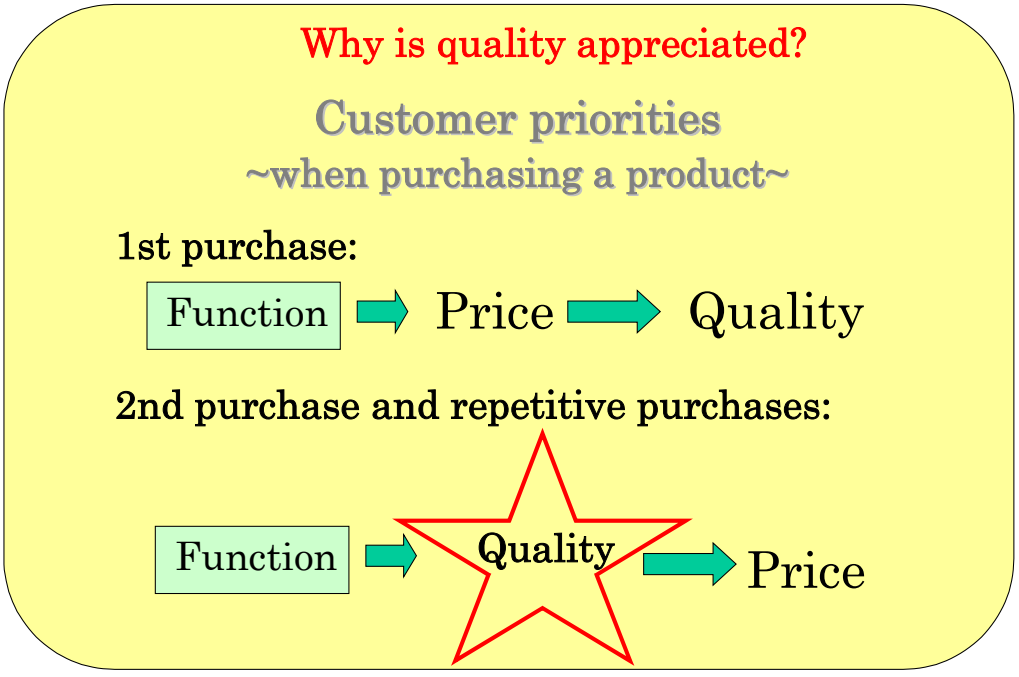


Figure 8 compares customers' priorities in one case, first-time purchases, with those in other cases, second time or repetitive purchases. As previously discussed, to buy a product is in fact to buy a function of the product (Kaneko 2000b, 2); therefore, obviously, in all cases, functionality needs to be assured in the first place when customers buy the product.

In the case of first purchases, the first priority is price rather than quality. When a product comes to the market for the very first time, there are no other products by which to compare it; therefore, the customers merely pay the price that they think is reasonable to pay for the function of the product. For example, when refrigerators first came to the market, customers first looked at the price and then decided whether to buy the product or not. If the price was as high as thousands of dollars, they might find it unreasonable to pay such amount for just keeping things in cool storage. But if the price were reasonable enough, they would be interested in buying one. In these cases, the quality aspect of refrigerators could not be ascertained very well, as the customers did not really have many factors by which to judge whether the quality was reasonable for the price they would have to pay and didn't know what other qualities to look for in refrigerators.

On the other hand, when people purchase a second refrigerator, in many cases they will prioritize quality rather than price. This is because, they now know that there are a number of refrigerators available from a variety of companies. Therefore, the reasonableness of the price can be determined through comparison of not only function but also quality.

This mechanism demonstrates the importance of quality. Therefore, if the company is to have repeat customers, it is crucial that their product have high quality that keeps attracting customers and outpacing the competition.

It is important to note here that quality, which TQM targets as the ultimate goal, is, in fact, a broader concept than what we have so far explained. As you see below, there has been a transition of the quality concept: it has changed according to changes in the business environment, customer demand, and taste.

In the 1950s the concept of quality was only in terms of meeting a standard. Now, merely meeting a standard is not enough. The subsequent progression of decades brought new criteria to the fore—for example, requirements that the product be reasonably priced for the function it provides. Now in the 21st century, the concept of quality has much broader meanings, including concepts of human rights, quality of life, and environmental consideration. In this regard, even employee quality of life can be targeted in the concept of quality. Creating quality is a process that involves all stakeholders and lends social responsibility to the society in which they live.

Transition of the Quality Concept

1950s	Fitness to the **standard**
1960s	Fitness to the **use**
1970s	Fitness to the **cost**
1980s	Fitness to the **requirement** (e.g., safety & reliability, customer satisfaction)
1990s	Fitness to the **latent requirements** (customer delight)
2000s	Fitness to the needs of **all stakeholders** (e.g., environmentally friendly)

Figure 9

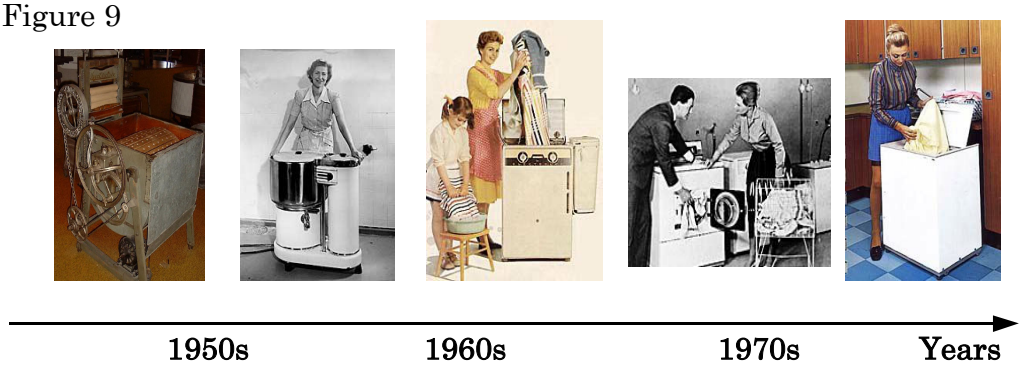


Figure 10

Transition of the Quality Concept: The Case of Washing Machines		
Decade	**Determinant of quality**	**Characteristics**
1950s	**Standard**	Powered by an electric motor; washes clothes according to the standard.
1960s	**Use**	More usable with automatic *squeeze* function.
1970s	**Cost**	Low-priced, low-energy machines
1980s	**Requirement** (customer satisfaction)	Noiseless operation ∴ usable day and night
1990s	**Latent Requirement**	-tangle-free -fast

	(Customer delight)	∴ shortening the washing time -anti-mildew/mold ∴ preventing allergies
2000s	**All Stakeholders**	-detergent-free washing ∴ environmentally friendly -equipped for partial drying

Figure 10 shows the transition of the quality concept in terms of washing machines. When they first came into the market, the quality of the product was valued according to the standard only, which required that the machine merely wash clothes. As more products emerged, more values were incorporated in the concept of quality. Now, terms such as *detergent-free* and *partial drying* are used when discussing competition in the washing machine market. Manufacturers aim to satisfy all stakeholders—from customers to employees, and even to the next generation (in terms of environment).

1-3 What is management?

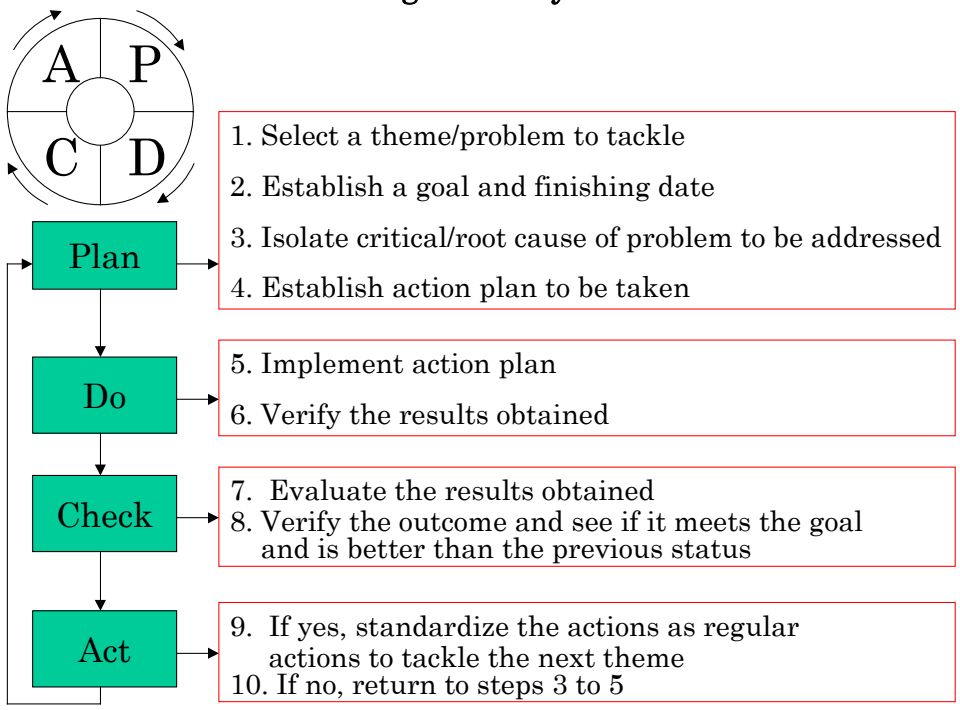
1-3-1 Management Cycle

Management is "a series of activities that plans and controls the daily work in order to achieve objectives in the most efficient and most effective way by keeping balance between quality, quantity and cost" (Kaneko 2000b, 5). One establishes objectives for the activities and tries to minimize the gap between the current status and the established goals. Another definition is that management entails the use of process to achieve objectives in an effective way. It includes the processes of problem identification, problem solving, and standardization of the steps taken in order to meet the objectives.

According to Hosotani (1984), management can be interpreted in two implications: maintenance and *kaizen* (continuous improvement) purposes. In maintenance, one will check whether the standardization is implemented in a way that reaches the goal, whereas in *kaizen*, the criterion is whether there is continuous effort to improve and reach the established goal.

Achieving objectives can be accomplished by implementing the Plan-Do-Check-Act (PDCA) cycle. The cycle is a combination of maintenance and improvement activities that can be applied in order to solve a problem systematically (figure 11).

Figure 11 **PDCA Management Cycle Flow Chart**



At the PDCA management cycle's first stage, the *Plan* stage, problems are identified. Internal and external surveys on customer satisfaction are conducted to define critical problems and set timeframes for solving them. After setting its goals, the project team will be organized to reach them. In a series of steps it will first identify probable and potential causes of problems and then find the root causes. After the root causes are identified, the members will establish actions to correct and eventually prevent the problems from occurring.

At the next stage, the *Do* stage, the action plan from the previous stage will be implemented, and its results, verified. Once verified, the results will then be evaluated at the next stage, the *Check* stage, to see whether the outcome is the same as the goal established in the *Plan* stage. The members will record the action implemented, together with its results, in a specific format and then request a review by senior operators.

The final stage, the *Act* stage, is a standardization stage. If the results confirm that the previous stage activities are effective, action will be taken to standardize them in the daily operation. Here, members also reconfirm that there are no side effects from the new activities. If the results are negative, the issue will be brought back to the first stage and the same steps will be followed in a reorganized way. If this happens, members need to ask themselves why the cause was not identified in the planning stage.

Reconsidering their initial decision will benefit the group, as it will identify a preventive action for the group in the future.

Figure 12 **Management Cycle**

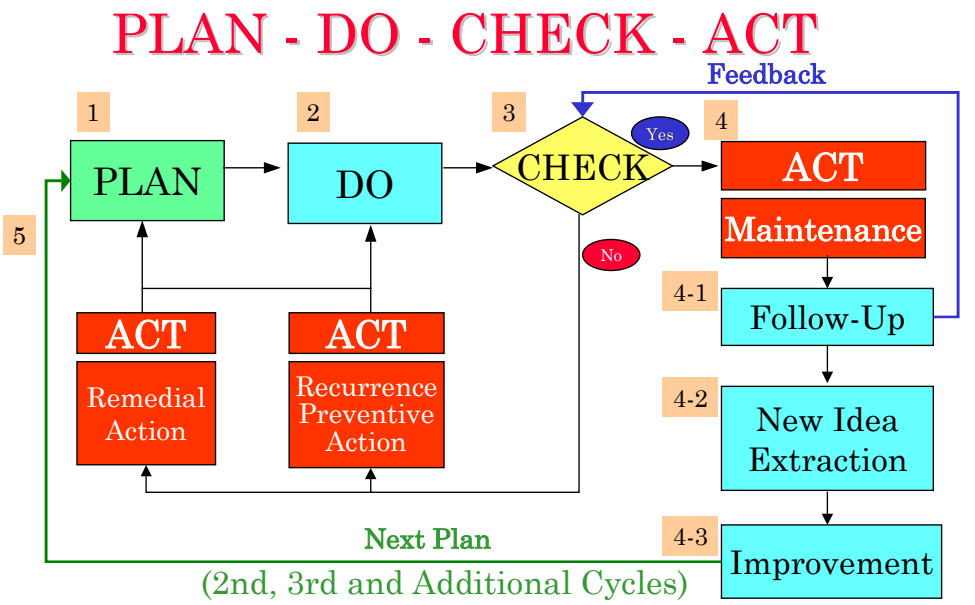
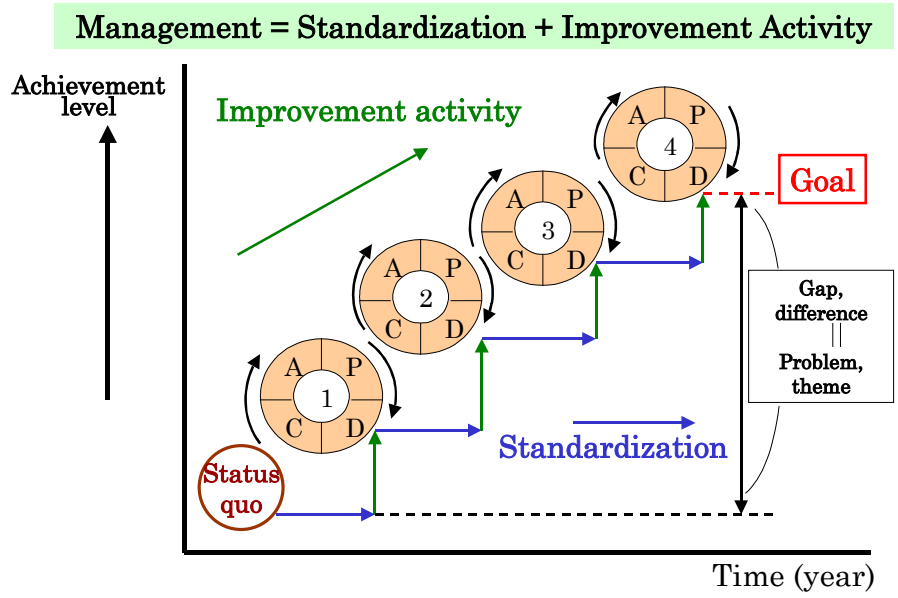


Figure 12 shows processes of the PDCA cycle in an operational manner. As is apparent, the PDCA cycle continues without an end. Once one faces problems in trying to meet a goal, the process goes back to the previous stages and starts from where the problems originated. When problems are solved, one has to identify another theme to tackle while standardizing the process that produced the successful results. The PDCA cycle seeks to achieve continuous maintenance and improvement.

Figure 13 **What is Management?**



The PDCA management cycle consists of four periods of time. By tackling problems in this systematic way, management minimizes the gap between the status quo and the goal set forth. We expect that more will have been achieved by the end of the second PDCA cycle than at the end of the first. Not every cycle of PDCA gets the Circle closer to its goal, but when one does—that is, when results are realized—then the achievement is standardized. In cases when a particular cycle does not result in any measurable improvement, the management goes back to the planning stage and reorganizes its operational actions, as seen in figure 12.

1-3-2 Appreciation of Human Resources

Figure 14 **Scientific Management**

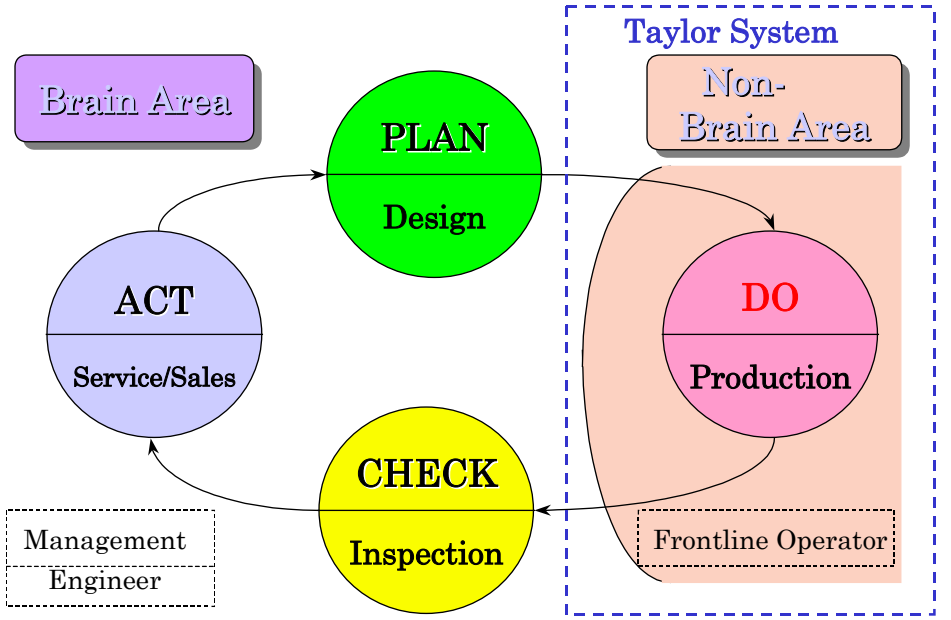
(Frederick Winslow Taylor System)

1. Develop manager's task
2. Divide work into smaller elements
3. Get the best worker for a particular task
4. Be sure foreman or manager makes plans
5. Direct and control so that workers do the work as it is given to them

The industrial revolution in the early 20th century brought mass production with the so-called *scientific management* approach. This management method, created by Frederick Winslow Taylor (1856-1915), focuses only on the effectiveness and efficiency of cost and time issues on production processes. One of the distinct features of his theory is the fractionalization of frontline work, in which each process is categorized into small units, and operators are trained to be specialized in skills only required in that particular operation.

This theory has greatly contributed to mass production—it not only increased production but also reduced the cost of production. The theory was applied in many large companies—for example, in the production systems of Ford.

Figure 15 **Management Cycle and Taylor System**



Adapted by authors. Sasaki and Hutchins 1984

In this approach, however, as Ross (1982, 96) has identified, "All the study, analysis, and work improvement effort was directed at the task and not at the social or personal needs of the individual performing it." The management focused only on productivity by making uniform and simplifying the production processes. A basic tenet under this *scientific management* was that "employees were not highly educated and thus were unable to perform any but the simplest tasks" (Sandrone 1964).

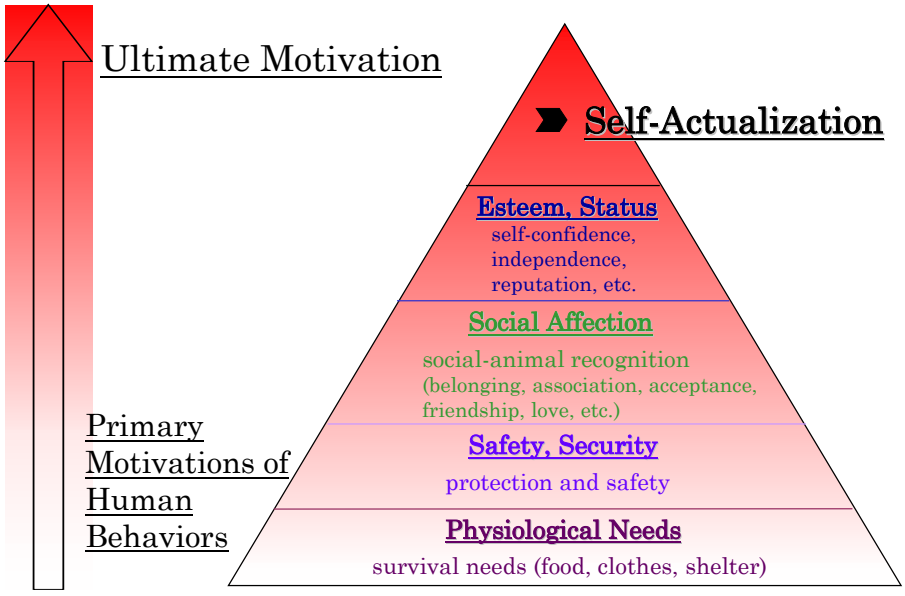
In the management cycle, there is a so-called *non-brain area*, according to advocates of the Taylor System. It is replaced in the PDCA cycle by a *Do* step, where plans are implemented in actual production processes. Frontline operators are not required to be intelligent or creative, rather their

placement requires only that they follow a manual, engaged in doing the same operation over and over again. They do nothing other than this one repetitive operation from morning to night, and as they are not involved with the rest of the operation, they are not trained—that is, there is no human resource development.

However, as time has gone by, defective stages have been found in the production systems. Despite production increases and cost decreases, those deficiencies became very significant. Regardless of the original intention of Frederick Taylor, his method was being used to justify the soldiering of operators. The operators did not always produce an optimal amount of work, regardless of their potential to finish the work faster. They often thought that increased output would lead to fewer operators, which served as a disincentive for them to work to their maximum capacity. Also there were "inefficiencies in management for planning effective incentive schemes" and a "poor design of the performance of the work by rule-of-thumb" (Sandrone 1964).

According to Ross (1982, 96), management changed after World War II, away from the traditional hierarchical pattern. Behavioral scientists such as Douglas McGregor, Abraham Maslow, and Frederick Hertzburg were coming into the field—scientists who sought change in the basic climate of business organization through the introduction of open communication, free discussion, and increased productivity through concerted group effort. The basic concept of their theories is shown in figures 16 and 17.

Figure 16 **Hierarchy of Human Needs (Maslow's Hierarchy)**



An American psychologist, Abraham. H. Maslow (1908-1970), suggested stratification of needs related to the development of a person—with basic needs being the first to require satisfaction, followed by higher order needs. He explained five levels and that, despite some variation among individuals, as a person achieves his or her internal development, the motivation of behavior will rise, from low level to high level (Fukano 1991, 95).

At the first level of needs, people attempt to satisfy *physiological needs*, such as food, clothing, and shelter. At the second level, people seek to be free from fear and pain. They seek protection and safety in their environment. This is the security need, which one can satisfy by freeing himself from the threat of enemy. At the third level, people start looking to satisfy social needs, strong needs for attachment to a society or social association. The association can be any social group—sometimes formed out of common interest. By being attached to a group or society, one will achieve his internal development.

The fourth level is characterized by the establishment of self-esteem and acceptance. According to Fukano (1991, 97), self-esteem can be achieved through the establishment of internal confidence, ability, and freedom, whereas acceptance can be attained through values acclaimed by others, such as reputation, commendation and status. This is to say that those who have strong internal confidence will often have high ability and be highly productive, whereas those who have not attained internal strength will tend to have feelings of inferiority. Self-respect can be achieved through positive participation in activities.

The fifth one is one's ultimate need, to achieve self-potential and personality. This is the highest category in Maslow's theory. According to Maslow, people satisfy high level needs, not from individual interests, but rather through relationships. In other words, through relationships with others, people continue to challenge the higher needs and to achieve self-recognition. There is no end in this pursuit.

This theory, when applied to quality management, suggests that management should not neglect the importance of individual human needs. This is because, being human, people seek to satisfy those needs in their daily lives, and the workplace is not an exception. This means that as people's higher needs are satisfied, their performance in the workplace improves. Therefore, the workplace should provide an effective and productive environment in which individuals can best realize their potential. Maslow's ideas suggests that operator disaffection with work is due not to something intrinsic to operators, but due to poor job design, managerial behavior, and too few opportunities for job satisfaction. This also implies that the success of company management lies largely in the hands of management.

Figure 17 **McGregor's XY Theory**

"X" Assumption

1. People dislike work.
2. People prefer to be directed, and dislike responsibility.
3. People must be coerced and directed toward the achievement of organization objectives.

"Y" Assumption

1. The expenditure of physical and mental effort in work is natural.
2. Control and punishment are not the only ways to make people work. The average man will direct himself if he is committed to the organization.
3. People will learn, seek responsibility, and want to contribute to the organization.

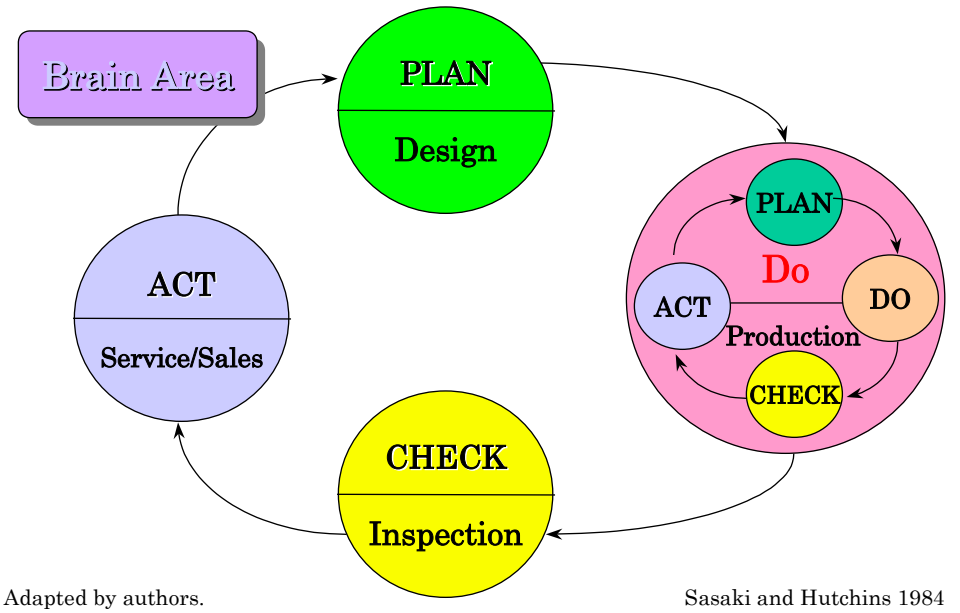
Work motivation is one of the key areas of organizational psychology. Douglas McGregor (1906-1964) summarized two possible views of management in the workplace—theory X and theory Y (figure 17). McGregor sees these two theories as quite different attitudes.

Theory X is based on the traditional view of direction and control. This theory holds that people dislike work and try to avoid it. They prefer to avoid responsibility yet seek security. Therefore, the main motivation for work is simply money. In these cases, management forces the employees to work, through coercion and threats of punishment. (McGraw-Hill Companies 2002)

Theory Y is based on *humanism* and *self-actualization*. It is sometimes called a human resource model. In this theory, work can be a source of satisfaction. And when people are satisfied with work, they can be highly committed and motivated. McGregor sees that this theory Y is difficult to put into practice, but it can be used initially in managing managers and professionals. He also sees that theory Y is conducive to participatory problem solving processes. (Accel-Team.com 2001)

McGregor encourages managers to take into consideration the factors of theory Y. He has suggested that, under appropriate conditions, people can utilize their ability and seek their maximum potential.

Figure 18 **The PDCA Cycle beyond the Taylor System**



Adapted by authors. Sasaki and Hutchins 1984

As seen in figure 18, in the concept of the new management cycle, there is no *non-brain area*. Instead, each step of the management cycle is now considered as a core element of management. All operators at every management level are required to maximize their creativity and efficiency. In other words, frontline workers, too, are required to take the initiative to *think*, *analyze* and *find solutions*. When operated by frontline operators, this analytical framework is often carried out through Quality Control Circles.

Details of Quality Control Circles will be found in Part 2 of this book.

1-4 Quality Assurance

1-4-1 What is quality assurance?

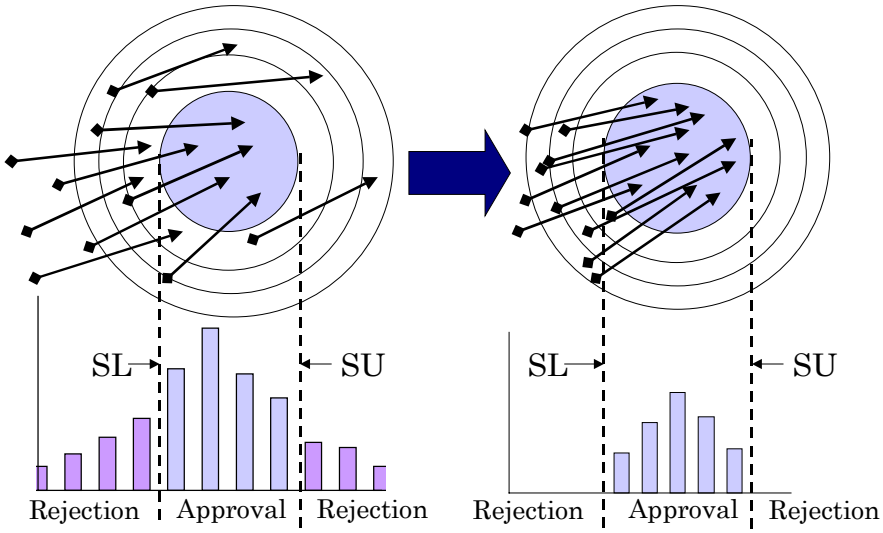
Quality is, in fact, not just functional excellence of products or services, but it is about whole aspects of product characteristics. Take a high quality watch produced by Company A for example. No matter if the craftsmanship is exceptionally high, if the production cost and sales price are so high that nobody can afford to buy such watches, no one can claim that the watch quality is truly high. In other words, quality assurance is not just about *functional excellence*, but includes all aspects of production.

When a company produces a product, its major tasks are to assure that its quality is beyond customers' needs and that no defective units are delivered to customers. This, however, does not mean that it is acceptable for a company to produce defective units, as long as they are not delivered to

customers. Why? Because producing non-conforming articles will bring financial loss to the company. In other words, if a company's products cannot be sold in the market, it will have to bear the entire cost of production. Therefore, the fewer the non-conforming articles produced, the lower the production cost, thus the lower their price.

In this respect it is important that not only does the company not circulate defective products in the market, but also it does not manufacture such products in the first place. Quality assurance is to bridge gaps in the dispersion of quality, aiming to attain the expected value.

Figure 19 **What is Quality Assurance?**



SL : Specification Lower Limit / SU : Specification Upper Limit

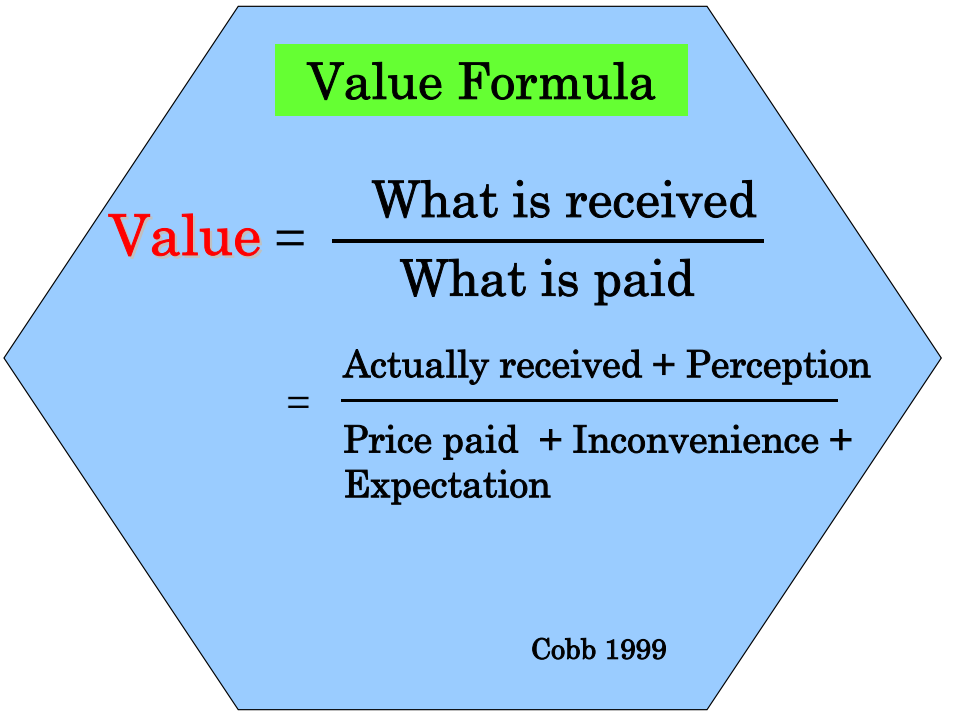
Karatsu 1995

Disparity is caused by defective units, and to reduce the number of defective articles means to manage the disparity (Karatsu 1995, 38). The causes of disparity can be found in various factors, such as raw materials, machinery conditions, and the weather. Quality assurance does not necessarily mean the achievement of the highest quality, but neither does it mean achieving the minimum quality that one can expect. It has to be *value for money* for both consumers and producers, where disparity suggests the ranges within the possible frequencies.

Karatsu (1995, 40) suggests that one way of minimizing the disparity is to collect data and analyze it. Quality Control Circles can contribute greatly in such activity. Details will be found later in this book.

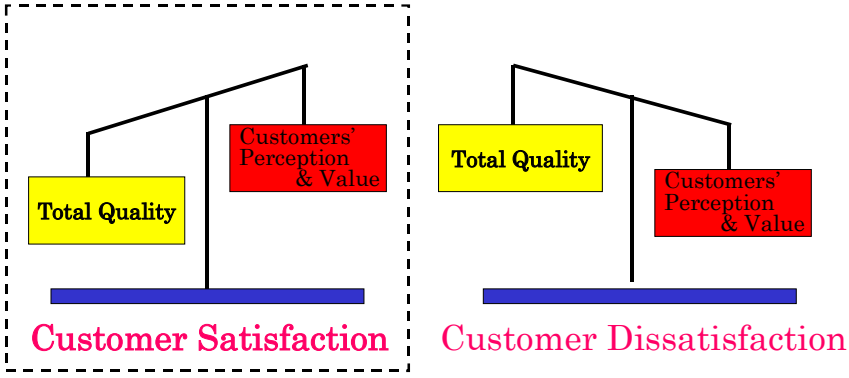
1-4-2 Customer Satisfaction

Figure 20 **Value Formula**



In all these mechanisms of quality assurance, one concern of most companies is customer satisfaction. As seen in figure 20, customers determine their own values for products or services, a balance between the price they would have to pay and what they would receive. This is the utility of the product, the customer's perception of how much he likes or needs the product. In this context, the price assumes not only a monetary term, but also includes opportunity costs—costs that can be measured in terms of time and efforts but cannot necessarily be translated into monetary terms. Take a personal computer for example. Customers decide whether to buy or not, focusing attention on the product utility. However, all products, at any point in time, have the potential to have troubles: a computer might break down before being used; one of its parts might need persistent maintenance by professionals; or extraordinary diligence might be required in order to learn how to operate it. Such inconveniences are key factors in customers' determination of how valuable a product is. Finally, they evaluate the value of products by comparing how much they paid (the denominator of the Formula) with how much satisfaction they received (the numerator). In other words, to keep a product's value high requires that the numerator be larger than the denominator. Therefore, from the formula, we could conclude that the higher the price paid, the more the customer needs in order to consider the product to be truly of high value.

Figure 21 **How to evaluate customer satisfaction**



Then, how should we measure customer satisfaction? Let us use the Value Formula again. The denominator of the Formula, how much the customers paid for the products, is their investment, whereas the numerator, their satisfaction with the products, is their benefits received. If the investment surpasses the benefits, the customers are, undoubtedly, dissatisfied with the products. But if the benefit is greater than the investment, they are satisfied. Customers want the most benefit possible from the smallest amount of investment, which is the ultimate form of customer satisfaction.

1-4-3 Employee Satisfaction in Quality Assurance

Among a company's assets are its employees, without which it cannot achieve customer satisfaction. Therefore, employee satisfaction is a must.

Atarashi (1998, 106), suggests three key factors for employee satisfaction.

1. **Open and Speedy Communication**
2. **A Workplace Accommodating Self-Actualization**
3. **Justified Evaluation and Welfare**

One, employees must be kept well-informed of the company's clear vision and direction. This is to ensure that all employees know where they are going and what kind of challenges to tackle. Two, people can achieve self-satisfaction when they can achieve self-actualization through their work. As suggested earlier in the section on Maslow, self-actualization is the ultimate level of human needs. Therefore, it is important that employees are

provided an environment in which they can seek those ultimate values. Three, fair judgement and evaluation in terms of salary, welfare, and promotion systems often induce motivation. It is important that evaluation of individual achievement is based on individual ability and actual achievement.

1-4-4 The Ultimate Objectives of Quality Assurance

Regardless of what has been presented up to here, customer satisfaction is not the ultimate objective of quality assurance. It is still a main concern for many companies at the beginning of the 21st century, but there has been some argument that meeting customer satisfaction alone does not always contribute to an increase in profit. In fact, a survey conducted by Juran Institute has revealed that even though 90 percent of the top managers from over two hundred of the largest corporations have been convinced that "maximizing customer satisfaction maximizes profitability and market share," fewer than 30 percent of them are confident that "economic value had been added as a result of their customer satisfaction efforts" (Bhote, 1996, 30).

Customer loyalty is not only customer affiliation with a particular product or services, but also with the "whole portfolio of the corporation's products and services for the better part of their lifetime—in short, brand loyalty forever" (ibid.). It is obtained when customers are so delighted with the company's products and services that they retain their interest in all aspects of the company. Therefore, meeting customer satisfaction is a basis for achieving customer loyalty. In this sense, customer satisfaction is not the ultimate objective; the ultimate goal of achieving quality assurance is to build loyalty among customers through everyday achievement of customer satisfaction and other fundamental values.

2 Total Quality Management

As stated previously, high customer demand for quality has been widely recognized as a main motive for implementing corporate quality management. Yet, to satisfy such demand, innovative techniques and services alone are no longer sufficient. Rather, the whole system of management, from the top to the frontline operators, needs to be committed to achieving the corporate objectives and policies. Total Quality Management (TQM) has been introduced worldwide as an option providing a new insight into quality management. Through such management, companies will improve their quality in terms of not only products and services, but also human resources and relationships. TQM seeks quality in long-term perspectives, through the strong commitment of all levels of employees to obtain corporate objectives. The significant results of TQM application in large globally operating companies such as Ford, Chrysler, Toyota, Fuji Xerox, Philips, Panasonic (Matsushita), NEC, and Nissan have been widely recognized as success stories in company development. TQM has been introduced in many industries: not only in production, but also in service industry, as seen in the cases of Singapore Airlines and some major banks.

Here, in chapter 2, the concept of TQM will be introduced, followed by its overall objectives and procedures. The historical development of TQM will be discussed to provide readers an insight to TQM development worldwide. As a criterion to measure the development of TQM, the Malcom Baldrige Award, the first national quality award in the United States, will be discussed. Additionally, a comparative description of the Deming Prize in Japan will provide readers with examples of different forms of quality award at the national level and how these awards contribute to the development of quality management systems in the country. International Organization for Standardization (ISO) issues and their fusion with TQM and QCC are also crucial when one talks about quality. The basic relationship between the ISO 9000 series and TQM/QCC will be explained as a complement to these discussions on TQM activities.

2-1 Definition of TQM

"TQM is a set of systematic activities carried out by the entire organization to effectively and efficiently achieve company objectives so as to provide products and services with a level of quality that satisfies customers, at the appropriate time and price." (TQM committee 2002)

Total Quality Management is commonly expressed in conjunction with *business excellence.* It is a scientific management methodology that values the quality of companies and organizations—quality not only in products, but also in their processes and in their organization for quality management. According to the TQM Committee, in the 21st century a company is to seek quality by establishing *respectable existence* and a *co-delighting relationship* with stakeholders (TQM Committee 2002, 37). In order to accomplish this, the committee continues, "it is crucial that the company achieve *competitive and praised ability, technology*, s*peed and flexibility*, and *vitality*." And TQM has a significant role to play to meet those requirements.

TQM is a management method in which quality is required in all manners, to satisfy customer requirements. It involves every employee's daily commitment in the office, which differentiates TQM from other management systems. The term *everybody* here implies all levels in the organization—from frontline operators to middle management to executive management. All of the problem-solving processes by all parties contribute to strengthen the organizational capacity and management of the company.

TQM is *not* a program. It is "a *strategy*, a way of doing businesses, a way of managing, a way of looking at the organization and its activities" (Anschutz 1995, 13). Therefore, the success of TQM is measured not only by its tangible outcome but also by both the way in which the organizational structure is established and the processes by which corporate objectives are achieved.

2-2 Objectives of TQM

Figure 22 **Business Hierarchy**

Figure 22 suggests the business hierarchy for what companies aim to achieve through their business management. The management creed can be broken down all the way into daily routines. It is crucial that management plays a key role in establishing the hierarchical objectives and directs the employees. A company can achieve its objectives and guide its employees toward the mission and vision of management in its daily operations in the following ways.

First, it is important that the manager has his or her own creed. In the business context, creed—any organized system or statement of beliefs, principles, and so on—is a philosophy of business execution and strong ethical backbone. This is

the level where management commits itself to firm discipline.

Second, the creed is incorporated into the mission—that is, a specific business or task that a person is assigned to carry out. For example, it could be a list of commitments for contributing to society or to customers through particular products or services. This mission will be widely disseminated throughout the company as the mission statement, which identifies loyal customers, the company's competencies, and its major products, services, and market domains.

Third, based on the mission, the company vision will be established. The mission is the company's commitment to determine the direction, specific needs, and roles of the company and how those needs are to be met. The vision will also include the kinds of rewards a company can expect from implementing that management.

Bhote (1996, 57) has identified organizational and cultural change in a company as being crucial in order to achieve customer confidence and loyalty, and says it should be achieved by shifting from an "internal focus" to an "external focus". Managers who demonstrate high loyalty to the company do not necessarily mean that the company will then provide the best quality to it customers. TQM requires cultural transformation—where change in the way of thinking is required at all employee levels. The managers need to be more accessible to their employees, less authoritarian, and more considerate of employee welfare; and operators have to be "full time operators" rather than "9–5 employees" (Anschutz 1995, 1).

What then is it expected to be achieved through TQM, and how will it be different from the traditional Total Quality Control (TQC) framework? To address these questions, Kiyoshi Ito from Aishin Seiki introduced the following table concerning the shift of company management from TQC to TQM. As seen from the table, TQM takes a more holistic approach than does TQC, with much more focus on the processes of achievement, in addition to focus on tangible and non-tangible results.

Figure 23 TQM for the Future: Objective, theory, and procedures (translated from Japanese)

Figure 23

	Objective	Where is TQM placed?	Theory	*Hoshin Kanri* (management by policy)
Existing TQC	Q of products ↑ Q of services ↑	Placed as a management tool	-Prioritization of Quality -Respect for customers -Participation by all -Management by factors -Process management -QC Story	Deployment of strategy, focused on tangible results (numbers)
TQM		Placed as a 'management-planning decision-making tool'	-The conventional theory plus -Total management -Creativity -Strategic plans -Emphasis on individuality	
New Business Requirement	Management promotion of TQM activities focusing not only on quality control but also on profitability for achieving the company's goals	Recurrent questions: "what to do' and 'what are the results'	Existence of problems that cannot be solved in the conventional management system.	Deployment of stragecy, focused on strategic management

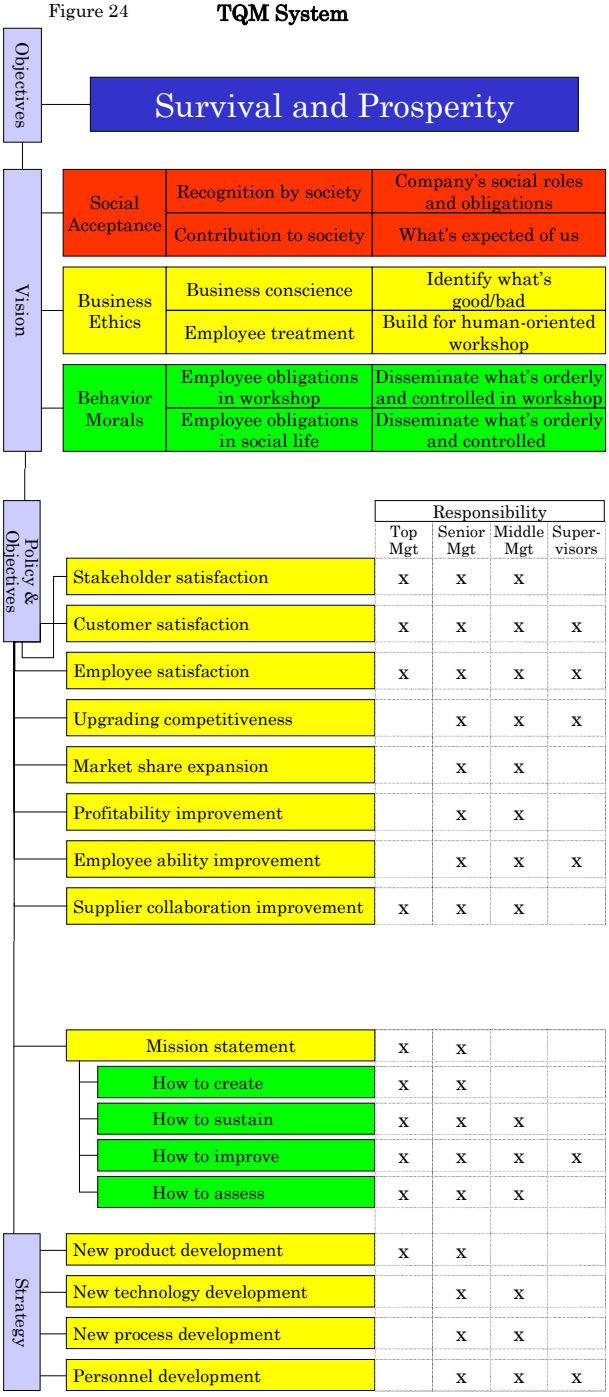
Q = Quality

Through TQM, companies will be ready to achieve values such as

- **High product/service value/quality**
- **Satisfactory product/service in a long life-cycle**
- **Efficiency in lead-time and cycle time**
- **High competitive value**
- **Economical and quick response to emergencies**

In the case of Aishin, the company has developed a corporate vision called CHARGE (Creative, Harmonious, Active, Responsible, Global and Energetic) for the 21st century, wishing to challenge the new environment with positive and innovative minds. This case shows that TQM is deeply associated with establishment of a corporate vision.

Figure 24 **TQM System**



For the successful implementation of TQM, it is important for management to establish a clear vision for the company and to present various objectives and policies as guidance to direct its employees.

As for more detailed objectives and policies, there are a number of elements that the company needs to meet in line with its objective and vision. Yet, the responsibilities taken will differ depending on individuals' positions within the organization. From figure 24 you can see that top management plays a major role in stakeholder, customer, and employee satisfaction, whereas supervisors assume much responsibility in regard to customers, employees, competitiveness, and the ability of employees.

It is important to note that even though the illustration suggests who the major holders of responsibility are, it does not imply that others will not take any lead. There should always be horizontal collaborations between the management levels in order to optimally pursue the organizational objectives.

As for strategy, the development of new products, technology, and processes, as well as capacity building of employees, will take place to meet the above objectives.

2-3 The Role of Management in Quality Management

Management commitment is indispensable in achieving quality management in a company: such commitment is to be shown to employees, customers, and other stakeholders.

In the commitment, management is expected to answer questions such as

- What is on the company's horizon—that is, what is its dream?
- What approach should be taken toward that dream?
- What specific action should be taken to realize the dream?
- What physical action will management take to ensure that subordinates will share in the responsibility and participate in policy formation (annual policy and goal setting)?
- How will management monitor and evaluate the outcome and determine whether or not the goal to which they have made the commitment is being achieved or not (daily-work management)?

Total Quality concerns are basically announced by the management, which is committed to the company's policy and established goals. They are then disseminated to all levels of departments and sections, with specific measurable policies and objectives.

A management decision can lead a company either upward or downward. It is not difficult to find examples of established companies, with long-standing fame, being hit hard by scandal—seeing their favorable public reputation being lost quickly.

Therefore, in order to achieve sustainable business management, it is necessary for management to implement TQM to convincingly articulate to its subordinates its firm commitment.

Then how do we proceed this in an organization? As was emphasized by Mr. Jack Welch, former president of General Electric, a company famous for good quality management, managers should *lead* people rather than *manage* people. Managers are desired to lead in the following areas:

- Performance
- Expertise
- Ownership
- Challenge and visibility
- Mentoring, supporting, role modeling
- Global experience, cultural breadth

2-4 How is TQM organized?

The process of TQM implementation varies largely, depending on factors such as the size of the company, changes in business environment, and the mission of the company. Yet, it is important to note that there is an overall flow of the implementation process. Figure 25 shows common steps to be taken by management in those processes and some of the key elements required when implementing TQM in a company for the first time.

Figure 25

Stages	Operation
1. Preparation Phase	・Investigation on implementation of TQM methods ・Seminars for top and middle management ・Discussion on pros and cons of introducing TQM
2. Introductory Phase	・Decision on responsible department ・Announcement by CEO that TQM will be introduced ・Company-wide TQM implemented and members appointed ・QCC training provided ・Individual departments and sections commence improvement activities
3. Promotion Phase	・Introduction of policy management and linking of improvement activities to management policy ・Standardization activities ・Operation of cross-functional management ・Introduction of management quality audit
4. Consolidation Phase	・Collection and analysis of market quality ・New product development ・Quality training ・QC Circle activities

Kume 1996

It is important to note that some of the features of these processes vary from company to company. Yet as Kanji states, the fundamental and common factors that each organization has to go through during these processes are somewhat the same—the change will be "the change in management style (Kanji and Asher 1993, 104)."

The first stage of development is a preparation phase in which managers discuss the approach toward TQM. They "identify and collect information about the organization in the prime areas where improvement will have most impact on performance" (ibid.), while exploring their knowledge on TQM by attending internal and external seminars. As has been discussed, the commitment of management and its strong leadership are two of the most important elements in

quality management. Therefore, management needs to be fully familiarized with TQM and fully understand the objectives, the methodology, and its impacts on the company operations before disseminating them company-wide. As Kume (1996, 38) notes, many companies do not introduce TQM throughout the company straight away. They try it in one part of the organization to see if it can be applied in other departments of responsibility.

After TQM effectiveness is assured, the second stage is for management to decide which department will be responsible for its promotion. Many companies assign this role to their planning office or QC Circle Office. Then management formally announces that TQM will be introduced in the company and it is implemented in company-wide operation. At the same time, specific training is provided and the activities are disseminated among the different levels of the company. According to Kume (ibid., 40), at this stage, the most important challenge for the organization is how to overcome the negative attitude of the part of the people responsible for the work to be improved.

The third phase involves linkage of the TQM with management policy, and communicating that linkage. As Kume (ibid., 41) suggests, it is often the case that policy is only a written exercise of management and never really is implemented. Thus, linking the policy with improvement activity enables the activity to be implemented systematically across the whole company. Once the activities are seen to be effective, they are standardized and expanded company-wide.

As a cross-functional operation, after activities are well established, the company often tries to tackle problems that affect the company as a whole (ibid., 41). Also a management audit takes place so as to see whether—and if so, how—the policy is implemented in the organization. Management is expected to examine not only the implementation of the activities but also the outcome of those activities and provide appropriate comments and guidance. Application for a quality award such as the Malcolm Baldrige Award or the Deming Prize can be one of the stimuli for the organization.

In the final phase, the main issues will be in regard to how to maintain the improved company-wide quality management. Kume describes how a system will soon deteriorate if not looked after properly. It is important to make sure that the quality level does not deteriorate once it has been improved. This underscores the importance for the company to improve and enhance its activities in a systematic manner from time to time.

Cost of Introducing TQM and QCC

One of the important issues in introducing TQM and QCC is cost. Management in any company will be concerned with how much it will cost to start up the activity. But, in fact, it is quite difficult to generalize the issue, as company size varies and the need for capacity building differs. For illustration only, figure 26 is an example suggesting how much a first year of embarking on a TQM and QCC program would cost a company of three hundred to five hundred employees,

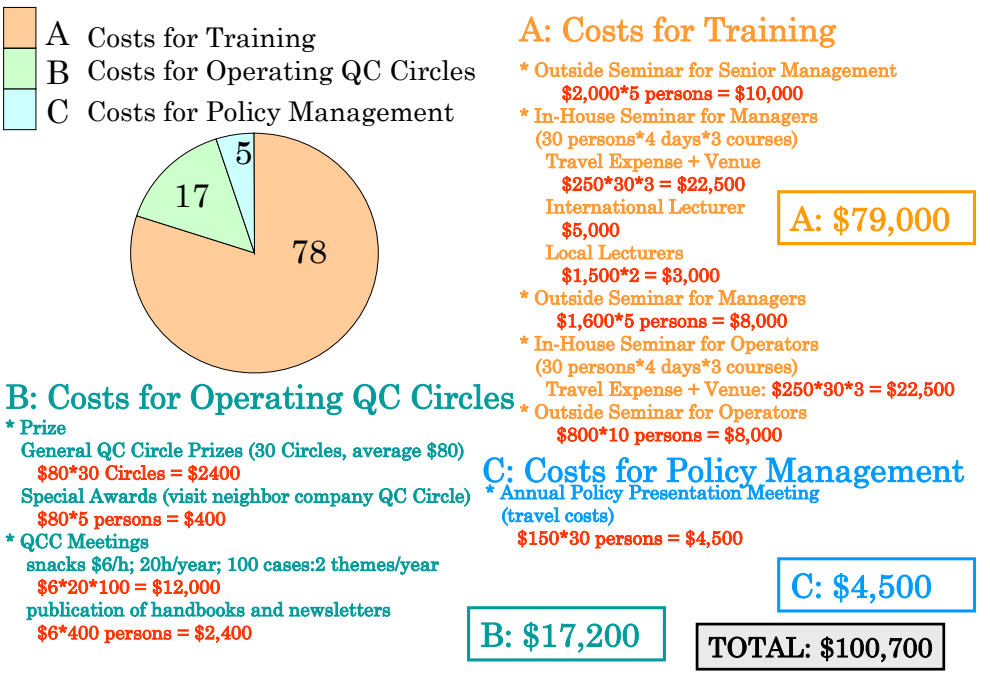
assuming that it is a Japanese company. Figure 26 was based on a hypothetical example by the authors, based on Kume 1996.

The costs can be divided into three categories: costs for training, costs for operating QC Circles, and costs for policy management (Kume 1996). As you can see, a large part of the cost comes from training, since providing training for all different levels of people in a company, from management to frontline operators, is indispensable in order for everyone to fully understand what is going to be introduced and why and how is it going to be introduced. Training is to be conducted both outside and inside the company. Outside seminars provide opportunities for participants to learn lessons from other companies' participants about their domestic and international experiences, whereas the internal training is effective in more company-focused learning. In the case of in-house lectures, organizers can mobilize international or domestic resource persons, depending on the accumulation of capacities in a country.

The costs for operating QC Circles include expenditures related to QC Circle conventions, meetings, and other regular activities. Modest monetary bonuses are presented to Circles that win QCC convention awards, snacks are prepared for Circle meetings, and other related expenditures exist, such as that for publication of theme examples and in-house pocket guidebooks on TQM and the QCC concept. The details of each activity are further discussed in Part II of this volume.

The final category, policy management costs, is for the holding of company-wide management meetings, where the senior managers gather and discuss their annual policy and decide their annual goal for the following year. Travel costs for this occasion may also have to be covered.

Figure 26 **Example of TQM and QCC Promotion Costs**



As per figure 26, introduction of TQM and QCC to this hypothetical Japanese company would cost $100,700 in the first year. Of this, training costs account for about 78 percent, QCC operation costs 17 percent, and policy management costs 5 percent. Total costs are divided by the average number of employees to get the per-employee total annual cost for TQM/QCC (in this example, $251 for each of the 400 employees). Comparing this cost with the average nominal starting salary for a newly recruited office worker, which is roughly about $33,333 on an annual basis, a TQM/QCC program costs less than 0.8 percent of the nominal salary paid to an employee in her first year. From the second year, the training costs will decrease substantially since one-shot seminars for initiating the TQM/QCC program will not be necessary. Thus, we can see from this example that the tangible costs for TQM/QCC introduction are reasonable.

However, as was explained, the figures quoted above are only of an example case. To interpret the cost implications and resolve possible problems for small companies, the following are to be carefully considered:

- The cost allocation over the years in an actual case will be somewhat flatter than assumed in the hypothetical example in figure 26. In the first year, the costs would be even far less than the 0.8 percent of each employees initial salary since usually only a few pilot Circles are embarked on at the early stage; however, training and operating costs for Circle leaders may gradually increase as the number of Circles increases.

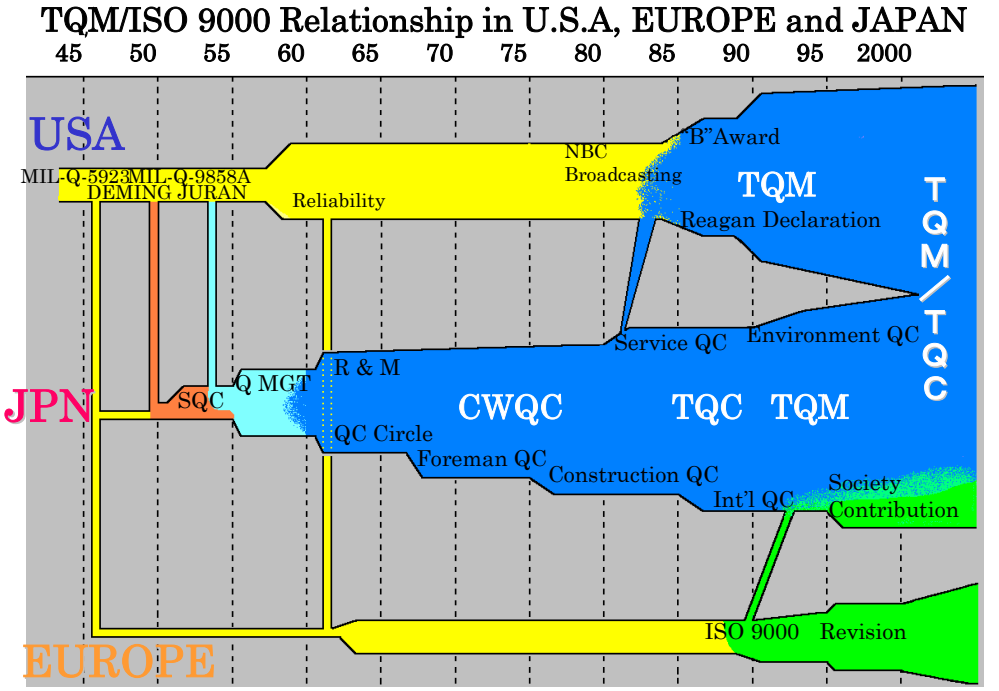
- As regards the training costs in developing countries, the costs to invite international experts when initiating a TQM/QCC program constitute a good part of the total expenditure. Therefore, the manner of mobilizing experienced experts is a major factor in the overall cost. Good international experts focus on creating the capacities of QCC facilitators and leaders to manage Circles and replicate them within a company, rather than relying on repeat visits to teach methods to each new Circle. However, it is true that such teaching (or coaching) by international experts needs to be repetitive to some extent at the early stage of introduction. Therefore, a central issue is the balancing of two modalities: the exploitation of international expertise and the creation of internal capacities.

- It is obvious that small companies have financial difficulties in inviting international experts, so directly applying the cost implication of figure 26 to a small company appears to be unrealistic. However, when such costs are covered by the public sector or through donor support, small companies can have good opportunities to initiate TQM and QCC, since the operational costs to carry on Circle activities are not a dominant factor. In fact, small companies can drastically economize expenditures for Circle activities, since they can implement them in a very simple and substantive manner. This is exactly where international or domestic donors can play an active role in supporting initiation of TQM and QCC. Donors can organize and fund capacity building programs for small- and medium-sized companies and move gradually on to developing the human capacities of QCC facilitators in a country.

2-5 Historical Background of TQM

As stated earlier, TQM has now been widely implemented around the world. Even though the details of TQM implementation plans vary somewhat among countries and company cultures, the common aims are quality management and customer satisfaction. Here, we introduce how TQM has been developed worldwide and how it has contributed to development of quality management in Japan and the U.S.

Figure 27



2-5-1 Japan

The concept of quality control was first introduced in Japan right after WWII. The U.S. General Headquarters had identified that one of the causes for telephone line deficiency in Japan was due to quality deficiency in vacuum tubes. Thereafter, in 1946, the General Headquarters (GHQ) introduced Statistical Quality Control (SQC) in some of the major telecommunications companies through its Civil Communications Section (CCS). In 1949, the Industrial Standardization Law was passed as the first standardization law, and Japanese government established Japanese Industrial Standards (JIS) through which it could guarantee products via inspections.

The demand for dissemination of SQC became very high during this period, yet there was not much opportunity for those who wanted to become familiarized with SQC. Consequently, a group of engineers, academics, and officers from related ministries for quality management established the Union of Japanese Scientists and Engineers (JUSE). A research group was formed within the union and it opened its first seminar course for quality management in 1949. Since then JUSE has played an important role in facilitating and disseminating quality management information, including that on the development of the QCC concept.

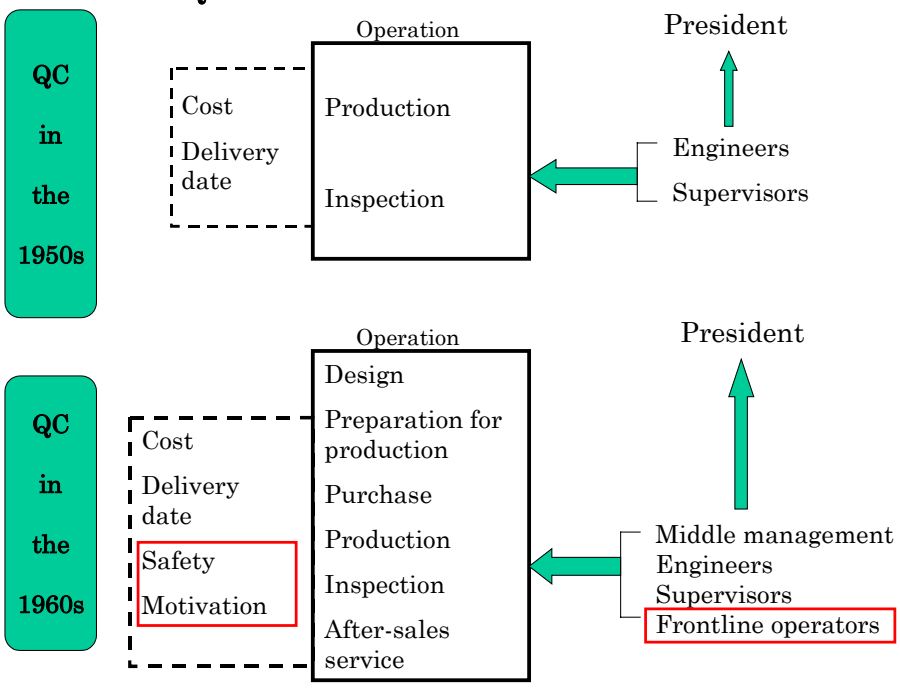
In order to respond to high demand and improve people's understanding of quality management, JUSE invited Dr. W. Edward Deming to conduct

lectures. About five hundred engineers attended the lectures, all attracted by the new idea of SQC. According to Fields (1987, 69), in his lectures, Dr. Deming explained quality management as a

> *most effective, most productive method that creates the most wanted products by customers in a most economical way. In order to manage systems in such way, it is important to make sure that design, production, research, and services are well circulated. And in order to cycle the system, statistical knowledge is utilized. And furthermore, what are most important are the enthusiasm and responsibilities of management toward quality management.*

With the impact of these new concepts, companies started to introduce SQC. Yet, skilled operators who had up to that time relied greatly on their hunches and past experience did not really welcome this movement. They questioned the reliability of data and claimed that it was only engineers who could manage to use SQC (Fields 1987, 70). Then in 1954, Dr. J.M. Juran was invited to conduct some lectures on quality management as a management tool.

Figure 28 QC in the 1950s and 1960s



As seen in figure 28, one of the remarkable changes in the Japanese history of quality control is its shift in the 1960s. Before the 1960s, engineers and supervisors bore the core responsibility of quality management. Beginning in the 1960s, however, the range of those holding responsibility expanded to include frontline operators.

Japanese TQM started as TQC back in the 1960s, when Japanese industry was in the midst of the high growth economy, after the liberalization of the market. Open economies require quality in every process of production (from market research, to planning, to production) and in after-sales service. The competitive market of the day also made it necessary for producers to adopt total company management, which further required commitment from all levels of employees (from CEO, to middle management, to operators). Soon TQC spread all over Japan, from manufacturing to service industries. In 1962, the first QC Circle was operated in Nippon Telegraph and Telephone Public Corporation (present NTT), and since then an increasing number of companies have introduced the activity.

One of the significant impacts of Japanese TQC is often explained by describing the development of car industry during the oil crises in the 1970s. During this period, TQC was extended to activities for energy conservation and measures for resource maintenance. It greatly impacted various industries and became more securely established as a valuable quality framework for Japanese industrial development.

2-5-2 U.S.

After WWI, American industry was positioned to systematize its production mechanisms. Production departments were required to supply large quantities of products that had characteristics of compatibility and were standardized. Within this period, in 1924, W.A. Shewhart first developed quality control. Utilizing mathematical statistics, Shewhart created control charts for managing production processes.

During WWII, the U.S. Army and Navy actively introduced Quality Control to maximize their military hardware production. The American National Standards Institute (ANSI) established military standards and conducted seminars to disseminate those ideas. Yet in the 1970s, American industry was losing its competitiveness in the world market. Its previously dominant market was overridden by Japanese companies and its quality and productivity declined.

In 1980, an NBC broadcast coined a famous saying “If Japan can, why can’t we.” The program concluded that Japanese success was attributed to the teachings of Deming and Japanese adherence to his principles (Anschutz 1995, 17). Until this broadcast, Deming was not widely recognized, yet the broadcast provided the springboard to a wider and far more receptive U.S. audience for Deming’s ideas (ibid.). Soon after the broadcast, the American government started its catch-up movement under the President Reagan regime. TQM was introduced by Ford, as a stimulus, and many others followed. Later President Reagan established the “Malcolm Baldrige National Quality Award” in 1987, aiming to expedite quick recovery action beyond the quality level that

Japan had achieved, by the year 2000.

Yet TQM was not well organized when it first was disseminated. Dr. J.M. Juran mentioned that only gradually did it become clear to upper-tier managers that the quality leadership could not be achieved by a pecking away—by merely bringing in this or that tool or technique. They learned that, instead, it was necessary to apply the entire array of quality know-how (the *quality disciplines)* throughout the entire company, to all functions and at all levels of all departments in a coordinated way. At the outset there was no agreed standardized definition for TQM. As a result, the concept of TQM became a blur among companies and even in the general literature. This confusion has since been reduced by the publication of the criteria used by the National Institute of Standards and Technology, which was used to evaluate the applications for the United States Malcolm Baldrige National Quality Award (Baldrige Award). By the early 1990s, this wide exposure had made the Baldrige Award criteria the most widely accepted definition of what is to be included in TQM.

2-6 Quality Management Awards

2-6-1 Deming Prize (Japan)

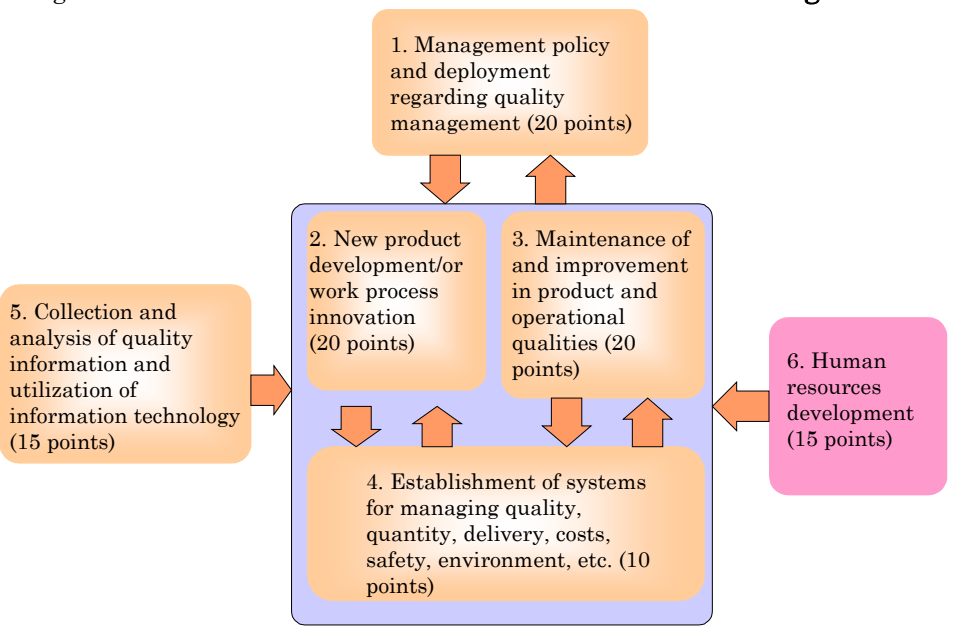
The Deming Prize was established in the 1950s, after Dr. W.E. Deming came to Japan to lecture in an 8-day seminar on SQC in Tokyo. The seminar on the basics of SQC was greatly appreciated by Japanese management, engineers, and researchers and greatly contributed to later development of Japanese industry. The prize was established with a contribution by Dr. Deming, with unanimous agreement at the JUSE board of directors' meeting. So far, about 170 companies with proven significant effects from their quality management have been awarded the prize. The following is part of the JUSE guidelines for application for the Deming Prize.

> *The Deming Prize is an annual award presented to companies that have achieved distinctive performance improvements through the application of TQM. Regardless of the types of industries, any organization can apply for the Prize, be it public or private, large or small, or domestic or overseas-owned.*

The application, examination, and awarding process for the Deming Prize is carried out annually. The Prize is given to an individual who has contributed greatly to dissemination of TQM or to research on TQM and its tools. It is also given to both a group and a company that successfully operate TQM either as a business unit or department or as a company as a whole.

The Prize is based on evaluation of the achievement and effectiveness of the applicants' quality management process—from its establishment of a theme and goal, to its *kaizen* activities, and to the achievement of the set goal. The evaluator examines how the theme has been established according to needs and how much the improvements result in contributing to future activities.

Figure 29 **Evaluation Items and Points: Basic categories**



Deming Prize Committee 2002

There are three categories for the award:

1. Basic Categories
2. Unique Activities
3. Roles of Management

According to JUSE, each category has its own evaluation criteria, and each criterion contains items and points that should serve as tentative standards (Deming Prize Committee 2002, 25). The evaluation is made using a scale up to 100 points in each category.

As seen in figure 29, basic categories are arranged in six core elements, the purpose of which is to see whether the applicant meets the basic requirements of sustainable quality management. The unique activities are to see whether the applicant's core quality-related activities are focused on unique ideas. Activities are of six basic category types. The examples listed in the guideline are

- Management vision, business strategies, and leadership
- Creation of value for customers
- Remarkable improvement in organizational performance
- Establishment of the company's management foundations

(Deming Prize Committee 2002, 28-29)

The roles of management are to investigate (evaluate) the employee's understanding and enthusiasm for the establishment and deployment of policies and to review activities through questions and answers in an informal manner. As stated in chapter 2 section 4, the commitment of management is crucial in implementing TQM; therefore, this category is essential for demonstrating management enthusiasm.

Figure 30 **10 Benefits of the Deming Prize**

1. Quality Improvement
2. Productivity Improvement / Cost Reduction
3. Sales Expansion
4. Profit Enhancement
5. Ensured Performance of Management Plan
6. Fulfillment of Top Management's Ambition
7. Company-wide Participation
8. Improved Management and Promotion of Standardization
9. Bottom-up Assembly and Morale Improvement
10. Establishment of Management System

Then what kinds of benefits can a company that receives the Deming Prize expect? As has been stated in the guidelines, a company or a group should not implement TQM merely for the sake of applying for the award. It is desirable that they will choose a theme that is most appropriate for the organizational development. Yet being awarded the Prize can benefit the group in many respects. Figure 30 has suggested the common benefits that one can expect.

2-6-2 Malcolm Baldrige Award (U.S.)

The Malcolm Baldrige Award was established in 1987 as a national quality award in the United States. Its aim was to promote activities to achieve economic growth through labor output by improving the quality of products and the understanding of customer needs and by strengthening quality

management. At the same time, it aims to publicize organizations' successful business performance and disseminate the business management ideas of the awarded companies. Now the award is the "highest honor for performance excellence, and it is presented annually to U.S. organizations by the President of the United States" (the National Institute of Standards and Technology [NIST] homepage).

Winners of the award in 2001 were

- Clarke American Checks, Incorporated (manufacturing)
- Pal's Sudden Service (small business)
- Chugach School District (Education)
- Pearl River School District (Education)
- University of Wisconsin-Stout (Education)

In the past, companies like IBM Rochester, Xerox Corp., and Merrill Lynch Credit Corp. have also won the award.

The award originated in circumstances in which American industry competitiveness in the world market was declining due to deficiencies in quality and productivity. U.S. industry's long history of dominance in the world market had made it less sensitive to the outside market, and caused it to neglect the development of new technology, which resulted in a lack of policy strategy in production management. Beginning in the late 1970s, its dominance in world markets, particularly in manufacturing industries, such as automobile, textile, and semiconductor, was overridden by Japanese products. Massachusetts Institute of Technology established a committee on productivity and initiated its own research aimed to examine deficiency in American productivity and find a potential strategy for quality control (Mikata 1995, 80). The two-year research revealed the following conclusions about U.S. industry in its final report.

- Outdated management strategy
- Short-term perspective
- Lack of technology in research and production
- Neglected human resources
- Lack of cooperative structure within the organization

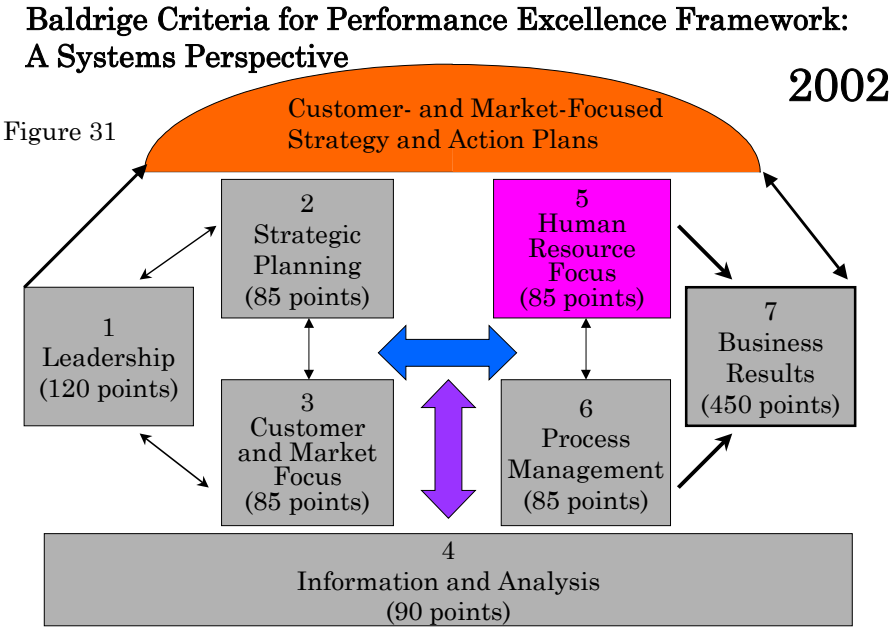
(Mikata 1995, 80)

The research group also proposed a list of successful elements and efforts commonly seen in well performing companies. The cause of backward productivity was often explained by environmental factors, such as macroeconomic issues, yet these elements had pointed out that much effort was needed in management of the companies themselves.

The key elements identified were improvement in quality, cost and time of delivery; assurance of customer needs; relationship with suppliers; effective usage of technology for strategic management; decentralization of the stratum of organization so as to correspond to the management trend; and

introduction of human resource development. It was concluded that companies should maintain those overall values in a balanced way.

Figure 31



Baldrige National Quality Program 2002

The Baldrige Award criteria is published every year and has more than 2 million readers. The criteria often change according to the trend in business management. These changes are meant to ensure that standards for the Award reflect the continuous progress in industry, "a systems perspective of overall organizational performance management" (Baldrige National Quality Program 2002, 7). However, the 2002 criteria, for example, have not been changed from the 2001 criteria. The award is assessed with scores in categories and sub-categories that in total can yield 1,000 points. The allocation of points among categories also changes yearly according to the focus of the year.

The leadership category values how senior managers of the company direct the group by expressing clear visions and values and setting appropriate performance expectations. The strategic planning category is to see how the organization establishes its strategic planning. The third category examines how requirements, expectations, and preferences of customers and markets are addressed, whereas category four focuses on how the company conducts its information management. The fifth category evaluates the human resource management. This is to see how the organization provides education and training to its employees to maximize their potentials. The sixth category judges all the key processes that a company goes through in order to complete its mission objectives. And finally the last category examines "the organization's performance and improvement in key business

areas—customer satisfaction, product and services performance, financial and marketplace performance, human resource results, and operational performance" (Baldrige National Quality Program 2002, 26).

An apparent difference between the Deming Prize and the Baldrige Award is that the latter focuses more on the management quality and excellence, whereas the former focuses more on the implementation of quality management, where group activities and participatory actions are highly appreciated.

2-7 Relationship between TQM and the ISO 9000 Series

ISO logo: from the ISO homepage

2-7-1 What is the ISO 9000 series?

The International Organization for Standardization (ISO) is an organization where the work of preparing international standards is carried out. Its ISO 9000 series has been the standard since 1987 in terms of quality management standard.

According to ISO/CD 9001/2000, "ISO 9001 states quality management system requirements for use as a means of ensuring conforming product and/or services, and may be used for certification purposes." The application for ISO 9000 presents requirements for quality management systems, the certification of which can be utilized (1) to demonstrate the company's capability to meet customer requirements for products and /or services, and (2) for assessment of that capability by internal and external parties (International Organization for Standardization 1999, 19).

According to West, Ciafrani and Tsiakals (2000, 113), "while it is important to understand and apply the principles in the development of quality management systems, it is equally important to understand that the principles do not contain auditable requirements." So, it is very important that we understand the rationale behind the requirements and ask ourselves why ISO is so important. In this respect, ISO established a commission to research basic quality principles, and figure 32 shows the main eight quality management principles.

Figure 32 **The Eight Quality Management Principles**

Baldrige National Quality Program 2002

One particular aspect of ISO 9001 is its revised title. It no longer includes the term *Quality Assurance*. According to the commission, "this reflects the fact that the quality management system requirements stated in this edition of ISO 9001 not only address the quality assurance of product and/or service conformity, but also include the need for an organization to demonstrate its capability to achieve customer satisfaction" (International Organization for Standardization 1999, 15).

2-7-2 TQM and the ISO 9000 Series

There have been two distinct situations for harmonizing the two frameworks: (1) the ISO 9000 series framework is first established, followed by TQM introduction, and (2) TQM is established first, followed by the ISO 9000 series installation. In either case the relationship between TQM and the ISO 9000 series is somewhat complementary. In the first case, the company first applies for certification for the ISO 9000 series. As this series is widely acknowledged, companies often need such certification in order to carry out their daily business; so, they acquire it, with the support of professional consultants. Yet, companies often feel that their product or service quality does not improve much even after acquiring ISO certification, which leads to questions about how to utilize and enhance the existing framework. In this situation, introduction of TQM can play a significant role. TQM will not only ensure and improve the quality but also provide unique methodology to improve management quality. The company will take a more holistic approach and try to improve the quality of its products and management.

The latter of the two remarkable cases suggests that a company will introduce TQM as a management tool. Yet as the business environment has changed over time, it has become necessary for the company to comply with a mechanism for quality assurance—the ISO 9000. In this case, certification of ISO not only assures that the company meets certain criteria on quality, but also strengthens the TQM framework of management.

Figure 33 suggests comparative aspects of the TQM and the ISO 9000 series frameworks.

Figure 33

Comparison of ISO 9000s and Total Quality Management

	Activity Item	**ISO 9000 series** (Small Scope)	**TQM** (General TQM Activities Conducted in Japan)
1	Actual Purpose	Confirmation of Quality Assessment System	Strengthening of Corporate Structure through Quality Management
2	Field Subjects	Quality Assessment / Standardization	Quality Control / Quality Management (product management)
3	Subjects for Examination	Relevancy of QA System Certification	Effectiveness of Quality Control Activities
4	Examination Method	Exam Follows ISO 9000 Standards	Vague and No Standard
5	Examination Compliance	Traceability; Records Kept (evidence-based)	Compliant with Contents of Application
6	Examiner	Exam Certified by Third Party	Diagnosis and Evaluation Done by The two Parties
7	Request for Exam by Customers	Effective and Required for Commercial Transactions	Not related to Commercial Transactions
8	Duration	1-2 Years (Short-Term)	5-10 years (Long-Term)
9	Persons Involved	Departmentally Selected Persons (Narrow Range)	Whole Staff Body (Wide Range)
10	Organization	Strict Organization	Total Participation
11	Responsibility and Authority	Strictly Fixed	Vague; Constantly in Question
12	Documentation	Preparation of Strict Documents Essential	No Detailed Documentation
13	Public Quality	Systemized	Not Systemized
14	Global Quality Standard	Yes, in Many Cases	Mostly No
15	Social Background	Contract-Based Society	Tacit Understanding, Consensus-Building Society
16	Continuous Improvement	Not So Focused On	Strongly Focused On
17	QCC	Inclusive Not So Much Recognized	Inclusive Strongly Related

2-7-3 The ISO 9000 Series and QCC

As seen in figure 34, the ISO 9001:2000 version has emphasized a wide range of requirements in which QC Circle activities could be the most effective methodology, not only to achieve the objectives but also to enhance the potentials of the categorical items. ISO aims to maintain quality at the customer satisfactory level by problem solving, analysis, preventive actions, and standardization. And in this respect, the QC Circle activities lead to human resource development, activate workplaces, and thus raise awareness toward quality in daily work. Therefore, the QCC method can be used as an instrument by which a company can acquire ISO 9001 accreditation.

One of the major points in common between ISO 9001 and QC Circle activities is the requirement for continual improvement. This requirement evaluates whether a company's quality systems have met a certain level and met standards in terms of defects. If any system deficiencies are found, the

company needs to take necessary actions to solve them. This *kaizen*-type activity for customer claims or process quality management is directly related to the concept of QC Circle *kaizen* activities.

The following comprise the specific areas of change in ISO 9000 through the 2000 framework (ISO 9000:2000).

Figure 34

New Requirement in the ISO 9000:2000 ～Key factors～
6.2 Human Resources
6.2.1 Assignment of personnel The organization shall assign personnel to ensure that those who have responsibilities defined in the quality management system are competent on the basis of applicable education, training, skills and experience. ***6.2.2 Competence, training, qualification and awareness*** The organization shall establish and maintain system level procedures to a) determine competency and training needs; b) provide training to address identified needs; c) evaluate the effectiveness of training at defined intervals; d) maintain appropriate records of education, training, skills, and experience; The organization shall establish and maintain procedures to make its employees at each relevant function and level aware of e) the importance of conformance with the quality policy, and with the requirements of the quality management system; f) the significant impact of their work activities on quality, actual or potential; g) the benefits of improved personal performance; h) their roles and responsibilities in achieving conformance with the quality management system; and i) the potential consequences of departure from specified procedures.
8.4 Analysis of data for improvement
A system level procedure for the analysis of applicable data shall be established to determine the effectiveness of the quality management system and for identifying where improvement can be made. The organization shall collect data generated by measuring and monitoring activities and any relevant sources.
8.5 Improvement

8.5.1 General requirement
The organization shall continually improve the quality management system. The organization shall establish a system level procedure that describes the use of quality policy, objectives, internal audit results, analysis of data, corrective and preventive action and management review to facilitate continual improvement.

8.5.2 Corrective action
The organization shall establish a process for reducing or eliminating the causes of nonconformity in order to prevent recurrence.

The system level procedure for the corrective action process shall define the requirements for
a) identification of nonconformities (including customer complaints);
b) determination of the causes of nonconformities;
c) evaluation of the need for actions to ensure that nonconformities do not recur;
d) implementation of any actions determined necessary to ensure that nonconformities do not recur;
e) recording the results of action taken; and
f) reviewing that corrective action taken is effective and recorded.

8.5.3 Preventive action
The organization shall establish a process for eliminating the causes of potential nonconformities to prevent occurrence. Quality management system records and results from the analysis of data shall be used as inputs for preventive action, as applicable.
a) identification of potential nonconformities
b) determination of the causes of the identified potential nonconformities and recording the results
c) determination of preventive action needed to eliminate causes of potential nonconformities
d) implementation of preventive action
e) reviewing that preventive action taken is effective and recorded

Source: Quality Management Systems Requirement ISO/CD2 9001:2000

Of the above criteria, requirement 6.2 seems to be of the most importance. This is where the focal necessity for QCC comes in. By installing QCC, the company can achieve quality objectives, with the involvement of all operators, from the professional quality engineers to the frontline operators.

In sum, in order to meet ISO 9001 requirements, it is important that each employee is aware of them so that they can achieve quality objectives by their own initiatives under self-management. One realizes that this aim is the same as those of QC Circle activities: the establishment of sound and healthy human capacity building for customer satisfaction and company prosperity.

Volume I Part II

Quality Control Circle

3 What is a QCC?

Today when one reads or hears about the transformation of Japan during the last three decades from being a cheap product seller to being the leader in quality, one notes that the role of QC Circles is an integral part of its journey towards excellence. This chapter describes a series of events that led to the birth of QC Circles brought about by the need of Japanese industries immediately after the Second World War, to improve the quality of their products so they could compete in the international market. This chapter also describes how the QC Circle concept spread to the neighboring Asian countries and the United States.

3-1 The Birth and Spread of QC Circles

Japan

Japanese companies had an unwelcome reputation for producing cheap products after World War II. Known as "cheap merchants of the world," their products' prices were fairly competitive yet the quality was low. An anecdote says that products made in Japan were bought in the morning and broke down already by the afternoon. Today, however, Japanese products are known for their quality and reliability.

How did this happen? As stated in chapter 2 section 5-1 in the previous part, the Japanese companies undertook major steps, such as having their management personally take charge of the quality function; having quality-related training throughout the company hierarchy; and adopting the QC Circle concept as a means of enabling the workforce to participate in the quality activities of the company.

The Union of Japanese Scientists and Engineers, organized in 1946, played a major role in the training of management and engineers on quality. It organized in 1949, its Quality Control Research Group (QCRG), which was tasked with studying the international quality control field for information on how to rationalize the war-torn Japanese industries, how to improve quality of exports, and how to raise the living standards of the Japanese.

The General Headquarters of the United States Armed Forces in that year, invited management of Japanese companies and some members of the QCRG to a lecture by Dr. W. E. Deming on the importance of Statistical Quality Control techniques to the telecommunications industries, like those engaged in telephone equipment, maintenance and related services. The objective of the lecture was to help these industries organize themselves and improve the war-torn telephone network.

In 1950 Dr. Deming came to Japan upon the recommendation of QCRG to give a detailed lecture on Statistical Quality Control to management of different industries. And in 1954, Dr. J.M Juran, another guru on Quality Control, came to Japan to talk about Quality Control and Management.

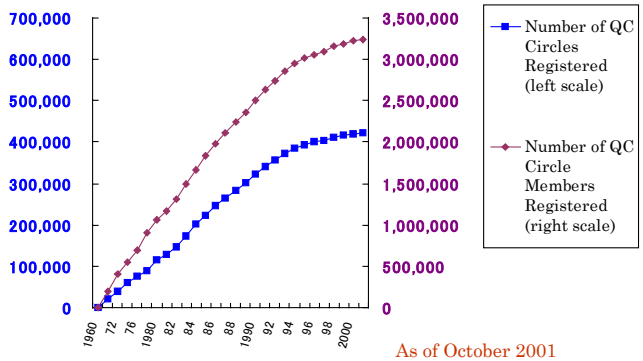
After intensive study, management and the engineers woke up to the need to follow the recommendations of Mr. Deming and Dr. Juran. They were convinced that for

future development they needed to move away from the old concept of quality certification by inspection to a new one of quality control activities that promoted full employee participation with the objective of ensuring customer satisfaction. However, there was no specialist or lecturer on this subject yet in Japan, so management and the engineers requested JUSE to spearhead a national radio-based campaign on Quality Control for concerned parties, especially foremen of factories.

The supervisors started introducing the concept of Quality Control in the workshop and tackled the quality control problems (e.g., defects) with their frontline operators using simple statistical tools like checksheets, graphs, histograms, scatter diagrams, Pareto diagrams and fishbone diagrams. Their efforts resulted in fewer defects and better products. The foremen were amazed with these results, so they started to tackle workshop problems voluntarily with their subordinates. This voluntary activity gave birth to the concept of QC Circles.

Management then recognized that their people are intelligent and must be given opportunities to use their brains as well as their hands. They undertook a massive program of training them on quality control thus enabling them to participate in the quality revolution. JUSE published training materials, established a system of registering QC Circles and organized the QC Circle Headquarters. The first Quality Circle was organized in 1962, and from then on, the QC Circle movement grew, slowly at first, then with increasing speed.

Figure 35 **Number of QC Circles and Members Registered at JUSE (Japan)**



As of October 2001

Union of Japanese Scientists and Engineers 2001

"QC Circle," A monthly magazine published by JUSE (Photo by JUSE)

QC Circle Activity in Honda Motor Co. Ltd.: International application of the QCC concept

Honda is one of the leading automobile companies in the world. It has established its regional offices in more than thirty-five countries worldwide, from Europe to Africa to South America, including branch offices scattered throughout

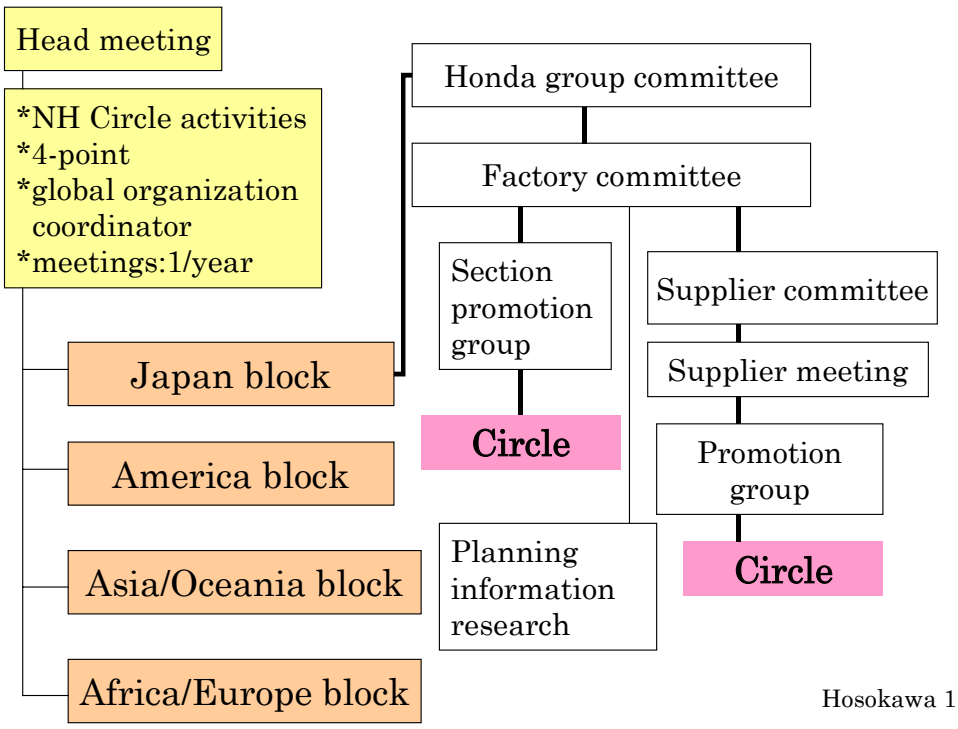
Venezuela, Colombia, Ecuador and Argentina and other South American countries.

According to Hosokawa (1995), the Chief Engineer of Hamamatsu Factory, Honda has its own unique network called "Global Network," through which various Honda companies around the world are united toward one mission, to provide products with highest sufficiency to customers worldwide. The management policy assures a company environment in which the company can act with ambition and its employees can develop fresh ideas in a most efficient way. The harmonious flow of work is highly valued and so is the research and endeavor for the mission.

So as to meet those criteria, QC Circle activities have been rigorously introduced since 1971. As of 1995, there were more than 13,500 QC Circles in the company worldwide. Honda refers to its small activities as "NH Circle Activity." Its Circle activities are founded on a principle of continual creation of a NEW HONDA though pursuit of the next assignment based on current recognition (Hosokawa 1995).

How is the NH program organized?

Figure 36 **Organization of QC Circle Activities in HONDA**



Hosokawa 1995

Figure 37 is the summary of the history of Honda's NH activity.

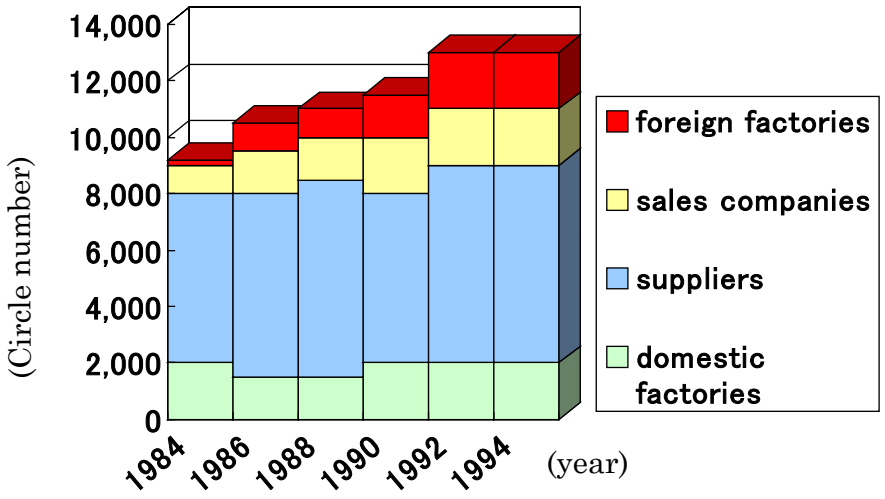
History of Honda Circle Activities

Figure 37

1970	**Domestic Growth Age**
	Start of QC Circle activity
	Start of NH activity
1976	Domestic Honda convention
1977	**Foreign Invitation Age**
	All-factory convention in Japan
1984	All-Honda world convention in Japan
1985	**Open Activation Age**
	Start of 4-point global system
1990	**4-Point Global System Age**
	All-Honda world convention in Hamamatsu, Japan
	All-Honda world convention in the USA

Honda's QC Circle activity has rapidly grown since the 1980s. Figure 38 shows the trend of NH Circle activities, which clearly shows that the number of Circle activities in foreign factories substantially increased. Honda's market share in the global market has rapidly grown since the late 1970s and NH Circle activities have supported this growth in terms of customer satisfaction.

Figure 38 **Trend of QC Circle Activity in Honda**



Hosokawa 1995

One of the successful stories can be seen in Honda of American Manufacturing (HAM), a Honda automobile factory in Ohio established in 1977. HAM started its NH Circle activities in 1985. The activities are carried out on a volunteer basis

and those who are interested in the activities but do not know how to start can attend special seminars and training. One of the distinct features of NH activities is the freedom in the activities. Usually operators are required to make a presentation and gain approval before starting a project; however, in the case of NH activities, if the project is inexpensive, the members are free to start their activities.

Usually a NH Circle comprises 4–5 people who solve daily problems in their shared workplace. After solving each problem, the members present the solution in front of management. At HAM, presentation is held each year in March and September. Members prepare color slides and charts to show how they solve problems. After the presentation, members are asked questions by panels. Normally two groups are awarded a prize and are sent to Honda's international convention held in Japan each year. Each year around twenty-six factories in more than ten countries participate in the convention and exchange their experiences and strengthen the unity of the Honda group.

The Benefits of NH Activities

The NH activities have brought various benefits, both tangible and intangible, to Honda as a whole. The tangible benefits can be often seen in the form of cost reduction. For example, as a Circle solves a problem in the workshop, it often leads to minimizing the time required for production or the number of defects. As a result, the Circle contributes to cost reduction in the company.

Another example, introduced by Shook (1989, 174), shows how one Circle in a Materials Department tried to reduce the number of bolts required for packaging. The problem was that 160,000 bolt pieces, generated from operating a large number of wooden boxes, were scattered all over the floor, and not only harmed the wheels of forklifts but also were difficult to clean up. Through numerous discussions and meetings, the Circle came up with the idea to create a special box to collect the bolts effectively. According to Shook (ibid.), the Circle found out that the collected bolt pieces could be sold for US$1,400 annually. However, through discussions and meetings, the Circle finally found out that it is rather efficient to send the bolt pieces back to related companies in Japan for recycling. Consequently, the activity contributes US$50,000 each year to the company.

The scale of tangible benefits varies depending on the cases that the Circles choose, yet it is important to note that the intangible benefits that NH activity brings to the company are also enormous in the long perspective: through the activity, members will enhance their capacity, and will learn to not only think systematically but also solve problems according to the necessary steps. A Circle activity also helps to unite its members, which eventually leads to loyalty to the company in the long run.

South Korea and Taiwan

Economic development in South Korea and Taiwan was greatly influenced by Japan, and because the two countries had access to Japanese management practices, it was easy for them to embrace the QC Circle philosophy.

They had firsthand knowledge about the intangible benefits gained by the Japanese companies from QC Circle activities—benefits that are qualitative in nature, such as the Japanese operators' empathy for their customers, both internally and externally. By putting themselves in the shoes of the customers, the operators realized that each customer has different needs and expectations that the company has to satisfy in order to survive. Being directly involved in the delivery of products and services, they realized that they have a very important role in satisfying the needs of their customers: that the quality of every product and service that the company provides depends on how they do their work. This way of thinking brought about other benefits (e.g., they come to work on time, they are absent less often, and they have better relationships with management).

Another intangible benefit is the Japanese operators' delight in being able to solve workshop problems as a team. They take pride in their collective efforts to improve the way work is done in order to satisfy the needs of their customers.

Even though it was difficult to quantify the impact of these intangible benefits, other benefits, tangible ones, are quantifiable. Examples are reductions in process failure, machine downtime, and machine maintenance time; reduction in defects and claims; improvement in process capability and safety; on-time delivery; reduction in overtime; and increase in productivity.

These tangible benefits were shown in quantifiable terms, (e.g., defects were reduced by 50 percent, machine uptime was increased from 10 hours to 20 hours).

Other Asian countries

The introduction of QC Circles in other Asian countries like Singapore, Malaysia, the Philippines, Hong Kong, India, Indonesia, Thailand, Sri Lanka, Pakistan, Iran, Bangladesh, Fiji, Mongolia, Nepal and Vietnam was made easy by the Asian Productivity Organization, or the APO.

The APO, an inter-governmental regional organization with headquarters in Tokyo, Japan, was established in 1961 by several governments in Asia. Its aim is to increase productivity and hence promote economic development of the Asia Pacific region through mutual cooperation among its member countries.

Each APO member country has a National Productivity Organization (NPO), whose mandate includes the propagation of the QC Circle philosophy. They organize national QC Circle conventions where local companies exchange accounts of their experiences. Singapore is an interesting case in that it invites QC Circles, management, and facilitators from other countries to talk about their experiences, thus giving their national convention an international flavor and name, International Exposition of QC Circles (IEQCC).

The NPOs have also invited experts on QC Circles from Japan, who are usually from the academe or from companies with QC Circles, to conduct training and provide consultancy to the local companies. Management conferences have also been organized, whereby management from different Japanese companies have

been invited to talk to their peers about their QC Circle experiences, focusing on their role in providing support, their difficulties in implementing the QC Circle program in their companies (and how such difficulties were addressed), and the benefits they gained from their QC Circle activities.

Another form of learning that the APO sponsors for its member countries is the Observational Study Mission, whereby a group of top and middle managers from different companies visit Japanese companies with the objective of learning from their QC Circle experiences. During these visits, they witness QC Circle case presentations, they have discussion with their counterparts, and they get to see actual improvement projects in the workplace.

The APO also supports the participation of representatives from its member countries in the annual International Convention on QC Circles (ICQCC) by sponsoring their travel expenses and convention fees.

The ICQCC was organized by JUSE with the collaboration of South Korean and Taiwanese organizations that were promoting QC Circles. Delegates from various countries attend the convention each year. The first convention was held in Seoul in 1976, and Tokyo, Seoul and Taipei took turns in hosting the convention through 1983. In that year, the organizers decided to bring the convention to other countries in order to convince more management people to adopt the QC Circle philosophy. So in 1984, the convention was held in a new venue, Manila, Philippines. In the years since then, other countries have hosted the convention.

The ICQCC is instrumental in hastening the growth of the QC Circle movement. The 2001 ICQCC was held in Taipei, with more than 450 participants from fourteen countries such as Malaysia, India, Mexico, the U.S.A. and Japan. More than sixty cases were presented at the convention, some of them detailing a trend of the QCC movement expanding into a number of new areas such as public sectors, hospitals, banks, and hotels. Additionally, new QCC are being introduced in small- and medium-sized enterprises (SMEs) and even in schools (in India).

United States and Europe

The movement reached America; however, early efforts to introduce QC Circles there were not successful, and there were many excuses but the more popular of these has to do with the Japanese culture.

A close look, however, shows that the reason behind the transformation of Japan as a maker of cheap products to being the leader in quality and reliability is the change in the attitude of management in dealing with their people. Realizing that their people have brains in addition to hands, they gave them opportunities to use both.

Dr. Kaoru Ishikawa, who is considered the father of the QC Circle movement, says that if management in any country or in any culture recognizes and commits to people's brainpower as an effective means for survival, then QC Circles will flourish anywhere. His belief was heralded by a fact-finding group from Lockheed

Missile and Space Company and Burroughs Corporation that visited Japan in 1974 to learn about the QC Circle phenomenon. They returned to their country convinced that the QC Circle concept could be implemented successfully anywhere as long as management supports it, people are trained, and the Japanese model is followed closely. The Lockheed advocates of QC Circles removed the word *control* because it has a strong connotation, so *Quality Circles of QC* was the term they used for their Circles.

To provide a forum for their QCs to share experiences, they organized a group called the International Association of Quality Circles (IAQC). The interests of the member companies later expanded to include people participation, so they renamed themselves the Association for Quality and Participation (AQP). The group is now known as the American Society for Quality. This society advocates the value of small group activities (e.g., QC Circles), regardless of what their name is. The Lockheed Quality Circle experience prompted other companies in America to embrace the QC Circle philosophy.

The QC Circle movement also reached European countries. Dr. J.M. Juran made the first introduction of the QC Circle concept in June 1966 at a quality control convention in Stockholm, where he talked about an all-lady QC Circle in the Hikone plant of Matsushita, which he observed in April 1966.

By the 1970s the movement spread to Rolls Royce and Wedgwood in England. Some French companies in the banking and automobile industries followed suit, basically due to the enthusiasm and devotion of management and facilitators. There was no support at the national level.

3-2 Definition of a QC Circle

The QC Circle headquarters of JUSE, which serves as the center for continuing education on QC Circles, defines a Circle as "a small group of frontline operators who continually control and improve the quality of their work, products and services; they operate autonomously and utilize quality control concepts, tools and techniques."

Based on this definition, which has been adopted in many countries, the QC Circle Headquarters enumerates the following features of a QC Circle:

Characteristics of a QC Circle

- Small group
- Continual control and improvement in the quality of work, products, and service
- Autonomous operation
- Utilization of quality control concepts, tools and techniques
- Part of TQM or company-wide QCC
- Self-Development

SMALL GROUP

The Circle is normally composed of three to ten volunteers who come from the same workshop and are under the same supervisor. Keeping the group small enables the members to participate actively in Circle activities. During meetings for instance, each member has a chance to contribute ideas; whereas, if the group is more than ten, it may happen that a member is not able to contribute an idea because of lack of time, for the Circle usually meets for an hour at most. If the group is small, the chances are high that members are able to foster better interpersonal relations and develop cohesiveness. Each member is able to define his role and responsibilities better, making him feel more secure in his job relations and see his importance to the group; thus, his self-esteem is developed. If the Circle has less than three members, it is usually more difficult to get things done, whereas if it has more than ten, the group becomes unwieldy.

The Circle is likened to a small community where everyone is familiar with everyone, where one's contribution is easily recognized, and where sense of belonging is realized. Coming from the same workshop, it is easier for them to talk about how to improve the way their work is done because they have a common language, have the same work environment and experiences, are affected by the same factors, and have one goal.

CONTINUAL CONTROL AND IMPROVEMENT THROUGHOUT THE FLOW OF WORK

QC Circles continue to look for opportunities for improvement from the time they receive their inputs to the time they deliver their product or service to their customers. They employ the concept of the PDCA continual improvement. Because the customer is never satisfied, the Circles never stop looking for better ways of doing the work. Once a problem is solved, they move to solve other problems; thus, they are in a never-ending search for ways to satisfy the customer.

AUTONOMOUS OPERATION

Circles solve problems in their own workshops; so, they operate autonomously in the sense that they are free to choose the problems to solve, they identify what data to collect in order to better understand why the problems exist, and their members analyze the problems' causes among themselves (though they sometimes consult other departments that affect their work). They analyze these causes in detail until they are able to isolate the most critical cause of the problem. They are on their own when they think of possible solutions to eliminate this most critical cause, although they are free to consult supervisors, engineers, or facilitators for ideas. The decision on what is the best solution is theirs. Also, they decide how to implement their solution, confirm that the standard operating procedure is implemented, and show that the solution is effective.

Since they are the experts in their work, they have the job of identifying problems in their workshop, of selecting the one they want to tackle, of working out their solution, and of selling their ideas to management. It is also their job to implement their solutions once they are approved by management, monitor results, and ensure that the problems do not recur. So it is in this context that the QC Circle is practically left on its own in carrying out its activities.

UTILIZATION OF QUALITY CONTROL CONCEPTS, TOOLS AND TECHNIQUES

The Circle works with the aid of data throughout its problem-solving activities. They show that a problem exists by collecting data (using a data collection form, like a checksheet) that they then summarize and analyze using simple statistical tools like graphs, scatter diagrams, cause and effect diagrams, Pareto diagrams, and histograms. They also use problem-solving techniques like matrix diagrams, the What, When, Where, Who, Why, How (5W1H) concept, the Sorting, Systematizing, Sweeping, Sanitizing, Self-discipline (5S) concept, the Man, Machine, Materials, Method, Environment (4M1E), and the *Muda* (wastefulness), *Muri* (excessiveness), *Mura* (dispersion)(3Mu) concept.

PART OF TQM OR A COMPANY-WIDE QCC PROGRAM

Many companies introduce Total Quality Management or company-wide QC Circle activities as a company management tool in order to improve the quality of their products and services. In the TQM framework, management announces the company's mission and vision to its employees, and each one of them plays a significant role in implementing quality management activities. QC Circle activities play an essential role in a company's management system, the development of which will lead to an activation of quality management throughout the company.

SELF-DEVELOPMENT

A QC Circle contributes not only to the development of a sound working environment but also to the enhancement of individuals' abilities and potentials. In other words, the activities lead also to self-development of individuals. Through the activities, each member can develop various qualities, such as sound personal relations, analytical skills, presentation ability, and knowledge on various QC tools.

3-3 Objectives of QC Circle Activities

Objectives of QC Circle Activities

- **Establishment of a pleasant workplace**
- **Establishment of a state of control**
- **Enhancement of morale**
- **Establishment of sound human relations**
- **Better income**
- **Improvement in Quality Assurance**

QC Circle Headquarters 1980

ESTABLISHMENT OF A PLEASANT WORKPLACE

The atmosphere of a workplace has two dimensions: the psychological and the physical. The psychological is usually measured through organizational climate surveys in which people are asked about their perceptions of leadership, availability of information and resources to do their job well, teamwork, rewards and recognition, and job satisfaction. The physical pertains to orderliness and cleanliness; access to raw materials, tools and machines; and safety.

It is important that people perceive that their jobs offer opportunities for them to fully develop their potentials and have a say in how work is done and that their workplace is conducive to producing quality products and services. When the company's employees are satisfied, its goal of ensuring customer satisfaction, the ultimate goal of the QC Circle activities, is not difficult to achieve.

ESTABLISHMENT OF A STATE OF CONTROL

It is very important that people operate their tasks according to the specified way. As Ishikawa (1981) avers, "Well controlled workshops are those that observe agreed standards, take adequate corrective measures or preventive measures, remove causes of abnormal or out of control conditions before problems become readily apparent, and revise standards if necessary." And this cannot be done by means of mechanization, automation, and elimination of manpower—it has to be controlled through human effort.

ENHANCEMENT OF MORALE

QC Circle activity is aimed at enhancing the morale of Circle members. Ishikawa (1981, 29) suggests that "the morale should be elevated as a natural consequence of taking part in the activity." By achieving self-development though QC Circle activities, members can enhance their morale, both as individuals and as members of society.

ESTABLISHMENT OF SOUND HUMAN RELATIONS

QC Circles provide a place where people can solve problems with active communication toward the achievement of common objectives. It is in this respect that a QC Circle can contribute to develop human relations among its members and even with management. Members learn interpersonal skills through their discussion with other members, acquiring a sense for building up harmonious relationships.

BETTER INCOME

In the long run, with company income increases through QC Circle activities, the income of the members will often increase. But we should not think of such increases as direct increases. As it will be stated later in this book, the benefit of the Circles can be measured not only by tangible impacts but also by intangible impacts.

IMPROVEMENT IN QUALITY ASSURANCE

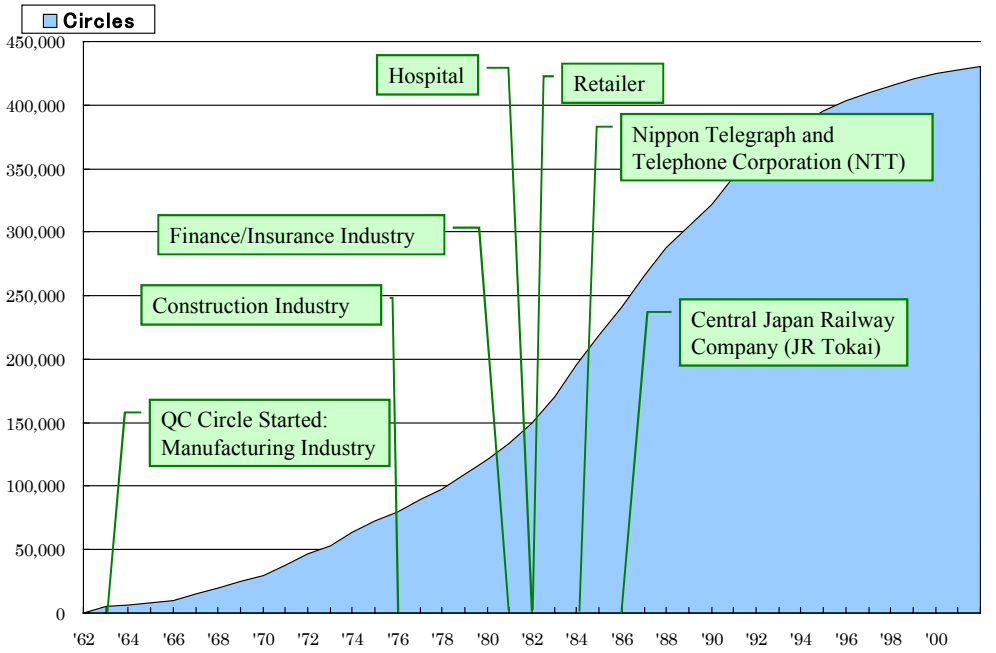
As Ishikawa (1981, 34) states, "It is well understood that better quality assurance is a key to quality control." There are many accidents and problems in a workshop that can be addressed in the QC Circles. It is often the case that problems are caused by operators' minor errors. The ultimate goal of QC Circle activities is to achieve quality assurance. By solving problems in the workplace in a systematic manner, the Circle can achieve quality assurance in the workplace, which consequently leads to improvement in the quality of life of the individual operators.

3-4 Versatility of QC Circle Activities

Trends of QC Circles, by Industry

QC Circle activity first started in manufacturing companies in the 1960s. It was first introduced in large manufacturers, and later disseminated to small- and medium-sized enterprises in the same group. The movement was soon (1970s) joined by service industry companies such as those in construction and finance. In the following decade, QC Circle activity was introduced in other service industry companies such as retailers (supermarkets) and railways. Also, the first QC Circle in a hospital started around 1982. The number of QC Circle registrants has increased rapidly since the early 1980s, with the total number reaching over 30,000 nationwide. Figure 39, developed from material published by JUSE, shows both a steady increase in the number of QC Circle registrants in Japan and their sector-wise dissemination (time of entry) during the period between 1962 and 2000. After a history of more than forty years, QCC activities can now be seen in numerous industries. Newly emerging industry companies such as employment agencies are also adopting the QCC method, and traditional sectors such as public corporations and government agencies have been trying to exploit the QCC method in their quality management frameworks.

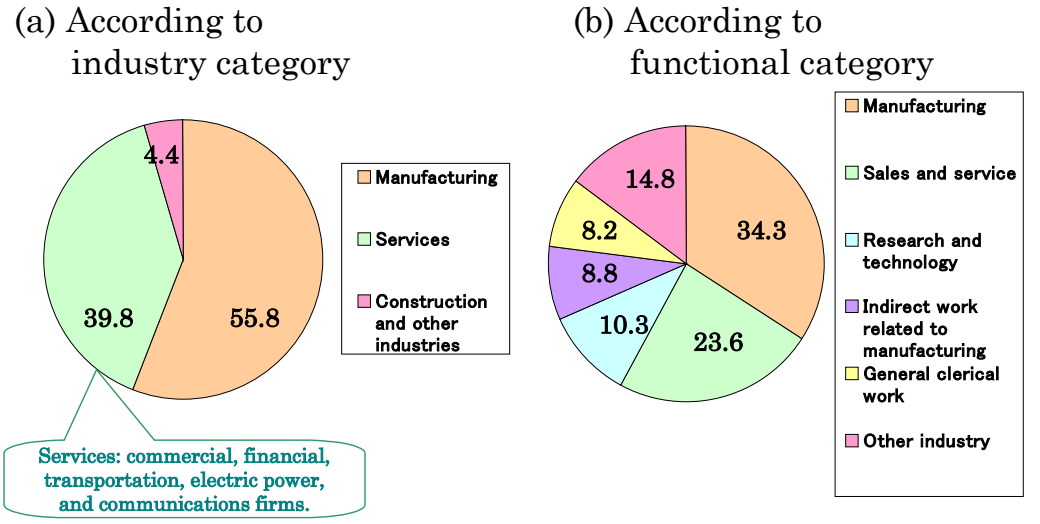
Figure 39 **Trend of QC Circle Registration, by Industry in Japan**



Adapted by authors.

Union of Japanese Scientists and Engineers 2002

Figure 40 Number of QC Circles Registered at QC Circle Headquarters (Japan)



Notes: n: 13,020; Unit = %; 1990, 1992 and 1994 average

Saito 1995

Pie chart (a) of figure 40 shows that more than half of all registered QC Circles were in the manufacturing sector as of the mid 1990s and almost forty percent

were service industries, which supports the claim that QC Circle activity originated in the manufacturing sector but has become widespread in other sectors including commercial, financial, transportation, energy and telecommunications.

Thematic Applicability of QC Circles

Pie chart (b) of figure 40 indicates the amount of QC Circle activity accounted for by individual sectors. The applicable scope of QC Circle activity is surprisingly broad. Across manufacturing and non-manufacturing companies, selected themes of QC Circle activities have been wide: in fields such as quality improvement in production and processing, cost reduction, remedial measures in delivery processes, enhancement of security, improvement in human services, boosting of employee morale, and technical improvement in the designing stage of products (this listing is not exhaustive by any means). This applicability of QC Circles to diverse themes is exactly the reason they are applied in almost all types of industries and sub-sectors. To put it differently, QC Circles can choose any theme, as long as the chosen one is in line with the objectives established within the organization to which the QC Circle belongs. See section 3-3, Objectives of QC Circle Activities.

Figure 41

Examples of Themes Selected by QC Circles

Manufacturing

Prevention of frontline worker accidents in factories
Better understanding of production procedures and machinery
Reduction in material loss
Boosting of workers' morale to improve product quality and meet deadlines
Encouragement for reduction in and recycling of industrial waste
Shortening of the preparation period required for experiments

Sales and Service (retailer, restaurant and so on)

Achievement of 10% growth in sales to major customers
Increase in orders from retailers by 15%
Enhancement of promotion for acquiring new customers
Reduction in billing errors at checkout counters
Decrease in the number of wrong orders and shipments
Learning of sign language for handicapped customers

Schools

Keeping students' focus in class
Improvement in teaching methods according to students' level of understanding

Hospitals

Minimization of patients' waiting time for examinations, prescriptions, and appointments
Improvement in in-hospital system to prevent mix-ups of medical charts
Better comprehension of operations of present and new medical machinery

Agriculture

Improvement in way of blending fertilizer and manure for cost reduction
Effective use of farm equipment and tools
Advancement of cultivation methods to prevent soil pollution

4 How to Get Started: QC Circle Activities

Companies follow a general pattern when they implement the QC Circle program: they organize the company QC Circle activities, they test the concept in one or two departments before they organize Circles company-wide, and they set up mechanisms to sustain the enthusiasm of QC Circles. The role of management in these developmental stages of QC Circles is very crucial as it is to direct and lead the employees to disseminate the QC Circle concept, which is a new area to explore for most of the employees.

The installation of a QC Circle is normally carried out after taking several preparatory steps. The QCC concept is commonly introduced where a company-wide quality program such as TQM has been already carried out, becoming one of the components of such a framework. There are largely two patterns of adoption of the QCC concept in a company: (1) introducing it as a part of company-wide quality management activity (2) introducing it prior to the deployment of a company-wide quality control program. The procedures of the installation vary, depending on which of the two patterns applies. (QC Circle Headquarters 1991, 121).

(1) Introducing the QCC concept as a part of TQM
In this case, the management first learns the basic aspects of quality control, seven QC tools, problem solving procedures, and *kaizen* improvement activities. Management take the lead in directing its employees in the line with the company's mission and vision—utilizing all human resources, from frontline operators to middle management. When the conditions are set for QC Circle activities, the management will announce the introduction of the concept into the company.

(2) Introduction of the QCC concept prior to the deployment of company-wide quality control programs
This type of installation is often seen in the service industry. In it, the company introduces QCC activities and then learns about quality through those activities. JUSE has suggested the following merits for this approach:

- The resistance to introducing TQM will be small, as employees get used to the quality concepts when they are first introduced through QC Circles.
- The dissemination of TQM will be easier, as a foundation for the quality concept will be already accepted by the employees.

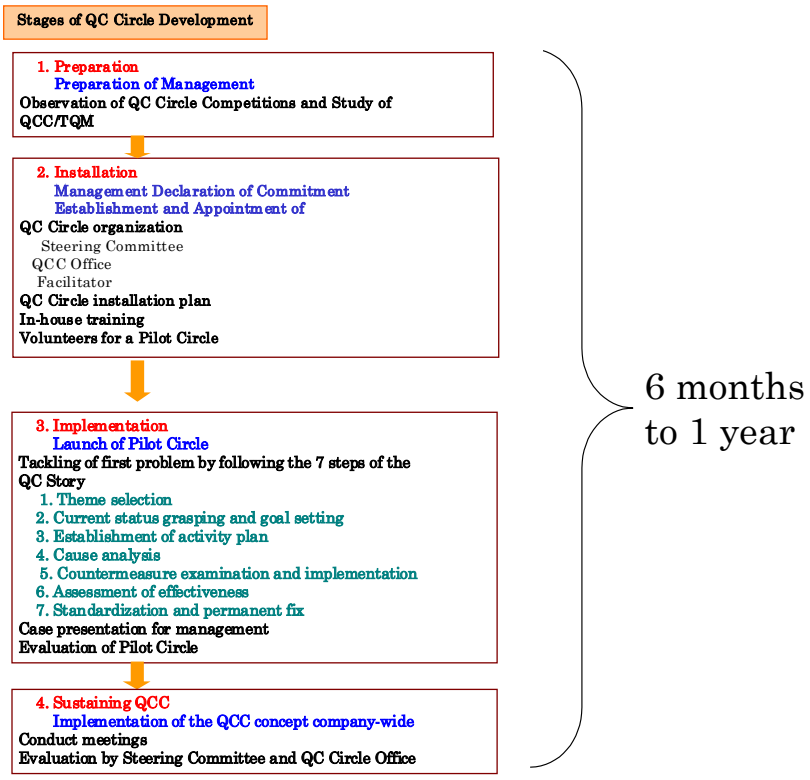
On the other hand, there are also demerits for this approach:

- Those who are engaged in the QCC concept will have more knowledge about quality than will management. As a result, management will not be able to take a lead in company quality management, which will make them disinterested in quality activities.
- From the standpoint of QC Circles, members tend to think that they are the only ones working hard to make things better, and thus management will be less respected by its employees.

As the QCC program achieves its goal or solves problems, management tends to get a misunderstanding that QCC is the only way for quality management, and thus tends to neglect other quality components (ibid., 121).

Even though we understand that there are two ways of QCC installation, we are going to focus on the first one listed above, as it has been the most common.

Figure 42



Preparation

4-1 Preparation for Installation of a QC Circle Program

Key Factors in the Preparation Stage

- Finding a rationale for QCC activities
- Management indoctrinated in QC Circle activities
- Management attendance at QC Circle convention

Finding a rationale for QCC activities

It is important, before starting QCC activities, that management be fully aware of the importance of quality management and be fully convinced that QCC will have significant impacts on the company's quality management. Often QCC develop a sort of trend in the industry whereby once Company A introduces QCC activities, so does Company B. This tendency is not undesirable, as it helps to open the eyes of management to QCC activities, but each company's establishment of a unique vision and mission is important, relating them to the potential QC Circle activities.

Management indoctrinated in QC Circle activities

The first step for management is to get to know about QC Circle activities. Although reading books and magazines is one way of learning, it is difficult to grasp the QCC concept without actually seeing the activity. Therefore, management is recommended to attend outside seminars and see how QCC activities in other companies are organized and how they have contributed to those companies' visions and missions.

Management attendance at QC Circle conventions

Attending a QC Circle convention is one way for management to get to know about QC Circle activities in other companies. At the convention, selected Circles will present the history of QCC activities in their organizations, their QC Stories, their problem solving processes, and the benefits and other impacts that have been seen in their daily operations.

Installation

4-2 Establishment and Appointment of a QC Circle Organization

QC Circles are organized as part of TQM organization and include a QC Circle Steering Committee, QC Circle Office, and facilitators.

4-2-1 Management Commitment to QC Circles

Management commitment is very important in the implementation of Total Quality Management and QC Circle activities. Management must meet with its people to explain that the only way for the company to survive in the ever-changing market is to ensure customer satisfaction at every point in the life of the product or service.

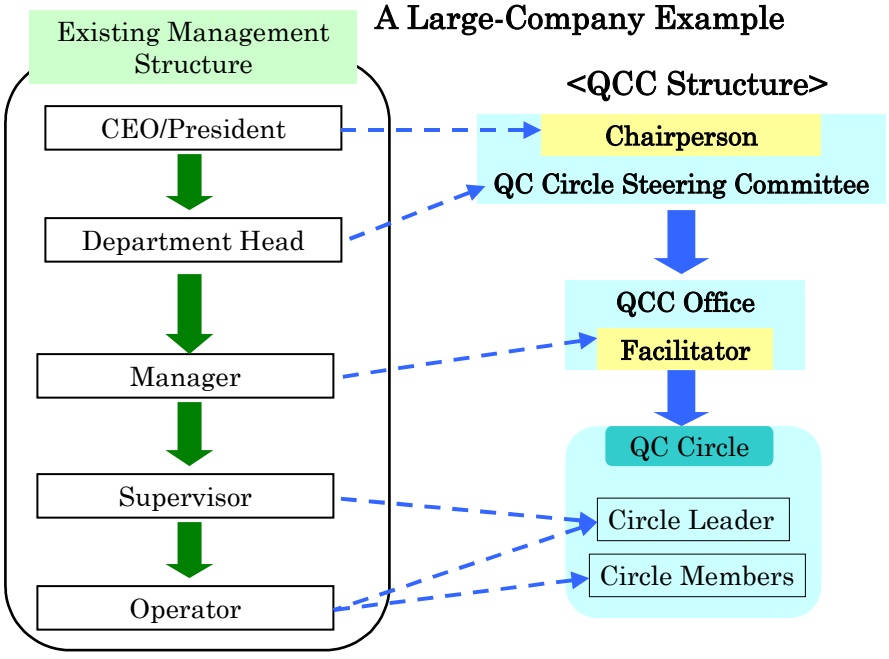
Management must emphasize that in spite of advances in technology, the most important resource of the company is still its people and that the people who are doing the work are in the best position to improve the work, for they are the experts in that work. They know best what is happening in the workplace; they know how work is being done; they know the quality and availability of raw materials, and the state of the machines and tools.

Management has to underscore its belief that, through the help of QC Circles, the company will survive because it is able to ensure the quality of products and services throughout their life cycles. This commitment is best done during the launching of the QC Circle program, when all employees are gathered at one place. The communication vehicles of the company, like the newsletter, bulletin boards, and email should also be utilized in communicating this commitment to QC Circles.

4-2-2 Establishment of a QC Circle Organization

The installation of the QC Circle program is managed by the QC Circle Steering Committee, and the QC Circle Office, which includes facilitators. The QC Circle Office secretariat reports to the QC Circle Office manager; whereas the facilitators report to the QC Circle Office manager in matters relating to QC Circles and to their department management in matters pertaining to their other functions.

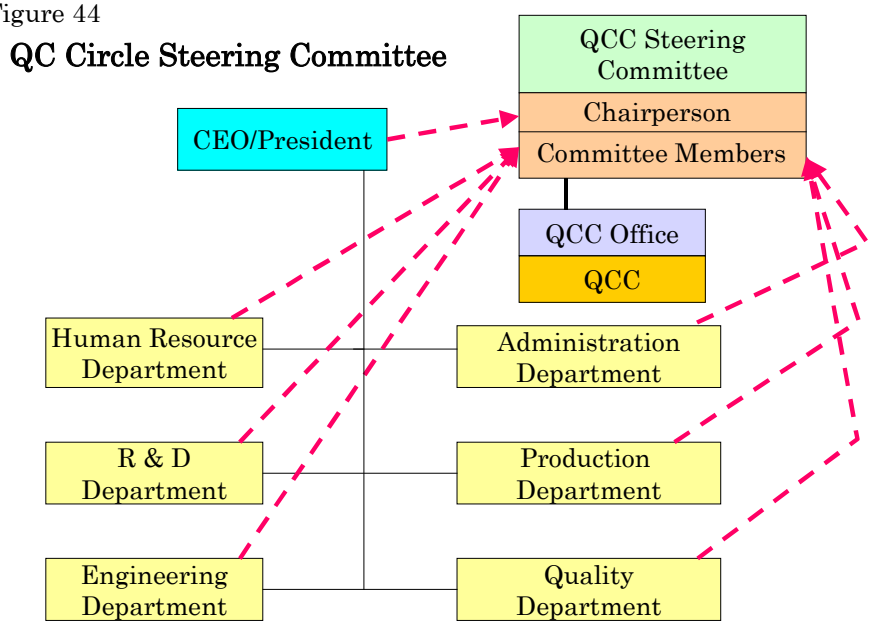
Figure 43 **QC Circle Organization: A Large-Company Example**



4-2-3 QC Circle Steering Committee

The QC Circle Steering Committee is composed of senior management chosen by the TQM Steering Committee and is chaired by the president (figure 44). It oversees and provides direction for the implementation of the QC Circle program. Its roles are as follows.

Figure 44



Roles of the QC Circle Steering Committee:

1. **Define the ultimate goal of the QC Circle program in the company.**

2. **Formulate a master plan for the installation of the program.**
   The program plan includes how many and in which department(s) to organize pilot QC Circles, how many QC Circles to organize during the company-wide implementation and in which departments to organize them, policies on training, evaluation of the QC Circle Office, and identification of QC Circle projects.

3. **Formulate a plan on how to recognize the exemplary performance of Circles, members, leaders and facilitators.**
   Examples of titles given as a form of recognition:
   Model QC Circle, Model QC Circle Leader, Model QC Circle Member, and Model QC Circle Facilitator

   The reward component answers the question, "How do we reward those we recognize?" Companies can give monetary or non-monetary rewards, or choose to employ a combination. Companies that give monetary rewards are often those that have other programs that give rewards (e.g., suggestion contests). The amount given is dependent on the resources of the company.

   Rewards are called non-monetary when there is no cash given to the team or individual. Examples of this kind of reward are

trips in which all the expenses of the team are covered by the company.

4. **Formulate a plan on how to monitor and evaluate the components of the QC Circle program.**
   Monitoring includes identifying and designing monitoring forms, report formats, and items to monitor, and determining the frequency of reporting the status of the program.

   Evaluation includes formulating the criteria to be used for evaluating the different components of the program, and deciding the frequency of the evaluation, and the format and content of the reports.

5. **Formulate a budget for the program and identify sources of funds.**

6. **Define qualifications and functions of facilitators.**

7. **Act on concerns that may be raised by the QC Circle Office, the facilitators, or the QC Circles themselves.**

8. **Evaluate the overall status of the QC Circle program, including training, rewards and recognition, promotional activities, and procedures for evaluation of QC Circle case studies and activities.**

9. **Formulate corrective and preventive actions based on findings in the evaluation.**

4-2-4 QC Circle Office

The QC Circle Office is responsible for the day-to-day management of the QC Circle activities in the company. Specifically, the Office implements policies and plans formulated by the QC Circle Steering Committee; handles all paperwork and maintains records such as the QC Circle registry, minutes of meetings, and QC Circle case studies; provides support to the QC Circle Steering Committee and the leaders; and organizes promotional activities like company-wide conventions. Service in the QC Circle Office is usually a concurrent assignment of facilitators.

Basic Functions of a QC Circle Office

(1) Training facilitators
(2) Coordinating training courses, working closely with the department heads
(3) Assisting leaders in their QC Circle activities
(4) Motivating QC Circle leaders and members
(5) Conducting QC Circle case presentations
(6) Coordinating QC Circle activities
(7) Approving QC Circle actions referred to them, such as those that have been found not to violate public law or regulation or company regulations

Responsibility of a QC Circle Office

(1) It implements the policies and plans formulated by the QC Circle Steering Committee.
(2) It handles all paperwork and maintains records like the QC Circle registry, minutes of meetings, and QC Circle cases.
(3) It provides support to the QC Circle Steering Committee and the leaders.
(4)It organizes promotional activities like competitions and visits to other companies with QC Circles

4-2-5 Appointment of Facilitators

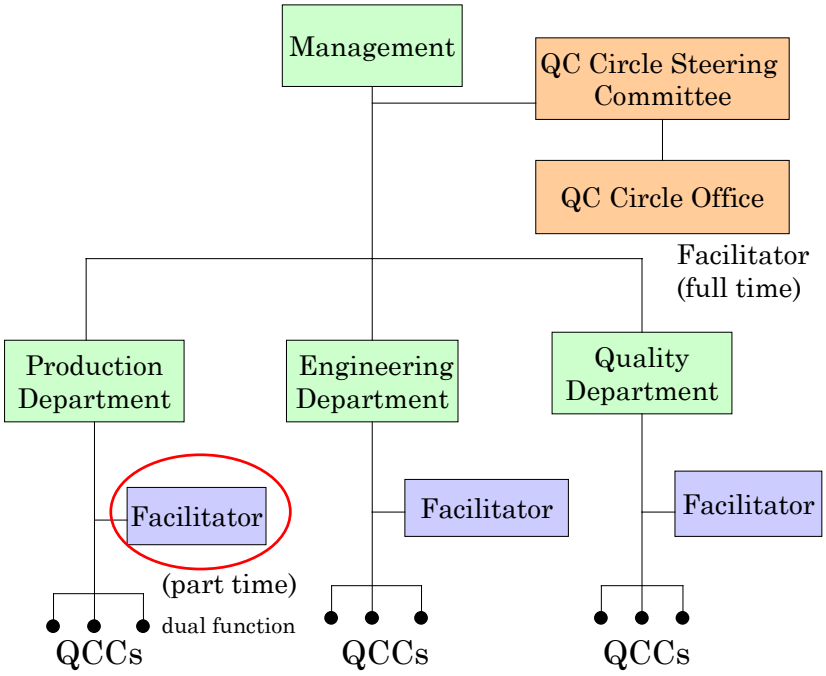
Facilitators, who are chosen from among the managers, comprise a key element that greatly influences the success of the QC Circle program, especially at the beginning of its development. In manufacturing companies the facilitators are often experienced manufacturing engineers.

Basic Functions of a Facilitator

(1) Training leaders
(2) Coordinating training courses, working closely with the department heads
(3) Assist leaders in their QC Circle activities
(4) Motivating QC Circle leaders and members
(5) Arranging QC Circle case presentations
(6) Coordinating QC Circle activities
(7) Approving QC Circle actions referred to them like those that have been found not to violate public law or regulation or company regulation

Each department selects one to three facilitators, depending on the size of the company. In the beginning, one facilitator is usually assigned to three QC Circles. The QC Circle leaders call on the facilitator when they need support during meetings.

Figure 45 **Facilitators**



4-2-6 Appointment of QC Circle Leaders

Participation in the basic activity of a QCC is normally on a voluntary basis, yet there are several ways in which a Circle's leaders are actually selected. In new Circles, supervisors often play the role of leader, because they are very familiar with the workplace and possess certain

pertinent personal qualifications. Some Circles have their members take turns being the leaders, and others elect their leaders, but these approaches have the potential to create a dictatorial environment for leaders who are not well qualified for the role. Also, leaders can be tempted to choose themes that are easy to solve. Therefore, a Circle leader must be selected carefully, particularly when it is at the beginning of its activities. After a few years of QCC implementation, when the QC methods are well disseminated, Circles are able to select leaders (or theme leaders) depending on the themes that they are going to tackle.

Basic Functions of a Circle Leader

(1) Conducting QC Circle meetings
(2) Deciding roles of individuals and proceeding QC Circle activity
(3) Learning QCC tools and techniques
(4) Disseminating what is learned in (3) above
(5) Trying to improve members' abilities
(6) Establishing annual activity plan
(7) Encouraging members
(8) Doing administrative work for the QC Circle Office
(9) Participating in industry-wide conventions
(10) Studying about QC Circle activities and disseminating the knowledge
(11) Seeking advise and support from the QCC Office on behalf of its members

Implementation

4-3 Launch of a Pilot Circle

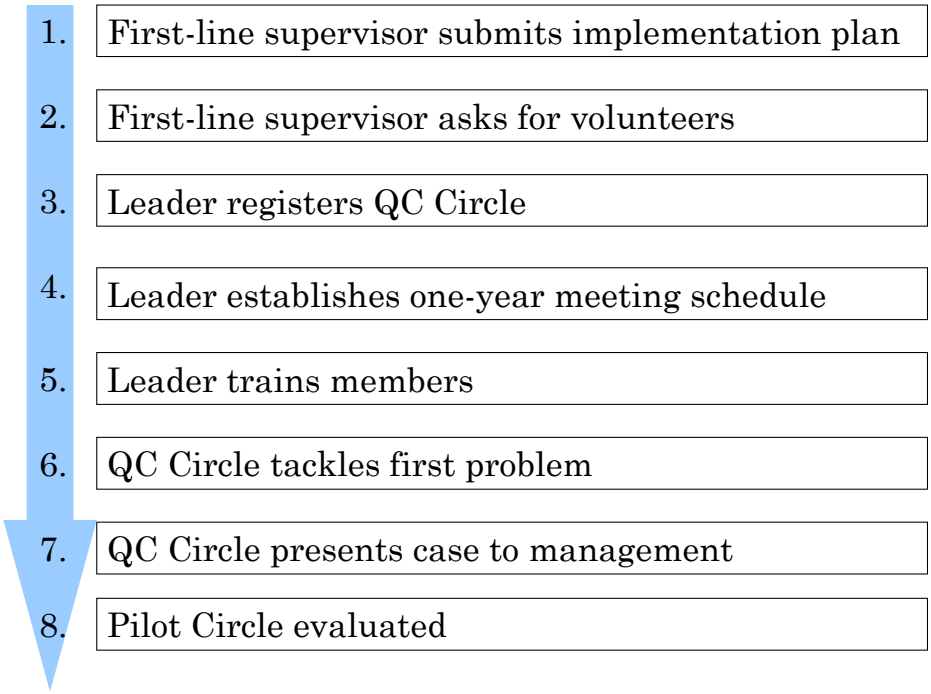
As in anything that is new, the QC Circle program should be tried first on a small scale, in one to three departments. The company needs to have some prior experience with QC Circles in order to manage a company-wide implementation successfully. In the beginning of the program, it is important that the first-line supervisors, who are closest to the frontline operators and are well familiar with them and their operations, lead the activities.

It is critical that the first-line supervisors start and participate in the activities on a voluntary basis so as to encourage their subordinates to volunteer as well. Any initiative to direct their members to participate should be avoided, as directing introduces the notion of *commanding* or *controlling*.

The implementation stage consists of organizing a pilot Circle, training its members, solving its first problem, presenting the case to management, and then evaluating the pilot Circle. Following is a flowchart of a pilot QCC's activities at its implementation stage.

4-3-1 Implementation Procedure

Figure 46 **Implementation Procedure Flowchart**

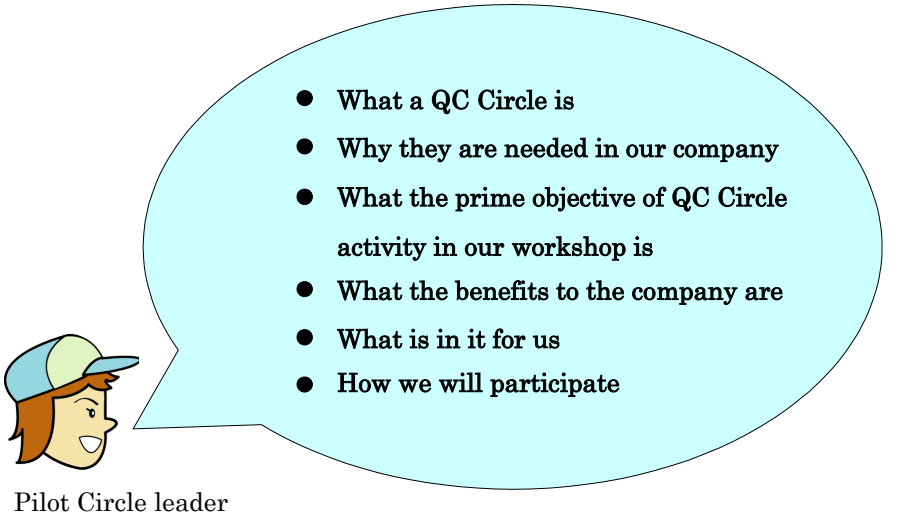


1. **First-line Supervisor Submits Implementation Plan**
The pilot Circle is organized, on a voluntary basis, by the first-line supervisor, who acts as its leader. He formulates his implementation plan and submits this to the QC Circle Office.

Figure 47 **QC Circle Leader's Implementation Plan**

	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Brainstorming: Theme Selection	↔											
Data Collection	↔	↔										
Data Analysis		↔	↔									
Brainstorming: Cause Identification			↔									
Group Discussion Root-Cause Isolation			↔	↔								
Countermeasures Establishment				↔								
Implementation of Countermeasures				↔								
Review of Results					↔	↔						
Evaluation of Outcome						↔						
Standardization of Countermeasures						↔						

2. **First-line Supervisor Asks for Volunteers**
   The first-line supervisor invites his people and explains, with the assistance of the facilitator assigned to his department, the following topics:



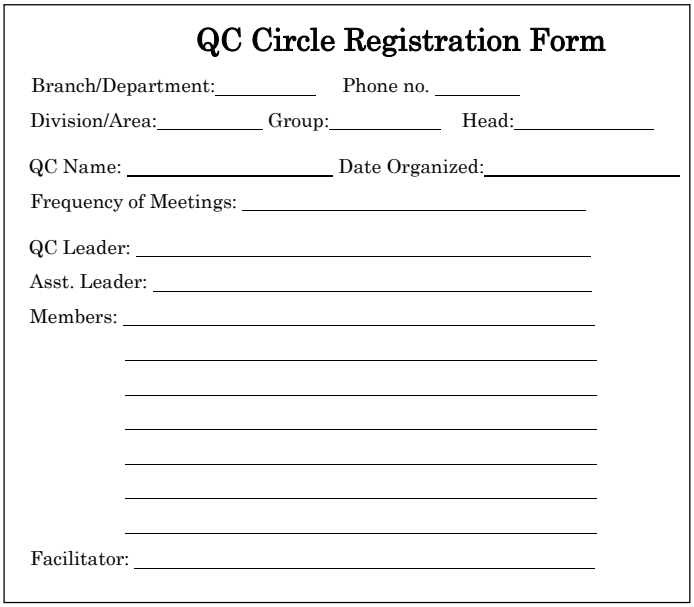
Pilot Circle leader

3. **Leader Registers the QC Circle**
   If there are at least four volunteers, the QC Circle leader organizes a Circle and formally registers it with the QC Circle Office. When registering they are often required to provide the following information, which must be decided on by the Circle during its first meeting.

   - QC Circle name
   - QC Circle logo
   - QC Circle leader
   - Members (with simple bio data)
   - Facilitator
   - Meeting schedule

   The QC Circles are required to register so that the company knows that they exist and the QC Circle Office can provide them the necessary support.

Figure 48 **A Sample QC Circle Registration Form**



QC Circle Registration Form

Branch/Department:_____ Phone no. _____

Division/Area:_____ Group:_____ Head:_____

QC Name: _____ Date Organized:_____

Frequency of Meetings: _____

QC Leader: _____

Asst. Leader: _____

Members: _____

_____

_____

_____

_____

_____

_____

Facilitator: _____

The rationale behind the registration is to make the existence of the Circle official; only registered Circles are recognized. The QC Circle Office publishes the names of registered Circles in the company newsletter and in bulletin boards located in department offices.

4. **Leader Establishes One-hour Meeting Schedule**

Most of the activities of the QC Circles are done through meetings, so it is necessary to consider how to eliminate members' boredom during meetings, especially when they study the QC Circle concept, behavior science, and other customer satisfaction concepts. This is why the QC Circle should meet twice a month for the first year. The duration of these meetings is usually for an hour. This way, the leader is able to hold the attention of the members. Figure 49 is a typical QC Circle meeting agenda.

Figure 49 A Sample of QC Circle Meeting Schedule

Time	Subject
0 ~ 05′	Greeting, roll call, review of last meeting's assignments, confirmation of today's agenda
05 ~ 10′	Group discussion on subject - Ideas submitted to leader on short memos
10 ~ 20′	- Summarize submitted memos - Prepare a table for easy review
20 ~ 40′	- Consolidate ideas
40 ~ 50′	- Confirm consolidated ideas - Discuss remaining ideas
50 ~ 55′	- Wrap up discussion - Record conclusion and items for discussion
55 ~ 60′	- Ask facilitator for comments - Confirm assignments - Announce next meeting's agenda - Adjourn meeting

5. Leader Trains Members

Based on the curriculum prepared by the QC Circle Office, the leader teaches members, with the assistance of the QC Circle Office secretariat. Usually, the leader handles technical topics, like the QC Story, the tools, and the techniques. Training sessions are best held in the morning (for two hours), when members' minds are still fresh.

The following is a list of topics usually taught in the QC Circle meetings.

Issues to be Taught in QC Circle Training

ISSUES	POINTS
1. The importance of customers	Be thorough in Quality Assurance
2. Utilization of data	Make good use of QCC tools
3. Usage of management cycle	Introduce the PDCA cycle
4. The importance of tools	Make good use of QCC tools
5. Concentration measures	Make use of the Pareto diagram
6. Search for root causes	Examine the cause and effect diagram
7. Pursuit of all causes	Be conscious about quality
8. Importance of processes	Fully standardize the process

6. Pilot Circle Holds Meetings: QC Circle tackles first problem

The QC Circle is now ready to tackle its first problem using the

Quality Control Story approach. The first problem chosen should be a simple one (e.g., housekeeping, the 5S concept, or safety) so that the Circle is able to solve it within a short period of time. Solving one problem will often give the members a sense of accomplishment and motivate them to pursue other problems they experience in their work.

Circles meet to study further the QC Circle concepts, tools, and techniques that they learned in their training. Once they are confident of their level of understanding, then they start to act on their theme. A Circle spends at least eighteen meetings in completing a theme before presenting it to management.

Figure 50 **QC Circle Activity Procedure**

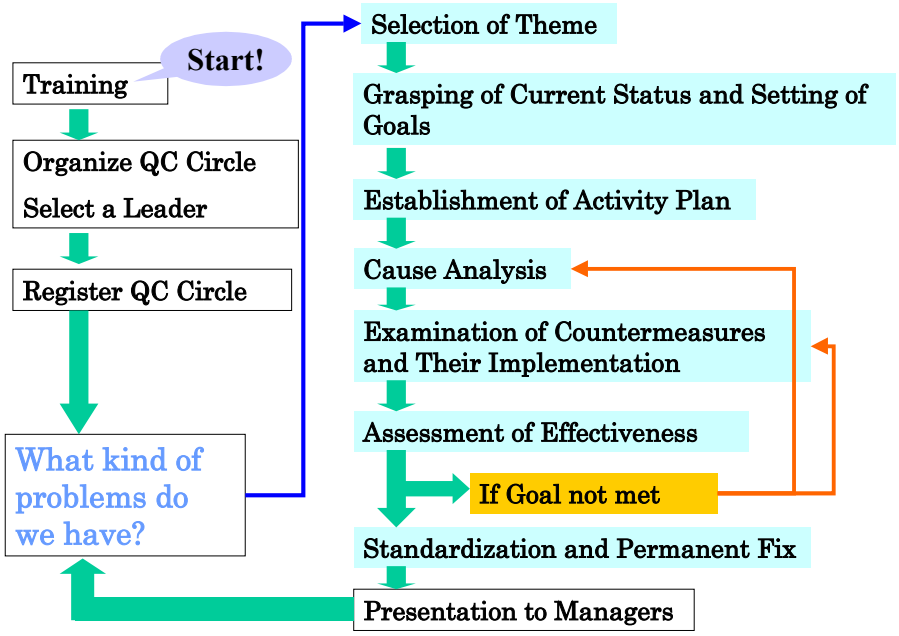


Figure 50 shows the steps taken to carry out QC Circle activities. The Circle follows the so-called QC Story, in which each step has individual objectives that in sum solve the overall problem. The details of the QC Story (how to proceed with the QC Story) will be further discussed in chapter 6 of this book.

7. QC Circle Presents Case to Management

When the QC Circle finishes its case, it presents it to the department management. The case is presented for one of two purposes—namely, to inform management of their improvement efforts or to get management's support for the implementation of their solution. For this presentation, non-Circle personnel from the workshop are invited so they get a chance to see what a QC Circle does and what benefits can be derived from its activities. This is also an occasion for

management to recognize the members for volunteering to be part of this pilot phase.

The presentation to management is followed by an open forum, by which management gets clarification on points they consider vague. Management must remember that this is an occasion for them to make the Circle feel good about contributing to the betterment of the company. Therefore, the questions must not be focused on the Circle itself. It would help if management asks the facilitator for introductory clarification before the presentation. In this way the Circle is spared certain questions. However, even though the facilitator answers the question, he must inform the Circle leader that such a question was raised so that the Circle includes this input in its presentation.

The department management evaluates the case based on how effectively the Circle used the QC Story, the tools, and the techniques. Evaluation criteria are summarized in a checklist, which is used as a guide when giving comments to the QC Circle about its project (figure 51).

Figure 51 **Evaluation Checklist for Beginner QC Circles' Case Presentations**

1.	**Theme Selection**	Selection of clearly identified themes to be tackled by members
2.	**Analysis**	Use of data and examination of isolated causes Use of fishbone charts for cause isolation
3.	**Countermeasures**	Clear establishment of countermeasures
4.	**Effectiveness**	Observed result of value to the company
5.	**Standardization**	Understanding of areas for recurrent preventive action

If the Chairman of the QC Circle Steering Committee is available at the time of the presentation, it is recommended that he attends and gives his comments. The facilitator also evaluates the case, using the following parameters: how the Circle identified the problem, the degree of member participation in the case study, the extent they followed the QC Story, the utilization of the QC tools and techniques,

and the level of satisfaction of the department management.

Figure 52 **QC Circle Case Evaluation Checklist**

Evaluation Criteria	Evaluation Point		Marks
1. Theme Establishment (20 marks)	1) Was the theme established by all members participating in the studies? 2) Was the theme established in line with needs and importance? 3) Is the anticipated solution effective enough?		0 10 20
2. Members' Participation (20 marks)	1) Is each member attending the meetings? 2) Is any necessary cooperation being furnished by a related organization? 3) Are members positively supporting the activity?		0 10 20
3. Adequacy of Activity Proceeding (40 marks)	Evaluation Item	Evaluation Item	Marks
	1. Accomplishment of goal (10 marks)	1) Was the goal adequately established? 2) Was the established goal fully met?	1 5 10
	2. Analysis (10 marks)	1) Was the past data fully available? 2) Was the analysis deep enough to find true cause? 3) Was the QC technique skillfully utilized?	1 5 10
	3. QC Circle activity (10 marks)	1) Was teamwork effectively displayed? 2) Was positive cooperation gained?	1 5 10
	4. Validation (5 marks)	1) Was the revealed result fully validated? 2) Was the problem encountered during the validation process identified definitely?	1 3 5
	5. Standardization (5 marks)	1) Was every necessary action for full standardization taken?	1 3 5
			0 20 40
4. Utilization of Various Analysis Techniques (10 marks)	1) Was an adequate analysis technique utilized during each step? 2) Were the QC techniques appropriately employed? 3) Was any remarkable analysis technique specifically observed?		0 5 10
5. Management Satisfaction (10 marks)	1) Did the manager fully recognize the achievement? 2) Did the manager recognize that the accomplishment resulted from the QC Circle activity? 3) Was the manager satisfied with the leader's action?		0 5 10
			Total point 100

Aside from the department-based case presentation, it is recommended that the QC Circle Office organize division and company-wide presentation of cases to challenge and encourage others to organize their own QC Circles.

8. Pilot Circle Evaluated

It is necessary to evaluate the pilot Circle before proceeding to the company-wide implementation of the QCC concept, so that the positive lessons are sustained and the negative lessons are addressed to prevent recurrence. The evaluation is normally conducted by the QC Circle Steering Committee, the QC Circle Office, the facilitators, the department management where the pilot QC Circle was organized, the leaders, and the members.

The facilitators, leaders, and members also assess their level of satisfaction with their own competence and performance, via checklists. The members can also evaluate the leader using the Leader's Competencies Checklist, and the leader can evaluate individual members using the Member's Competencies Checklist.

The leader also assesses the QC Circle case using the same parameters used by the facilitator: how the Circle identified the problem, the degree of members' participation in the case study, the extent they followed the QC Story, the utilization of the QC tools and techniques,

and the level of satisfaction of the department management.

Evaluation by the QC Circle Steering Committee
The QC Circle Steering Committee is responsible for the overall evaluation using the goals, plans, and budget as reference. It also evaluates the QC Circle Office manager and the facilitator. It uses detailed evaluation of the QC Circle Office, department management, facilitators, leaders, and members as inputs to its own evaluation.

Evaluation by the QC Circle Office
The QC Circle Office makes an evaluation of its own activities during the preparation phase and the support it provided the pilot Circles during their meetings and case presentations.

The facilitators evaluate the degree of their satisfaction with their own technical skills, people skills and management skills. The checklist for self-evaluation of satisfaction in figure 53, Facilitator's Competencies Checklist, can be used. This same checklist can be used by the QC Circle leader to evaluate the facilitator assigned to the Circle.

If the facilitators are not satisfied with their performance, they may conclude that they need more training and this should be addressed before the company goes for a company-wide implementation.

Training may come in the form of visits to companies with QC Circles, where facilitators can learn from others' comparable experiences. The facilitators may also attend conferences on QC Circles where several companies talk about their experiences, the lessons they learned, and the corrective and preventive actions they took.

Evaluation by the Department Management
The department management evaluates the effects of the pilot Circle on its department and the usefulness of the assistance given by the QC Circle Office, specifically the support given by the department's facilitator.

The department management uses the experience of the pilot Circle in convincing others in the department to organize their own QC Circles, so its direct participation in this kind of evaluation is a must.

Evaluation by QC Circle Leaders and Members
The leaders and members, like the facilitators, also indicate their level of satisfaction regarding their own competencies and performance. Additionally, the members can evaluate the leaders using the Leader's Competencies Checklist, and the leaders can evaluate individual members using the Member's Competencies Checklist. Both leaders and members can also use the Facilitator's Competencies Checklist.

Figure 53 **Facilitator's Competencies Checklist**

Evaluation Items (Level of Satisfaction)	Very satisfied	Satisfied	Neither satisfied nor dissatisfied
1. Ability to teach QC Circle concept to leaders	2	1	0
2. Ability to teach QC Story to leaders	2	1	0
3. Ability to teach QC tools to leaders	2	1	0
4. Ability to teach QC Circle techniques to leaders	2	1	0
5. Ability to provide technical support to leaders	2	1	0
6. Ability to provide moral support to leaders	2	1	0
7. Ability to monitor and report progress of QC Circles	2	1	0
8. Ability to sustain Circle enthusiasm	2	1	0
9. Ability to get necessary support from management	2	1	0
10. Ability to attend QC Circle meetings regularly	2	1	0

Figure 54 **Leader's Competencies Checklist**

Evaluation Items (Level of Satisfaction)	Very satisfied	Satisfied	Neither satisfied nor dissatisfied
1. Ability to teach QC Circle concept to members	2	1	0
2. Ability to teach QC Story to members	2	1	0
3. Ability to teach QC tools to members	2	1	0
4. Ability to teach QC Circle techniques to members	2	1	0
5. Ability to encourage members to participate in discussions	2	1	0
6. Ability to keep meetings on track	2	1	0
7. Ability to get Circle to implement actions as planned	2	1	0
8. Ability to get members to help in the preparation of case presentation materials	2	1	0
9. Ability to encourage members to participate in case presentation	2	1	0
10. Ability to encourage Circle to tackle next theme	2	1	0

Figure 55 **Member's Competencies Checklist**

Evaluation Items (Level of Satisfaction)	Very satisfied	Satisfied	Neither satisfied nor dissatisfied
1. Understanding of QC Circle concept	2	1	0
2. Understanding of QC Story	2	1	0
3. Understanding of QC tools	2	1	0
4. Understanding of QC Circle techniques	2	1	0
5. Participation in discussions	2	1	0
6. Contribution in keeping meetings on track	2	1	0
7. Contribution to implementation of actions as planned	2	1	0
8. Contribution in the preparation of case presentation materials	2	1	0
9. Participation in case presentation	2	1	0
10. Willingness to tackle next theme	2	1	0

A QC Circle meeting in a telecommunications company (Photo by JUSE)

A QC Circle meeting in a machinery-manufacturing company (Photo by JUSE)

4-3-2 In-house Pocket Guide

The QC Circle Office publishes a small handbook on the QCC concept, when first introducing a pilot circle. Such books are first distributed by facilitators to individual QCC leaders. Later, at the stage when QC Circle activities are operated as company-wide activities, they are distributed to each QC Circle member.

The reasons for producing these handbooks are firstly to disseminate the QCC concept, and secondly to make employees understand the rationale behind the company's decision for starting QC Circle activities. The voluntary action and self-motivation is a crucial driving force for operating a QCC program. The handbook plays a very important role in generating employee interest; it can be an easy textbook to be used when leaders explain QCC activities to their members for the first time; and it is sized so that members can carry it at all times and refer to it whenever necessary.

With these purposes in mind, the handbook should be neither too complex nor too technical, rather it should be handy, easy to deal with, and interesting to read, as it is an important way to disseminate knowledge about QCC for the first time in the company.

Each company produces its own handbook and incorporates various gimmicks to make it appeal to their employees (e.g., by using comics or photographs).

Here is a list of issues that that are often explained in these handbooks:

- Foreword: Message from the CEO
- What a QCC is
- Why QC Circle activities are being started
- What the objectives of the activities are
- How a QCC is organized
- Who the people involved in QCC activities are

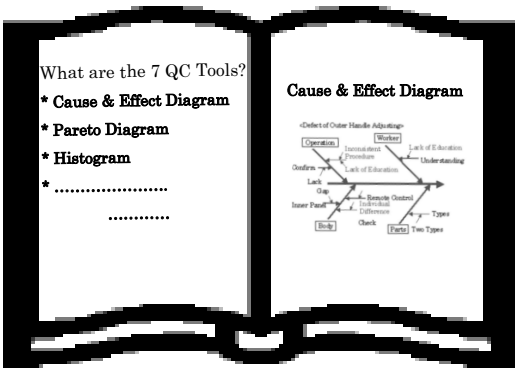
- Tools and techniques
- Some tips for successful QCC operations
- Things about which to be careful when operating QC Circles

In addition to the above basic information on QCC, some companies also cover the following topics in their handbooks:

- What quality is
- An organizational map for quality management
- Roles of management, facilitators, leaders, and members
- QC Circle meeting guidelines
- The 7 steps for solving problems
- What to do if you face difficulties
- QC Story case examples
- Reference list (for further information)
- Information on seminars and study tours

It is important to note here that the contents will also vary depending on whether the company is introducing the QCC method as a part of TQM or as a single component. In the former case, some companies also include some elements relating to TQM in the book, changing its title from *QC Circle Pocket Guidebook* to *Pocket Guidebook on Quality Improvement.*

Figure 56



Examples of in-house pocket guides (Photo by DBJ)

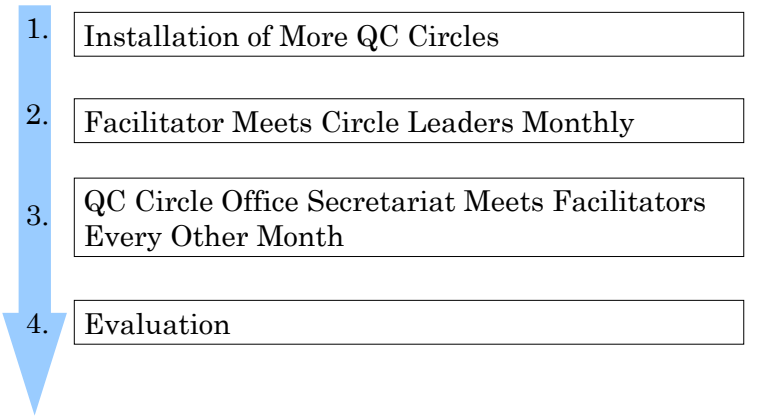
Sustaining QC Circle Activities

4-4 Implementation of a Company-wide QC Circle Program

Given the experience of the pilot Circle, the company is now ready to organize more QC Circles and the number depends on the size of the company and the plans of its QC Circle Steering Committee. The training procedure for an interested first-line supervisor is the same as that for the pilot Circle leader. As the number of Circles increases, several ways of systematically monitoring all QC Circle

activities are employed. The following are some additional issues that are important during the company-wide implementation of QC Circles.

Figure 57 **Sustaining QC Circle Activities**



1. **Installation of More QC Circles**
   Once a pilot circle has been proved successful, the company can hold a launching ceremony and provide a chance to gather new members to join the QC Circle activity. The objective of this activity is to provide a forum for the president, who is the chairman of the QCC Steering Committee, to talk about his commitment to QC Circles, to explain why QC Circles are important to the company, to give an overview of the plans, and to enjoin his people to support the program. All levels of management and all the rank and file employees are invited to the launching. It is usually held during office hours, thereby conveying the message that the program is important to the company.

   In some Asian countries, the atmosphere is made festive by giving souvenirs (e.g., pencils, ballpoint pens, notepads) to those who attend. These items may carry QC Circle slogans like "Have fun, be a QC Circle member!" In some companies, snacks are provided after the speech of the president. This gives him a chance to go around while people are eating and engage them in discussions. He can also ask what they think of QC Circles. For some of the employees, it may be their first time to see him; so, when he asks them how they are, it can mean a lot.

   To get more people to attend the launching ceremony, some companies hold conventions or contests prior to the ceremony and announce the winners after the speech of the president. Examples focal points of such contests are slogans, posters, jingle compositions, and essay writing, all geared towards encouraging people to learn more about QC Circles and eventually join them.

   Pictures of the highlights of the event are taken for later display on bulletin boards or in the newsletter. If the event was captured on video, it can be

played in the cafeteria, with the intention of reminding everyone of the objectives of the company in installing the program. The speech of the president can be played again and again for better understanding of his message, given the possibility that not everyone heard and understood him during the ceremony. The launching ceremony usually lasts between 30 minutes and 1 hour.

2. **Facilitator Meets Circle Leaders Monthly**
Each leader prepares a status report every month, indicating in which steps Circle members and leaders encounter difficulties. He reports this during the meeting with other leaders. Collectively they come up with corrective and preventive actions to address all of the Circle members' difficulties. The meeting duration is one hour.

Figure 58 **Minutes of Leaders Meeting**

Facilitators fill in the date when each step is accomplished.

		QC Circle Name	Smilies	Challenge	Dr. Smoke			
		Leader Name	Hana Yamada	Taro Suzuki	Mitsuru Saito			
QC Story Steps	1	Theme Selection						
	2	Grasping Status and Goal Setting						
	3	Establishment of Activity Plan	17 Feb		25 Feb			
	4	Cause Analysis		2 Mar				
	5	Examination of Countermeasures and Their Implementation						
	6	Assessment of Effectiveness						
	7	Standardization and Permanent Fix						

3. **QC Circle Office Secretariat Meets Facilitators Every Other Month**
The objective of this meeting is to provide a venue for the facilitators to talk about their experiences and learn from each other. The QC Circle Office secretariat summarizes the overall status of the Circles based on the minutes of the leaders meeting submitted by the facilitators.

The QC Circle Office secretariat prepares the minutes of each meeting, which include the date, time and venue of the meeting; attendees; overall status of the QC Circle activities; concerns of the facilitators; and things to do (figure 59).

Figure 59

Minutes of Facilitators Meeting

Facilitators Meeting

Held on _____ , at _____

Present

_____

_____

_____

_____

_____

_____

_____

_____

Status of QC Circle Activities

QC Circle Name	No. of Meetings	Problem Statement	Status (Indicate Step in QC Story)

Concerns and Action Plans

Concerns	Action Plans

To Do List (for next meeting)

What to Do	Person(s) Responsible

Next Meeting
Date/Time/Venue

_____

Agenda

_____

4. Evaluation

The evaluation done in this phase is basically the same as the evaluation done during the pilot phase. The QC Circle Steering Committee does an overall evaluation based on planned activities, goals and budget; and the QC Circle Office does an evaluation of specific activities, such as progress of Circles, training, promotional activities, and its support to Circles. The facilitators, leaders, and members evaluate themselves and each other's support to the Circles.

■ **Evaluation by the QC Circle Steering Committee**

It is important that the QC Circle Steering Committee assesses the progress of the program on a regular basis; most companies do it quarterly. This is to ensure that corrective and preventive actions are taken in cases where plans and goals are not achieved and budgets are not kept.

■ **Evaluation by the QC Circle Office**

The QC Circle Office has many concerns at this stage. They have to address the varying training needs of leaders and members. Some will need refresher courses, especially on the tools, whereas others will need supplemental courses on topics such as how to make meetings more effective. The Office must determine whether they are able to respond fully to these needs at any time.

■ **Evaluation by Facilitators**

The facilitators, too, have to evaluate their own capabilities, performance, and level of enthusiasm, in order to head off any risk of burnout. They can

use the Facilitator's Competencies Checklist for this. It is recommended that the QC Circle Office manager or the QC Circle Office secretariat use this checklist to evaluate the facilitators and to discuss what actions to take for improvement in facilitators' capabilities. The facilitators make quarterly evaluations of the QC Circles assigned to them. They can use radar charts to give pictorial representations of their evaluations (figures 60 and 61).

Figure 60 Evaluation Chart

Evaluation		1st period	2nd period
a	Theme Finished	1	2
b	Intangible Achievement	1	5
c	Tangible Achievement	10	20
d	Attendance Ratio	90	80
e	Speaking Out Ratio	75	90
f	Meeting Frequency	10	13
g	Duration (minutes)	35	40
h	Management Case Presentation	1	2

Figure 61

Evaluation Radar Chart

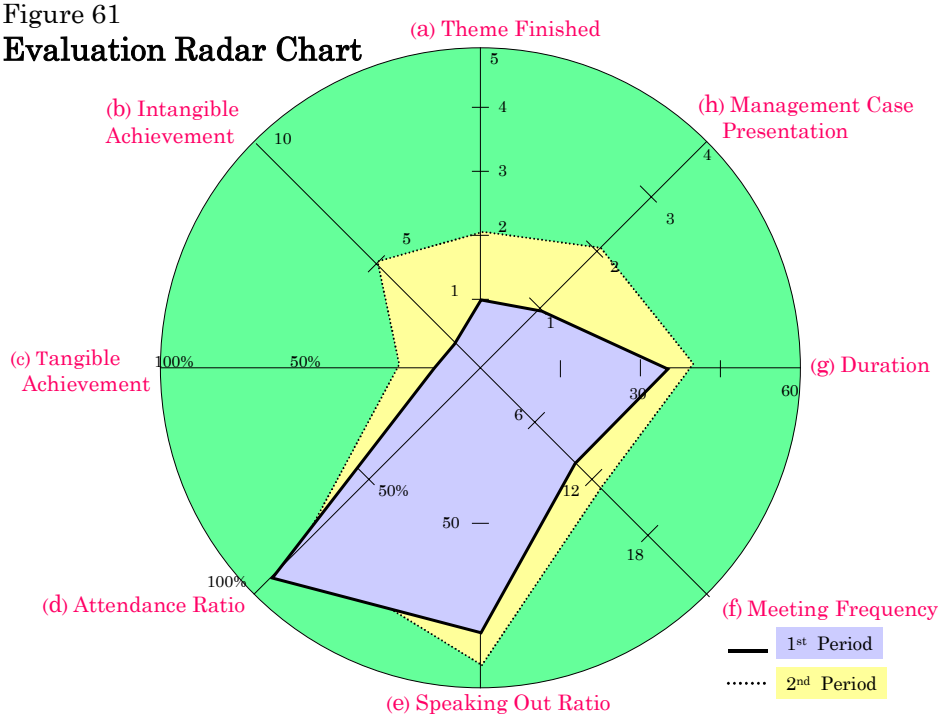


Figure 62

QC Circle Activity Status Report

		Facilitator Evaluations					
		1	2	3		N	TOTAL
Circle Name							
Theme							
Check Items							
Intermediate Report	0: No action yet						
	1: CA established*						
	2: CA implemented*						
Goal Achievement	0: Less than 80%						
	1: More than 80%						
	2: More than 85%						
	3: More than 90%						
	4: More than 95%						
Activity Status	0: No results						
	1: Partially achieved						
	2: Achieved						
	3: Full standardization						
	4: Next plan						
Meeting Duration	0.0: Less than 6 hours						
	0.5: More than 6 hours						
	1.0: More than 8 hours						
	1.5: More than 12 hours						
	2.0: More than 15 hours						
Attendance Ratio	0.0: Less than 60%						
	0.5: More than 60%						
	1.0: More than 70%						
	1.5 More than 80%						
	2.0: More than 90%						
Case Presentation	0.0: Not yet						
	0.5: In section						
	1.0: In dept.						
	1.5: In plant						
	2.0: In group						
	2.5: In company						
	3.0: In other company						
Subtotal							
Contribution to Management	0: None						
	1: A little						
	2: Some						
	3: Very much						
Total Marks							
Number of proposals							
Monetary Evaluation (if possible)							
Comments							

*CA Stands for Circle Activity

■ Evaluation by Department Management

Using the radar chart of each Circle in its department and the facilitators' Circle Activity Status Report, the department management makes its own assessment of the progress of those Circles. Together with facilitators and leaders, it formulates corrective and preventive actions—it also makes an evaluation of any Circle case presented to it. If a Circle is just starting, the department management uses the Evaluation Checklist for Beginning QC Circles. If the Circle is at a slightly advanced stage, it uses the following criteria: theme selection, analysis, countermeasures, effectiveness of countermeasures, standardization, future plan and case presentation (figure 63).

Figure 63 **Evaluation Checklist for Slightly Advanced QC Circles' Case Presentations**

1.	Theme Selection
	A) Identifiable theme for maintenance or improvement B) Goal defined by qualitative value
2.	Analysis
	A) Stratification fully utilized B) Pareto diagram correctly used C) Cause and effect diagram correctly used D) Analysis procedure followed as taught E) Appropriateness of any trial action taken to define the right actions
3.	Countermeasures
	A) Actions determined by analysis B) Actions taken according to schedules
4.	Effectiveness
	A) Results evaluated by unit that established goal B) Evaluation is pictorially represented by graphing
5.	Standardization
	A) Appropriateness of any action taken to revise the SOP* or insert additional check items
6.	Future Plan
	A) Self-examination considering the future plan
7.	Case presentation
	A) Presented clearly B) Clear visual aids

*SOP: Standardized Operational Procedure

■ **Evaluation by Leaders and Members**

As in the cases for pilot leaders and members, new Circle leaders and members also assess the level of their satisfaction, both of their own capabilities and of the support given to the Circle. They can use the Leader's Competencies Checklist and the Member's Competencies Checklist. They also evaluate their own Circle and show it pictorially in a radar chart.

4-5 Necessary Arrangements for Sustainable QCC Implementation

■ **Monitoring Board**

Some companies have a bulletin board in their QC Circle Offices, in their canteens, and in each department, where the status of the activities of the different Circles is plotted, including the names of the current leaders and members. Sometimes if the size of the board allows it, a picture of the Circle is also posted.

A QC Circle Monitoring Board in a factory (Photo by JUSE)

■ **Company Newsletter**

Newsletters are a very effective way of publicizing the progress of Circle activities and motivating the concerned. For example, if the pictures of successful Circles are shown in the newsletter, those who are on track are instilled with pride and those who are not on track can find resolve to get there. The amount of column space reserved for QC Circle activities (as many as eight pages in some companies, only a corner of a page in others) depends on the regular number of pages of the newsletter.

Newsletter inclusion of the QC Circle cases that have been presented to management, in addition to publishing of the status of QC Circle activities, is another positive idea. Sometimes the department that has the most number of active QC Circles is featured, including photos related to conventions, training conducted for leaders, members, or facilitators, or any other QC Circle–related event.

NEWSLETTER EXAMPLE

EXAMPLES of newsletters (Photo by DBJ)

5 Key Factors for Successful QCC Activities

Circles die a natural death when there is no nurturing environment to support them. Different companies have different ways of keeping their Circles enthused, depending on their corporate culture. Here are some of the key factors for maintaining successful QC Circle activities.

Key factors for successful QCC activities

- **Management recognition schemes**
- **Maintenance of active QC Circle meetings**
- **Provision of supplemental training**
- **Provision of an active role for middle management**
- **Maintenance of Circle leadership**
- **Operation of QC Circle competitions**
- **Operation of conferences and convention**

5-1 Management Recognition Schemes

Management's visibility must be sustained, so, aside from attending case presentations, they also attend ceremonies organized to honor the contributions of QC Circles. Below are examples of areas in which companies can recognize groups and individuals.

Various Recognition Criteria for QCC Activities

1. **Group attendance ratio**
2. **Suggestion ratio**
3. **Theme accomplishment**
4. **Speaking Out ratio in meetings**
5. **Meeting duration**
6. **Meeting frequency**
7. **Number of case presentations**
8. **Use of the quality control tools**
9. **Tangible results**
10. **Intangible results**
11. **Safety awareness improvement**
12. **Improvement in customer satisfaction awareness**

Companies have all sorts of awards based on these criteria to encourage interest in QC Circle activities. Other possibilities are

1. Most Active QC Circle, which is given to the Circle that has presented to management the solutions to the greatest number of problems
2. Most Enthusiastic Leader, which is given to the leader with the largest number of meetings
3. Most Enthusiastic Member, which is given to the member who has had perfect attendance at meetings, has best contributed ideas during discussions, and has completed assigned tasks on time
4. Most Enthusiastic Facilitator, which is given to the facilitator who has assisted the largest number of Circles that have completed improvement projects and presented them to management

The awardees usually receive a trophy or a certificate of recognition from the company president or someone else from management during award ceremonies, sometimes called the President's Hour or the President's Night. The ceremony ends with the president thanking all of the awardees for their contributions to the company's success and he encourages them to continue their search for better ways to satisfy the customers. These ceremonies are ideal schemes for recognition by management.

5-2 Maintenance of Active QC Circle Meetings

Elements of Successful QC Circle meetings

- **QC Circle meetings kept lively**
- **Facilitator support provided, when needed**
- **Logistical support provided**

QC Circle meetings kept lively

It is necessary for the QC Circle Office to evaluate every member's attitude and behavior during meetings. It wants to ensure that meetings are lively so that members always look forward to them, anticipating the chance to share their creative ideas and listen to those of their teammates. Every meeting must meet members' expectations. There must be a conscious effort on the part of the leader and the facilitator to ensure the following ingredients for effective meetings:

1. Members actively participate in discussions
2. Members are committed to the tasks assigned to them
3. Members listen to each other at all times
4. Discussions are thorough, open, and to the point
5. Disagreements are accepted
6. Members are comfortable in examining the causes of disagreement and work toward a resolution

7. Members are eager to perform well and continually seek to improve
8. The leader provides necessary direction and encourages members to share in the leadership

The facilitator must be quick to discuss any negative observations, and work out resolutions, with the leader.

Facilitator support provided, when needed

Whenever a QC Circle meets and the leader requests assistance from the facilitator, it is important that this is provided. In circumstances when department facilitators are not able to provide the necessary support, they should find suitable substitutes to meet the requests.

Logistical support provided

QC Circles must be furnished with office supplies such as stationery, notebooks, flip charts, and colored pens. It is important that Circles have a place where they can meet comfortably and discuss their themes freely. They should have access to equipment like overhead projectors, computers, and slide projectors.

In some companies, meeting rooms are designated solely for the use of Circles. These rooms have white/black boards, flip chart stands, overhead projectors, and screens. Supplies like stationery should also be provided. Since there are more Circles than rooms, the use of the rooms is scheduled by the facilitator.

5-3 Provision of Supplemental Training

The facilitators are able to identify the training needs of leaders and members when attending meetings. These needs must be prioritized and addressed accordingly by the QC Circle Office.

An example of a training need that may surface after a particular leader has attended the basic course is how to speak effectively in public. Most Circle leaders and members are not born with the gift of public speaking, so they have to be taught; for no matter how important their case is, if the presentation is not done properly, the message that they want to convey to management may not reach them because of their inability to express themselves well.

5-4 Provision of an Active Role for Middle Management

Department management undergoes the same training as the facilitators, but aside from attending QC Circle case presentations and giving comments to the members during these presentations, their role in the QC Circle program is not well defined, especially when the QC Circle program is in its initial stages of implementation. Thus in some companies, the department management is not actively involved in QC Circle activities.

Historical reasons for relative inactivity

In the past, department management would sometimes feel left out, because, unlike executive management and the rank and file employees, they did not have very defined roles. This was not by design but was more due to the fact that the

QC Circle concept was new and everybody was in the learning stage. Only later, when some department managers reacted negatively to QC Circles, did the gap in the program become clear. There were initiatives taken by QC Circle associations and NPOs to find the cause of the negative reactions. The finding was that the management felt their role was very limited. Some said that they wanted more active involvement than merely attending case presentations.

Here are examples of department management's negative reactions and wrong perceptions about QC Circles.

- They think that QC Circles can't work in their companies—that they are viable only in Japan, where the concept was invented.
- They think that QC Circles are just a fad that will die a natural death just like other human resource development programs (e.g., the suggestion contests introduced in the past).
- When asked about their Circles, they only talk about their tangible achievements, like reductions in defects. They do not recognize that changes in their operators' attitudes toward work, the company, and the customer were a result of QC Circle activities.
- They think that QC Circles would undercut their authority—a fear brought about by the fact that Circles are able to make decisions on the quality of their work and have the opportunity to present their improvement projects to management.
- They don't want to attend QC Circle training, claiming it is a waste of time.
- If the Circle is not active or is slow in its progress, they blame the leader, the members, and especially the facilitator.
- When they attend case presentations, they don't really pay attention, because they think it just for show.

As the QC Circle movement progressed and companies gained experience, the role of department managers evolved. One thing is clear, companies came to realize that in order to get the full support of department management, those managers have to be knowledgeable about QC Circles.

Roles of middle management

- **Attend QC Circle case presentations**
- **Evaluate QC Circle case presentations**
- **Address the concerns of Circles**
- **Act as trainers**
- **Monitor QC Circle activities in their departments**
- **Recognize circle achievements**

Roles of middle management:

■ Attend QC Circle case presentations

Whenever a QC Circle solves a problem, it is presented to the department management.

The presentation is held in order to recognize the Circle's efforts to improve how their work is being done. The frequency for case presentations depends on the number of Circles in the department. Some companies have presentations every month; others have presentations every three months.

At times, the Circle runs into difficulties in completing its case study because of one of the following reasons:

a. it cannot find the root cause, because the problem is too difficult
b. it cannot find a solution, because the problem is too complicated
c. it cannot find an economical or quick action

When this happens, the Circle still presents its case and explains why it is having difficulty. In this case management is expected to comment and provide direction.

It is highly recommended that other employees from the same department and other departments attend the case presentations so that they can learn things that they can apply in their own Circles.

■ Evaluate QC Circle case presentations

Every QC Circle case presentation must be evaluated by the department management. The evaluation is made at the end of the presentation so the other attendees can hear the comments and learn from them.

■ Address the concerns of Circles

QC Circle concerns (e.g., over the lack of a place to meet) are best addressed by the

department management, with assistance from the QC Circle Office. Although the QC Circle implementation is the direct responsibility of the QC Circle Office, the Circle members are organizationally within the jurisdiction of the department management, so the QC Circle Office must officially inform them of any action that requires their attention.

- Act as trainers

Sometimes management is asked by the QC Circle Office to teach a subject such as tools and techniques, depending on its expertise.

- Monitor QC Circle activities in their departments

The department management must take an active role in monitoring QC Circle activities, because their knowledge of these activities is no less important than that of any other department activities. In some companies, department heads are responsible for updating management on the status of QC Circle activities in their departments. In such cases, the facilitators in the departments submit regular status reports to them.

- Recognize Circle achievements

The recognition of QC Circle achievements is best done first by the department management. Recognition is acceptable either in writing or orally in the presence of other people. In some companies, both are done—that is, the Circle is recognized during case presentation and during assemblies, but also in a letter of recognition given to each member that is filed in the company records.

5-5 Maintenance of Circle Leadership

The first leader of every QC Circle is generally the first-line supervisor, until one of the members is able to assume leadership. It is recommended that Circle leadership be changed every two years, to give everybody a chance to become a leader. The procedure for selecting a leader is by vote, and the members usually base their choice on the ability of the candidates to

1. Persuade workshop employees to join the QC Circle
2. Teach members new tools or methods
3. Study continuously to improve their own competencies
4. Communicate with co-leaders for improvement
5. Maintain contact with management in their own workshops
6. Work with facilitators
7. Help new members
8. Organize meetings two or three times a month
9. Plan meetings, including doing the logistics
10. Persuade every member to attend the meetings
11. Conduct meetings effectively

An ideal leader would have the qualities shown in figure 64.

Figure 64 **Desirable QC Circle Leader**

BRAIN
- Flexibility
- Reasonable and sound talk
- Cool judgement
- Expertise in QC 7 tools
- Self-suppressed feelings
- Understanding of the theme

HEART
- Responsibility
- High spirit
- Sympathy
- Empathy
- Courtesy
- Composure

BODY LANGUAGE
- Physical contact
- Empathetic expression

MOUTH
- Persuasive power
- Humorous talk
- Contact w/smile

HANDS
- Skilled worker
- Quick worker
- Qualified worker

EYES
- Ability to identify workshop problems
- Always fully aware

FEET
- Contributor to discussions
- Acquirer of information
- Aggressive mover

EARS
- Careful listener (to even minor problems)
- Collector of information
- Attentive Listener to all members' opinions

5-6 Operation of QC Circle Competitions

A QC Circle presentation in a hospital (Photo by JUSE)

Case presentation

Competitions for QC Circles are held to recognize their contributions and to reward the best among them.

The competing Circles present their cases to a panel of judges; they are given 10 to 15 minutes to do this. It is up to the Circle to decide who among them will present the case; most Circles, however, choose to let every member participate in the presentation, no matter how small the role is. What is important is that each member is given a chance to contribute. The participants field judges' questions

for clarification at the end of their presentations.
Competitions are held at various levels. The first is the department-wide competition. Then the best Circle in the department competes with the best Circles from other departments at the plant-wide level. The best Circle in each plant moves to the division-wide level. In some companies, the best Circle from among the divisions is sent as a representative to a regional competition with other companies. The last level is the national competition, in which the best Circle from each region competes for recognition as the nation's best Circle.

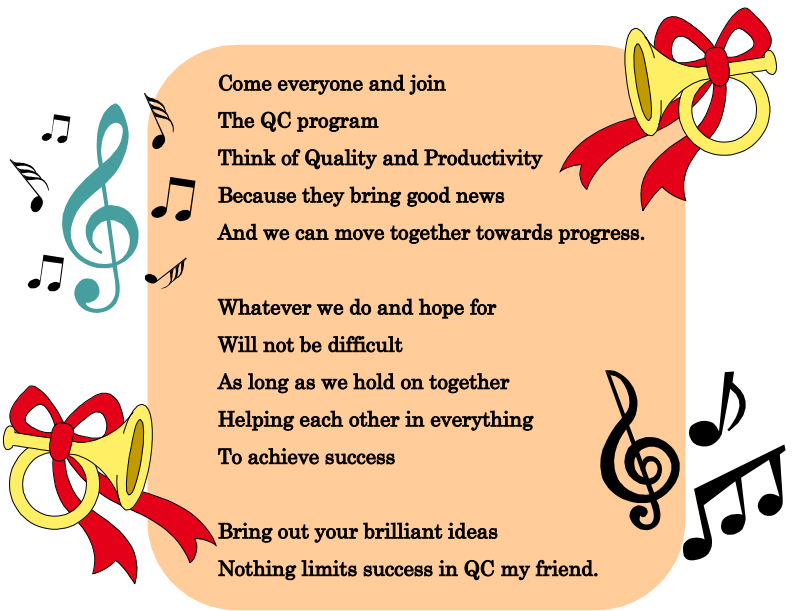
Other kinds of conventions

It takes about 3 to 6 months for a QC Circle to complete a case, so companies must think of other fun activities in order to sustain the enthusiasm of Circles. Conducting different kinds of conventions has proven to be effective in keeping the spirit of the Circle members alive—conventions on, for example, cases, jingles, slogans, and posters, logos, essays, and bulletin boards. More emphasis is placed on some of these (e.g., case presentation) than on others (e.g. jingles—a creative, unique convention type found in the Philippines). All of these deserve explanation, but need to be structured with appropriate differentiation.

- Jingle

A jingle is a short song, on average running for one minute. The Circles are given a theme—for example, teamwork. They write a message on teamwork and put it to music. The music can be original or an adaptation of a popular song.

Here is an excerpt of a jingle composed by the Mills & Balls Circle of Bacnotan Cement Corporation, a plant located in Bacnotan, La Union, Philippines.



The criteria for judging usually are message (40%), music (40%) and overall impact (20%). The latter includes costumes, musical instrumentation, and audience participation. A jingle is good if the audience move their bodies to the beat and hum along—in other words, if they feel the music.

The Circle with the best jingle is asked to sing during Circle events such as conferences, and their recorded jingle is played in the cafeteria during lunch.

The Philippines is the first country to adopt this form of convention, which is quite understandable because its people by nature love to sing. It is a very good means of encouraging Circle members to have fun, and is a form of group convention.

- Posters and slogans

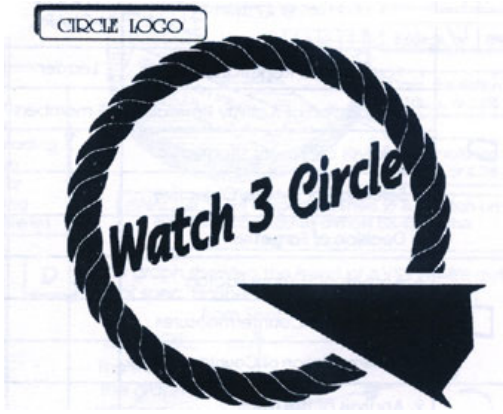
Posters are graphical presentations of messages or slogans, such as "Together we will zero out defects!" Like the jingle contest, they revolve around themes.

They are made from simple materials like colored pencils, crayons, and watercolors. The winning entries are usually displayed in strategic areas for everybody to see. They are also printed on notepads, pencils, stationery, and so forth.

The criteria are message (40%), illustration (40%) and overall impact (20%). There are two categories in this convention: group and individual.

- Logos and banners

Aside from its nickname, a Circle identifies itself with a logo. The logo is most often an illustration of the nickname.



The logo and the nickname of the Circle are used to form a banner that is displayed every time the Circle makes a presentation to management.

The criteria are message (20%), illustration (60%) and overall impact (20%) in the group convention.

■ Essays

Essay contests also revolve around a given theme—for example, "What the QC Circle concept means to me."

The criteria are message (60%) and language (40%). The language portion includes evaluation of which language can best convey the message. If the local dialect is more prevailing than English is, then an essay in the local dialect gets a higher rating.

The Circle may decide to submit a group entry or its members may submit individual entries. The winning essay is published in the company newsletter.

■ Bulletin boards

In some companies, sections of bulletin boards are dedicated to Circle activities. To get Circles to maximize the use of such space, sometimes a dress-up-your-bulletin-board contest is held company-wide. This is a fine time for the Circles to show off their accomplishments; they also display pictures taken during their case presentations, training, or meetings.

The criteria are message (40%), layout (40%) and overall impact (20%). This is a group convention, and it is usually held during celebration of QC Circle anniversaries.

5-7 Operation of Conferences and Conventions

Sending leaders, members, and facilitators to national conventions and conferences is a very good way to sustain enthusiasm in Circle activities. They get to compare their own experiences with those of their colleagues from other companies, learning new things in the process. And to maximize the learning gained, they are asked to share it with colleagues during forums specially organized by the QC Circle Office for this purpose.

Being sent to these conventions or conferences is itself a reward, and the experience of telling their colleagues what they learned is another form of reward.

A QC Circle Conference (Photo by JUSE)

QC Circle National Conventions, Japan, 2002 (Photo by JUSE)



QC Circle World Convention (Photo by Miyauchi)

6 QC Story

We saw in an earlier chapter that QC Circles were organized in Japan as a way of getting operators to participate in quality control activities. In order to be efficient and effective in their problem-solving activities, members follow the Plan-Do-Check-Act (PDCA) cycle, in which they plan for improvement, implement what is planned, check and analyze what has been implemented, and act based on the results of the checks.

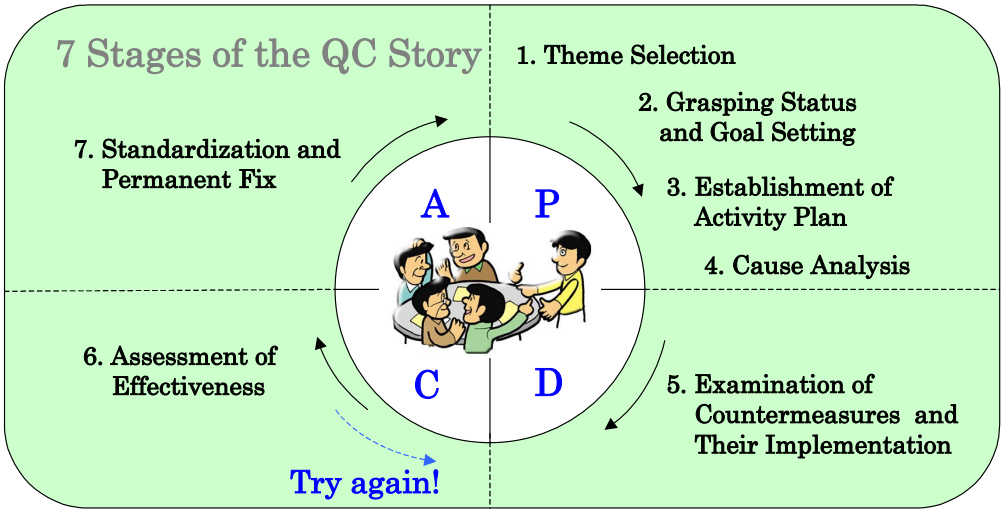
*This problem-solving process is commonly referred to as the **QC Story**. Each Story shows how QCC members solve a problem in a systematic PDCA manner. By looking at these stories, therefore, those who are not part of the QCC can also learn the problem-solving processes for their own use. This chapter will direct leaders on what a QC Story is, how it is organized, what its benefits are, and how it is to be monitored. Evaluation and monitoring play important roles in improving QCC activities. The chapter also discusses the role of management in evaluating a QC Story.*

6-1 What is a QC Story?

The problem-solving processes of QCC activities will be often presented in the form of a QC Story. Initially this method was used to report Circles' activities after they had solved their problems. Later it became what is now a problem-solving process. This process is a very effective method for addressing not only chronic problems in the workplace but also unforeseen problems and issues for which the causes have not been identified. Following the standard flow of stories, the QCC members summarize the procedures and identify the main factors in the processes. The following is a depiction of the seven major steps in establishing a QC Story.

A QC Circle meeting in a factory (Photo by JUSE)

Figure 65



1. At the first stage, members select a theme from among the problems in the workplace—a theme concerning problems for which they think solutions would be most beneficial. This is to provide clear vision on the objectives for the activity. Members ask themselves, "What kinds of problems do we have and how do we improve them?"

2. After a theme is selected, members try to understand the current situation of the problem. They list all of the possible problems related to the process, use data to validate that the "problems" are indeed problems, select the priority problem, and again use data to define the extent of this problem. The main objective of these steps is to gather information and grasp the status of the problem so that members can establish a detailed set of goals.

3. Based on the data acquired in the second stage, the members establish an activity plan, according to the 5W1H concept. In this concept, five *W* questions and one *H* question are addressed. The members decide the issues to be tackled (**what**), the rationale for tackling them (**why**), the detailed time scheduling of the program (**when**), and the place and resource allocation (**where**, and **who** and **how**).

4. The main objective of this stage is to confirm which measures can be taken for what kinds of problems. After a theme is selected, the causes and effects of problems are to be identified. This is the most important stage of the process, as it identifies the root causes of the problems and shows what needs to be changed. In problem-solving processes, it is very important that results are examined in line with causes, thus identifying the cause–effect relationship. Members consider all possible causes of the problem and see if there is any correlation among them. Then they use data to verify that the "causes" are indeed causes, to decide which ones are root causes, and to select the one root cause that is most critical.

Members also brainstorm on solutions to eliminate that critical root cause, select the best solution, and establish a detailed plan on how to implement it.

5. After causes are identified, countermeasures are examined, evaluated, and selected. This stage aims both to correct the root causes and to establish the most effective measures to prevent the reoccurrence of the problems. All the people concerned on the issue are gathered to discuss it, considering factors such as effectiveness, cost, condition of restrictions, and impacts on the other factors. Members then implement countermeasures in daily operations, according to the plan, and monitor the results.

6. Then an assessment is carried out to see whether the impediments have been overcome or to what extent the initial objectives have been met. This assessment is carried out together with evaluation for further improvement in the work. The Circle identifies the tangible and intangible results, uses data to verify these results, and compares these with the initial set of goals. The tangible results are improvements in processes, whereas examples of intangible results are improvement in employee learning skills and education. It is important to note here that if the result does not meet the goal, the process needs to be redone from the previous stages.

7. Finally after effective methods are identified, they are standardized and made a permanent part of daily operations. Based on the standardization, members train the people concerned. Also, new training manuals are created and disseminated among the people concerned, and evaluation is carried out from time to time, aimed at ensuring that the process is maintained appropriately. The last step in this stage is for the Circle to determine the next problem to tackle, which may be chosen from the list generated in the beginning of the first QC Story.

6-2 Benefits of the QC Story

Benefits of the QC Story

1. **Easy to understand the problem-solving processes**
2. **Can reflect on other activities**
3. **Can be disseminated horizontally for deployment**
4. **Facilitates accumulation of experiences and lessons learned**
5. **Improves members' analytical skills and statistical knowledge in a systematic manner**
6. **Enhances individual abilities in a group orientation**

Establishment of the QC Story is highly beneficial, not only because of its problem-solving properties but also because of what the members learn as they proceed through the steps. In fact, the QC Story brings both internal and external benefit to those involved in the processes.

As for the internal benefit, through QC Story activities, members systematically learn analytical skills as well as knowledge on statistical tools used in the process. The steps of the QC Story can serve as a roadmap for those who are not familiar with problem-solving processes. Members can reflect on their activities to enhance their future activities, applying lessons learned. Externally, the QC Story has greatly influenced horizontal relationships, as individual experiences are disseminated among those interested in the QCC method.

6-3 Example of a QC Story

The following is based on presentation No. 501 in the *3,000th Tokyo Headquarters QC Circle Competition*, held in 1993. The numbered (1–12) presentation slides depicted here are English translations, by this handbook's authors, of the actual Japanese slides. The accompanying explanations are based on the authors' understanding of the presentation.

Reduction in left-side sliding door defects

Deltawide (Daihatsu), TownAce (Toyota)

Koji Hamada
Daihatsu in Ikeda, Japan
Factory Headquarters

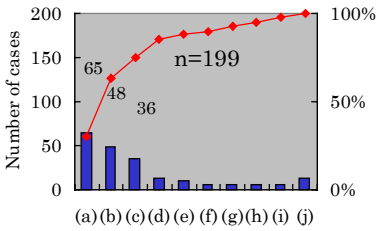
Participants in national QCC conventions come from a broad range of industries and thus have varying backgrounds. Therefore, Circles usually start their presentations by introducing their companies, including their histories. Then they explain their workplace: the main activities and the vision and mission of the Circle's activities. Most pertinently, the Circles provide information on the specific issues tackled in the case, focusing on why those issues were chosen and how they were addressed.

1 Introduction

At Daihatsu, out motto is "Customer First, Quality First." We are committed to "perfect production" and "perfect inspection," to increase our customer satisfaction. Our product line-up includes Mira, Opti, Charade, Deltawide, Rugger, and others. Our Kashiwagi Circle comprises young members (average age of 26 years). When the Deltawide is sent on a conveyer belt from the coating factory, the outfitting line puts in the preliminary fittings. We monitor this line, and when problems arise, all our members find solutions for them and ways to improve our work.

2 Reason for Selection

Pareto diagram on defectiveness



(a) Assembly of left-side sliding door
(b) Computer
(c) No.1 pit
(d) Front wipers
(e) Back door
(f) Front motor
(g) No.4 pit
(h) No.2 pit
(i) Butyl affix
(j) Others

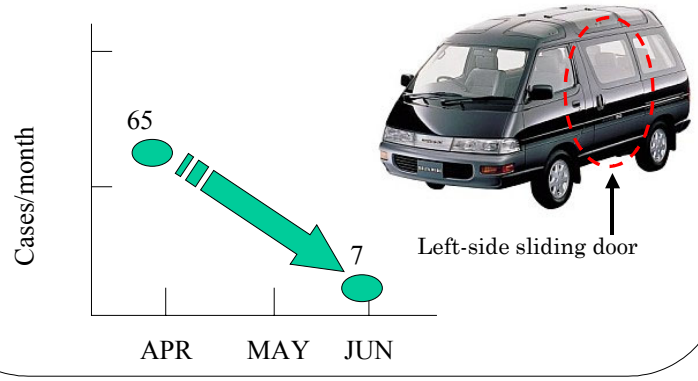
I. Slide door assembly defects account for 33% of the defects in the work done by the group.
II. The group was not able to reduce errors to a satisfactory level.
III. Refitting took 20 minutes per car.
IV. As new employees were assigned to this process, we decided to tackle this in the QC Circle (before a bad routine developed in the workplace).

In selecting issues to address, Circles first investigate the numbers of defects found in the relevant work (e.g., in a manufacturing company's assembly line). One such investigation by the Kashiwagi Circle revealed that among 199 defects that occurred in one month's production of a minivan model, sixty-five (about 33 percent) involved the sliding door. The Circle decided to address this as well as other issues such as not meeting targets in terms of error reduction and not correcting areas of defectiveness in a timely manner.

3 Goal Setting

90% reduction in defects in left-side sliding door assembly

From 65 doors/month (92/4) to 7 doors/month (end of 92/6)



The Circle set a goal of reducing the number of sliding-door defects from sixty-five in April 1992 to seven in June, just two months later.

4 Implementation Plan

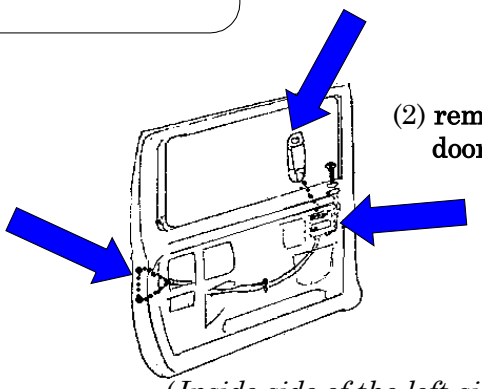
Plan **Implementation**

Item	Person in charge	'92 May	'92 Jun
Understanding current status	Kashiwagi		
Factor analysis	All		
Countermeasures	All		
Implementation	Furuya		
Confirming effectiveness	Hamada		
Standardization	Hamada		
Permanent fix	Kashiwagi		

After Circles set their goals, they query their members about what they understand the problem to be (in general and currently), aiming at seeing the problem in as much detail as possible. Often work-flows are listed both as they were planned and as they were implemented, and afterwards are analytically compared for the benefit of future goal setting.

5 Work Outline

Construction process of
left-side sliding door
(1) fit **outer handle**
(2) fit **remotely controlled door opener**
(3) fit **lock**



(*Inside side of the left-side sliding door)*

When fitting the remotely controlled door opener, it is difficult to adjust the outer handle.

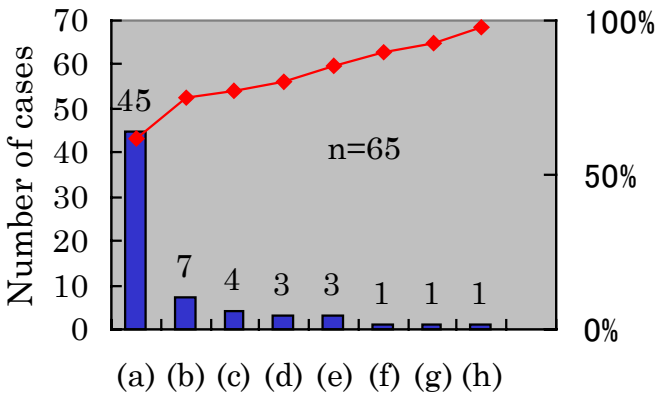
Introduction of the Quality Control Circle		**Name: Kashiwagi Circle Established in 1988**	
Registration no. of group	**359704**	Number of meetings per month	**4**
Members	**9**	Meeting duration	**0.5 hrs**
Average age	**26**	Themes reviewed	**24**
Circle members' average years in service	**5**	Duration of current topic	**'92/5-'92/6**
Meeting time	**After work**	Number of meetings until completion of topic	**8**
(Position/Department of Speaker) **Group 1, Second Manufacturing Dept., Factory headquarters in Ikeda** **5 years of experience in the department**			

In the Kashiwagi Circle's presentation, the members revealed their discovery that when fitting the remotely controlled door opener, it was difficult to adjust the outer handle. They presented a mapping of the sequence for parts attachment in the assembly of the sliding door (first the outer handle, then the remotely controlled door opener, and finally the door lock). They also gave an overview of the Circle: its members' average age and years of service, its meetings' frequency and duration, and other basic information. The nine members (on average, twenty-six years old with five years of service to the company) normally met for thirty minutes after work four times a month. As of early May 1992, the Circle had already achieved twenty-three objectives and had scheduled eight meetings through the end of June to tackle its twenty-fourth.

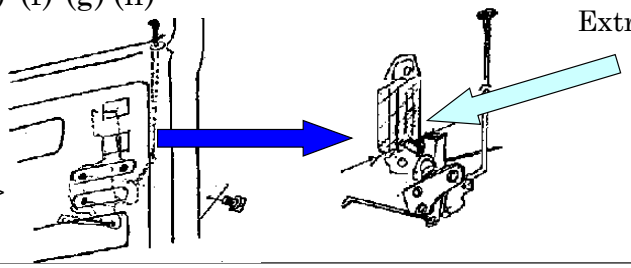
6 Understanding Current Status

Process for the left-side sliding door

(Pareto diagram on defects)

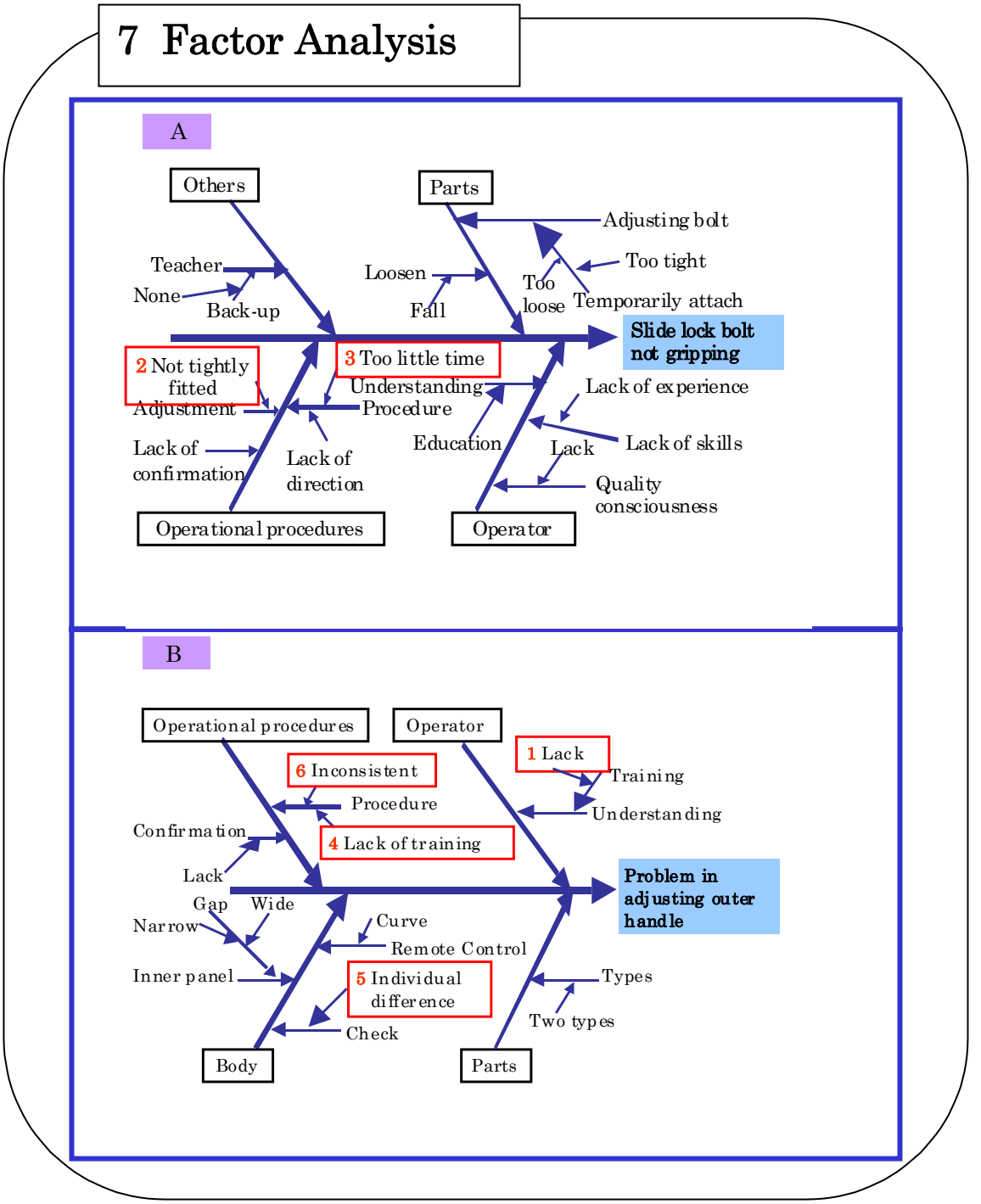


(a): bad attachment of outer handle
(b): damaged lock bolts for the sliding door
(c): lock bolts not tightened
(d): outer handle not sufficiently tight
(e): wire lock bolt not sufficiently tight
(f): keys not made
(g): inner handle stuck in the unlatch position
(h): scratches on outer handle



<Outer handle of left-side sliding door poorly fitted>

According to this second Pareto diagram, of the sixty-five monthly defects that the Kashiwagi Circle experienced, forty-five were in the category of *bad attachment of outer handle*.



Once Circles fully analyze the general, current status of their work, their members try to identify the real root problems, using a cause and effect diagram (one of seven QC tools). As for the Kashiwagi Circle, the members identified two major defects in the sliding door: one, the slide lock bolt did not grip, and two, the outer handle was difficult to adjust. The cause and effect diagram brought more detailed focus to the two problems and identified six crucial factors.

8 Investigation/ Policy/ Effects

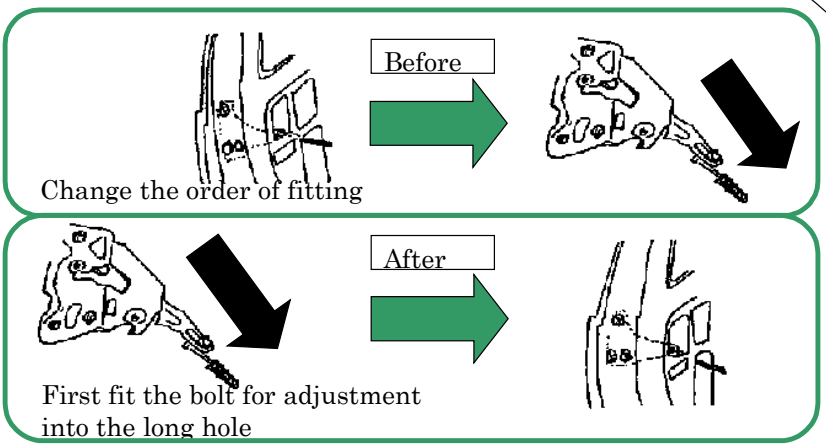
No.	Investigation	Policy	Effects
1	Insufficient time for new operators to absorb contents of training	Hold meetings with group leader during training time	◎
2	Wiring for door lock not tightly fitted	Teach workers to pull door lock wires to the right side and secure with bolt	◎
3	Too little time to work according to set process; forgot to fit door locks	Teach workers to follow work manual and go according to process even when delays occur	○

Notes: ◎ (big improvement), ○ (improvement)

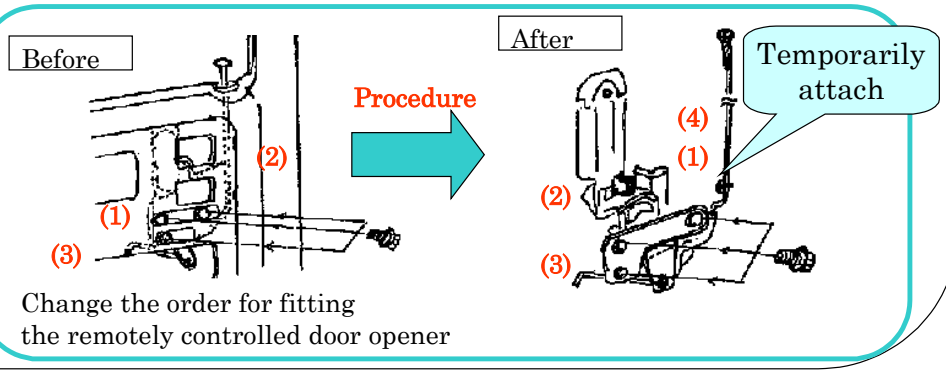
9 Countermeasures

Examples of countermeasures

Control Wire Bolt

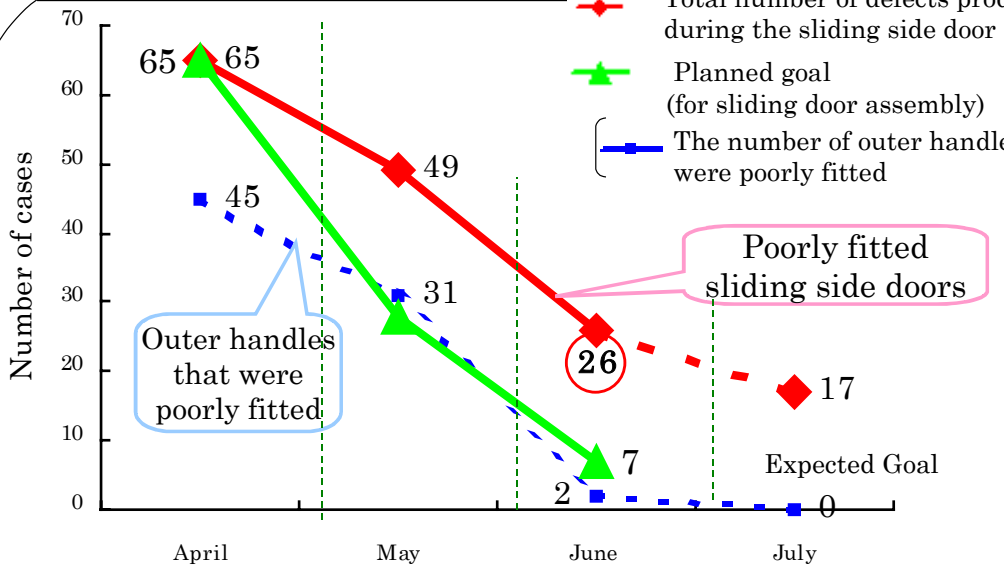


Remotely Controlled Door Opener



Once Circle members have constructed their cause and effect diagrams, they decide and prioritize countermeasures for the problems. In the case of the Kashiwagi Circle, the members decided that the leader would head a meeting, designed to improve the understanding of new operators, and instituted a new procedure for securing the door lock.

10 Confirmation of Effectiveness



Result: decreased from 65 to 26 cases decreased from 45 to 2 cases

Intangible effects:

(1) increase in knowledge of products
(2) increase in customer satisfaction through participation by all workers
(3) increase in motivation of new employees

Effects on pricing:

(1) 43 cases×20 min×¥43.3=¥37,238 (adjustment) ($310 approx.)
(2) 9,970 cars×0.02 min×43.3=¥8,634 (progress in working capability) ($72 approx.)

These countermeasures were effective. The total number of defects resulting from the assembly of sliding doors was reduced from sixty-five in April to twenty-six in mid June (not the targeted number, but a 60 percent improvement nonetheless). Among the sixty-five defects, those relating to poorly fitted outer handles were reduced from forty-five in April to just two in June, and this number was subsequently reduced to zero.

11 Standardization

Revisions to work manual

(1) When fitting the door's lock, pull and attach the wire to the right side.
(2) Handle parts carefully (e.g., by remote control).
(3) Carry out indication maintenance once a month.

Additions to work manual

(1) Check to see that all outer handles are tightly fitted.
(2) When the outer handles are poorly fitted, adjust the settings.

When good results are obtained, Circles then take steps to standardize the procedures and maintain the improvement. The Kashiwagi Circle explained that to do this, it decided on two types of changes to its work manual: revisions and additions. Changes to the work manual not only facilitated easy dissemination of the new practices among the members but also provided a benchmark by which the members could be assured that the new standards were being adhered to appropriately.

12 Conclusion

The topic was to create a policy to curb the bad work process exercised by new employees. By getting all of the Circle members to understand the problem, we were able to minimize the number of left-side sliding door defects by sixty percent, and for outer handles, we were able to decrease the number of defect cases from forty-five to two in June and to zero in July.

Merits:
(1) Smiles appeared on the faces of new employees half way through our project.
(2) Through the Quality Control Circle's project we were able to measure mutual understanding of the group members.

Remaining task:
Completely get employees to stop working on hunches.

The last part of a presentation in a QCC convention comprises the Circle's summary of their QC Story and some conclusions. Here, Circles note their successes, both tangible, such as time and cost reduction, and intangible, such as improvement in the work environment; and if there were any failures, they cite the reasons for them, if possible.

7 Benefits, Elements of Success, and Impediments

QC Circle activities produce many benefits, as can be attested to by Circle members, leaders, facilitators, and management of companies that have adopted the QC Circle concept as a management tool to get everyone involved in ensuring the quality of products and services as demanded by customers. The first part of this chapter explains the benefits gained by such companies. These companies know from their own experience that the benefits come not on a silver platter but through the continuing process of trial and error. What they have in common is that they implemented certain elements that were successful, which are described in the second part of this chapter. The impediments to success are illustrated in the last part.

7-1 Benefits from QC Circle Activities

The benefits from QC Circle activities can be classified into intangible and tangible benefits. The intangible benefits are those that are qualitative—for example, we cannot say that teamwork was improved by 50 percent; we can only provide manifestations of improved teamwork, such as noting that attendance in meetings improved by 80 percent. Even though improvement in attendance is quantifiable, it is not equivalent to improved teamwork; it is just a manifestation. Tangible benefits, on the other hand, are those that can be quantified—for example, reduction in the defect rate from 50 percent to 10 percent.

For better appreciation of intangible benefits gained from QC Circle activities, the question of, "What is in it for me?" must be answered. The question has many variations—for example, "What is in it for the company if it has QC Circles?" A corollary question is "What is in it for management, for the Circle leader, and for the Circle members?"

7-1-1 Benefits for QC Circle Members

Benefits for QC Circle members

- **Transformation of oneself into a thinking human being**
- **Development of self-confidence**
- **Establishment of closer relationships with colleagues**
- **Improvement in customer orientation**
- **Understanding of the requirements of the customer**
- **Improvement in commitment to the goals of the company**
- **Establishment of a better relationship with management**

● Transformation of oneself into a thinking human being
The operators come to realize that they are not just *doing* but also *thinking* human beings. And as thinking human beings, they discover that they have something to contribute to the way work is being done.

They discover during Circle meetings that they and other members have ideas. When a member gives an idea and it is accepted, he feels accepted and this encourages him to give more ideas; thus, a spiraling of ideas happens.

● Development of self-confidence
Every step in the QC Story contributes to the development of all members' self-confidence. They develop confidence as they learn to give their ideas on problems they have in the work area; as they collect data, analyze it, and translate it into actionable information; as they make decisions on what is the major root cause of their problem; and as they weigh their options as to the best solution to their problem.

They develop confidence as they monitor the effects of their solution; as they make judgment as to the effectiveness of their solution; as they decide on what needs to be done so as to make the improvement permanent through standardization; and as they decide on what problem to tackle next.

Their creative juices are unleashed, so one sees Circle members blooming with pride during management presentations.

● Establishment of closer relationships with colleagues
As they get to communicate more with their colleagues, they form closer relationships. They come to understand what each other is doing, and how their work is interrelated.

The closer relationship is also manifested in non-Circle activities that they do together, such as eating meals, drinking coffee, going to the movies, swimming, bowling, and so forth. In other words, they develop a relationship that extends beyond work.

● Improvement in customer orientation
The QC Circle provides members with an opportunity to see the company from management's perspective: stature of the company, competitiveness, public perception of the corporate culture, and so on.

● Understanding of the requirements of the customer
Members realize that everything they do will contribute to the quality of the product or service that goes to the customer, and that the ultimate goal is to please the customer with the product or service throughout its lifecycle.

● Improvement in commitment to the goals of the company

Their being customer-focused brings personnel to another level of commitment, a commitment to the attainment of the goals of the company. They know that every defective product delays delivery and may cause the customer to stop buying from the company. They know that every call that is not answered may be an opportunity lost, and that a customer complaint or request not handled well may mean customer dissatisfaction that can lead to losing the customer. They know that every wasted raw material may make the product more costly, thus priced too high for the intended customer to afford it. They know that coming late to work will delay the delivery of a service or the production of a product. In sum, the members have a greater awareness of the importance of their work in the organization.

A QC Circle meeting in a factory (Photo by JUSE)

A QC Circle meeting in an airline company (Photo by JUSE)

7-1-2 Benefits for Circle Leaders

Benefits in addition to those to individual members

- **Development of group skills**
- **Development of analytical skills**
- **Development of interpersonal skills**

● Development of group skills

The effectiveness of the meetings depends greatly on the group skills of the leaders. They prepare the meeting agenda, something they never did before. They get to summarize the points discussed, keep the discussion on track, and get the members to formulate a code of ethics to achieve the desired behavior (e.g., timely completion of tasks).

- Development of analytical skills

As they direct the Circles to their objectives, the leaders develop an inquisitive attitude, making a habit of questioning in terms of what, who, why, when, where and how. And through such practice, they make it easy for their colleagues to become analytical, too.

Leaders get the members to make attitude shifts—to think that there is always a better way.

- Development of interpersonal skills

Leaders learn how to seek consensus instead of imposing their ideas. They learn how to read non-verbal communication and seek clarification all the time.

They learn the value of not putting people down, of giving credit to individuals, of not taking the behavior of difficult members as a personal affront.

They learn to use words that don't hurt the feelings of others and to establish win-win situations in times when members strongly contradict each other, thus playing the role of counselor.

They learn how to get excited about meetings, focusing only on positive thoughts, and to not bring irrelevant problems to Circle meetings.

7-1-3 Benefits for Facilitators

Benefits for facilitators

- **Development of training skills**
- **Development of coaching skills**
- **Development of coordinating skills**

Development of training skills

Facilitators learn how to convince Circle members of the benefits of learning new skills, to do training needs analysis, and to design training programs.

As a trainer, they learn how to present ideas in a clear manner so that the members can easily understand the topic. They prepare visual aids and handouts that are concise, pleasant to the eye, legible, and easy to understand.

They have to know what questions to ask and how to ask them when they want to check the level of the understanding of the members.

They have to balance concepts with actual applications. They can't be perceived as bookish—that is, when they teach, they should know the actual situation in the workplace and use examples that are relevant to the members.

They learn how to make their sessions fun-filled, because a very formal atmosphere inhibits creativity. By visiting other companies, going to school libraries, and attending seminars and conventions they equip themselves with treasure chests full of exercises on how to energize groups.

Development of coaching skills

As a coaching function, facilitators show leaders how to accomplish what they set out to do. For example, they have to show new Circle leaders how to prepare a meeting agenda. Coaching is done by asking a lot of questions—questions that help the leader to think.

Coaching, in this sense, is more guiding than instructing. For instance, instead of telling leaders what their agendas are, they ask thought-provoking questions such as, "What is your objective for conducting this meeting?" or "How much time do you generally need to review previous meetings' agendas?"

Facilitators do a lot of coaching. They coach the leaders on how to manage meetings, how to get support from difficult members, how to collect data and summarize them into actionable information, how to document discussions, and so forth.

The coaching happens before and after the meeting and not during meetings, otherwise the leader's credibility with the members could be tarnished. Thus, facilitators are the persons behind the successes of leaders.

Development of coordinating skills

Facilitators make sure that the things needed by a Circle are available. In the process, they learn how to coordinate with other units in the company, in obtaining another department's data, for instance.

Facilitators also coordinate with management, and this task requires them to think like management. They must anticipate management questions and be prepared to answer them. One frequently asked question is "What is the status of your Circle's activities?"

In their coordinator roles, facilitators have to blend diplomacy and psychology with their managerial skills.

7-1-4 Benefits for Management

Benefits for management

- **Reduction in the need for control and supervision**
- **Establishment of smoother workflow**
- **Improvement in the relationship between management and operators**
- **Reduction of absenteeism and turnover**
- **Improvement in leadership competency**

All the benefits gained by the Circle members, leaders, and facilitators also benefit management. QC Circle activities also benefit management in the following specific ways:

- **Reduction in the need for control and supervision**

Now that the Circle leaders and members are active participants in the overall effort of the company to improve quality and productivity, the need for supervision is reduced. As a matter of fact, companies' experiences in QC Circle activities have brought about the concept of self-directed teams. A self-directed team is one in which the members manage a unit of work, including the hiring and firing of members. They can stop the work if they detect that something is wrong. For further details, see other literatures on the subject.

Reduced supervision gives management more time for other managerial jobs.

- **Establishment of smoother workflow**

With the improved relationship among Circle members and strengthened coordination among departments, the workflow becomes smoother. So in companies where the QC Circle concept has been adopted, people are aware that quality products or services are assured only when there is quality in terms of inputs, processes, and processors, and thus those companies exhibit strengthened collaboration among departments.

- **Improvement in the relationship between management and operators**

The relationship between management and the operators is improved because there is a change in attitude: not just in that of the operators but also in that of the management.

The change in attitude of course starts with management believing that the people who are closest to the job know best how to improve the job.

Management used to think that operators were indifferent to the concerns of the company, but now their perception has changed; they see them

viewing their work as meaningful activity that provides them with self-satisfaction, enriches their professional knowledge, and helps them win the respect of their colleagues and superiors.

- **Reduction in absenteeism and turnover**

An obvious result of a committed people and their better relationships with colleagues and management is a reduction in absenteeism. The workplace is now seen as a source of new learning and new inspiration and as an environment conducive to achieving one's personal goals, so people are less inclined to leave the company.

- **Improvement in leadership competency**

Given that their time is spent less on supervision and more on other responsibilities, management becomes more competent as leaders. Whereas before, they were too busy with solving routine problems, they now can lead their people toward the attainment of company goals.

7-1-5 Benefits for the Company

Benefits for the company

- **Improvement in the quality of products and services**
- **Improvement in productivity**
- **Strengthened competitiveness**
- **Increased profitability**

So we see that what is good for its people is also good for the company. In addition, QC Circle activities benefit companies specifically in the following ways.

- **Improvement in the quality of products and services**

The end product of a committed people, improved processes, better cooperation and coordination, and better relationship between management and its people is a product or a service that not only meets customer needs and expectations but one that delights the customer anytime, anywhere.

- **Improvement in productivity**

With the new attitudes towards themselves, their work, and their company, people are now able to produce more products or services with the same number of inputs or even fewer. Thus cost per unit is reduced.

- **Strengthened competitiveness**

With improved quality and productivity, competitiveness is strengthened. The company becomes a more powerful competitor, not just within the country but across the globe.

- **Increased profitability**

With improved quality and productivity, strengthened competitiveness, and all of the other above improvements, increases in profit come naturally, so we again conclude that QC Circles are good for the company as well as its people. They are also good for the customer, and this too is good for the company and its people.

To illustrate actual benefits gained from the implementation of a QC Circle program, here is what Mr. Filemon T. Berba, the vice chairman of Manila Water Company, Inc. (Philippines) had to say during ICQCC 1996 in Manila.

> *The program not only gave due recognition to the employees' analytical skills but also challenged their creativity and ability to make a difference, if only within a limited sphere.*
>
> *The impact of the program cannot be ignored. Barely a year after it was introduced, it has seen completion of seven projects, which combined have benefited the company to the tune of about 6 million pesos, either in savings or in additional revenue generated.*
>
> *What is remarkable, besides the financial returns the program has realized, is the way it has affected the people's attitude, drive, and mindset. Long mired in lethargy and resigned to the bureaucratic setup, the people suddenly found a vehicle to showcase their talents.... Right within their midst, they started looking at the established systems they have employed for years, trying to find out if there is anything that needed to be fine-tuned, improved or changed.*

Mr. Berba cited the company's Reductor Circle, composed of maintenance personnel in the General Administration Department. They implemented an energy conservation project that not only minimized power consumption but also improved the efficiency of the machines being operated. This project saved the company 4,960,000 pesos in power cost.

Mr. Berba stressed that many of the projects undertaken by the Circles have resulted in material returns, but that improvement in their systems and procedures is always at the core of their Circle program.

He cited another QC Circle project that focused on improvement in procedures. The Circle, named Catalysts, is in the Human Resource Administration and Services Department, and was able to reduce the processing time for social security loans from 1.5 days to 3 hours, and for housing loans from 2.5–3 days to 6 hours.

7-2 Elements of Success

The benefits that can be derived from QC Circle activities are plentiful, dependent only on the environment in which the QC Circle philosophy is allowed to grow.

Companies that have shown relative success in the implementation of QC Circles have the following elements in common.

Elements of success

- **Management commitment**
- **Participation by everyone**
- **Effective operation by the QC Circle Office**
- **Continuous training and education**
- **Continuous promotional activities**
- **Effective monitoring and evaluation**
- **Establishment of recognition and reward systems**
- **Gradual implementation**

- **Management commitment**

The commitment of management is well defined and is communicated to everyone in the company. It is only management that can muster the institutional will to bring the company to a new way of doing business; so without its support, QC Circle implementation can never take off the ground. Management translates its commitment visibly by attending QC Circle case presentations, giving pep talks during training of leaders and members, allowing Circles to meet on company time, attending QC Circle training designed for them, talking about QC Circle achievements to their peers inside and outside the company, and so on.

- **Participation by everyone**

Everyone in the organization, from management to the frontline operators, is actively involved in the Circles: management is on the QC Circle Steering Committee, department and division managers manage the QC Circle activities in their departments or divisions, and supervisors and operators act as leaders for the activities of newly established Circles until they mature.

- **Effective operation by the QC Circle Office**

There is a full time QC Circle Office manager and a full time facilitator who are tasked with managing the QC Circle program implementation.

There is at least one facilitator in each department who, on a part-time basis, provides support to the Circle leaders in the department.

- **Continuous training and education**

As the company gains experience in its QC Circle activities, its QC Circle Office addresses the training needs of the company's leaders, members, and facilitators.

Standard training courses are formulated, and materials are designed and made available to anybody who is in a position to conduct training. The company establishes minimums in hours of training required in order to hold the various positions in the QC Circle organization. Training rooms and equipment are

available when needed.

A certain amount of budget is allocated for people who want to attend conventions or conferences outside the company. Visits to companies that have QC Circles are included in the annual plan for the QC Circle program.

- **Continuous promotional activities**

Part of the annual plan and budget of the QC Circle Office is a provision for promotional activities such as QC Circle conventions.

Leaders, members, and facilitators are counseled on how to energize QC Circles and sustain the enthusiasm of members.

Visits to companies with QC Circles are encouraged, and QC Circles from other companies are invited during company conferences, providing opportunity for discussion about each other's experiences.

- **Effective monitoring and evaluation**

A mechanism for monitoring and evaluating QC Circle activities and projects is in place. Regularly scheduled meetings are held to discuss the status of QC Circle activities, and reports on these meetings are provided to management, also on a regular basis.

- **Establishment of recognition and reward systems**

Every QC Circle accomplishment is recognized and outstanding achievements are rewarded. The recognition and reward scheme is evaluated regularly to ensure that it is still relevant.

- **Gradual implementation**

They start with a pilot Circle or two, and as they gain experience, they gradually increase the number of Circles every year.

7-3 Impediments to Success

Companies that have experienced difficulties in implementing their QC Circle programs talk about the same elements described earlier, but in these cases the point is that those elements were either absent or lacking.

Impediments to success

- **Lack of management commitment**
- **Lack of capacity**
- **Lack of participation by department management**
- **No person assigned on a full-time basis**

- **Lack of management commitment**

Management commitment is lacking or is not communicated well to everyone in

the company. Management commitment is lacking in companies in which management assigns a division or department head to study and implement the program. Because this person has other functions, this assignment is not given much priority, and therefore a lot of the important steps in the implementation of the program are not done—one of which is for management to define its commitment to the program.

- **Lack of capacity**

There are also cases where the person assigned does not have the capacity to do the job. He goes to training on QC Circle implementation and formulates an implementation plan but is not able to convince management to carry out his plan. In some companies, the impediment is that the commitment of management was not communicated to everyone, or, in some cases, it was communicated but not enough time was provided to get people to understand it.

Some of these companies were able to correct such impediments by subsequent program launchings in which their presidents explained their personal commitment, talked about the initial efforts of the company, and enjoined everyone to support the program. The management of the various departments then had their own meetings with their own people and discussed the commitment of management in more detail.

- **Lack of participation by department management**

Again, this is seen in companies in which there is not enough preparation for the implementation of the program.

When the department management was not participating at all, or even worse, was showing negativity toward the Circles, upper management met with them and clarified their role.

In one company, management sent its department managers to international and national conventions to provide them an opportunity to understand the QC Circle philosophy better. In another, management included QC Circle involvement in the performance evaluation of department management.

- **No person assigned on a full-time basis**

The program cannot really get off the ground without assigning a person or persons to manage it on a full-time basis.

Other impediments to success may include the following:

- **No specific budget is allocated for training and education.**
- **No activities are provided to sustain enthusiasm among members.**
- **No monitoring and evaluation mechanism exists.**
- **No clear reward and recognition system exists.**
- **Implementation is done company-wide all at once from the start.**

Appendix:
LIST OF ORGANIZATIONS PROMOTING TQM/QCC IN ASIA

The purpose of a list of organizations promoting TQM and/or QCC in Asian countries is to provide interested organizations or individuals in Latin American and Caribbean countries with useful information in reference to active Asian private and public organizations that facilitate quality management in diverse ways domestically and internationally. After initial monitoring and screening processes, a survey was conducted during May and June 2003, in the form of a questionnaire targeting Asian organizations in Bangladesh, China, Hong Kong, India, Indonesia, Japan, Malaysia, the Philippines, Singapore, South Korea, Sri Lanka, Taiwan, and Thailand. Organizations in Bangladesh, Hong Kong, Japan, Malaysia, the Philippines, Sri Lanka, and Taiwan kindly responded to this survey and agreed readily to disclose the information about their activities, including information that cannot be obtained from the Internet. As for organizations in the other countries concerned, the listed information only includes URLs of their websites.

I. Organizations that Cooperated in the Survey

BANGLADESH
Bangladesh Society for Total Quality Management

GENERAL INFORMATION

1. Organization Data

Name	Bangladesh Society for Total Quality Management
Address	C/o: MICRO, BSCICElectronics Complex (7th.Floo), Section:7, Dhaka-1216, Bangladesh
TEL	880-2-8012244, 8012288, 9005109
FAX	880-2-98012266
URL	N/A
Organization Type	A membership-based welfare organization that operates as a nonprofit society
No. of Employees	2
No. of Members	350

2. Contact Person in Charge of TQM/QCC

Name	Mr. Md.Nefaur Rahman
Title	President
Department	BSTQM
TEL	880-2-8012244, 8012288, 9005109
FAX	880-2-98012266

E-mail	micro@dhakacom.com
Contact in English	Yes

3. Organization Profile

Bangladesh Society for Total Quality Management (BSTQM) is a voluntary organization focused to promote Quality Management in Bangladesh. BSTQM was established in 1996 and is registered under societies act.

Membership of the society is open to quality practitioners and interested personalities. Main activities of the society include organizing Annual Quality Convention, seminars, training courses, discussion programs, publication of books and newsletter and cooperation with relevant agencies at home and abroad.

An Executive Committee having 15 members elected every two years manages the affairs of the society. Executive Committee accounts to the Annual General Meeting held every year. A chartered accountant appointed in the Annual General Meeting audits the society. Initially few interested persons formed a TQM Club in 1994, which, was later converted to BSTQM.

TQM/QCC ACTIVITIES

Focus	TQM, QCC and others (5-S activities, Statistical Methods, ISO-9001QMS, Behaviour Modification for Improved Employee Participation, Organisational Development Issues)
When Initiated	1996
Activities/Services	Training, Conference organization and Media exposure

1. Training Program/Service

Name	Total Quality Management, Quality Control Circles, 5-S Techniques, etc.
When Initiated	1994
Times per year	Twice a year at most

2. Consulting Service **Not Applicable**

3. Conference Organization

Name	Total Quality Management, Quality Control Circles, 5-S Techniques, ISO-9001 QMS, SA-8000, ISO-14001 EMS, Leadership, Behaviour Modification etc.
When Initiated	1994
Times per year	When required

4. Other QCC and/or TQM -related Activities

Administering Quality Awards, suggestion scheme

Centre for Management Development (Bangladesh)

GENERAL INFORMATION

1. Organization Data

Name	Centre for Management Development
Address	House No:33 (3rd. Floor), Road No:4, Dhanmondi Residential Area, Dhaka-1209, Bangladesh
TEL	880-2-9661228
FAX	880-2-9660503
URL	N/A
Organization Type	Private, Voluntary Society
No. of Employees	15

2. Contact Person in Charge of TQM/QCC

Name	Mr. Syed Masud Hasan
Title	Managing Director
Department	Centre for Management Development
TEL	880-2-9661228
FAX	880-2-9660503
E-mail	cmd@bangla.net
Contact in English	Yes

3. Organization Profile

Centre for Management Development popularly known, as CMD is an enterprise engaged in the field of Consultancy, Training and Research in the area of Management, Quality and Productivity. It is a private limited company registered under companies' act of the government of Bangladesh.

Services offered by CMD includes major fields like Management, Total Quality Management, Quality Control Circles, 5-S Techniques, Suggestion Scheme, Policy Management, Corporate Policy management, Statistical methods for Process improvement, ISO-9001 QMS, SA-8000, ISO-14001 EMS, Leadership, Materials Management, Project Management etc.

There are four fulltime Directors including the Managing Director who, manages all activities of the company. In total there are 8 shareholders.

TQM/QCC ACTIVITIES

Focus	TQM, QCC and others (5-S activities, Statistical Methods, ISO-9001QMS, Behaviour Modification for Improved Employee Participation, Facilitators Skill Training, Organisational Development Issues)
When Initiated	1991

Activities/Services	Training, Consulting, Conference organization and Media exposure
Foreign Partnership	We collaborate with Bureau Veritas, India for ISO-9001, SA-8000 and other certification. We are also working with the International Institute of Education-Energy Group, USA in implementing various programs mentioned above.

1. Training Program/Service

Name	Management, Total Quality Management, Quality Control Circles, 5-S Techniques, Suggestion Scheme, Policy Management, Corporate Policy management, Statistical methods for Process improvement, Facilitators Skill Training, ISO-9001 QMS, SA-8000, ISO-14001 EMS, Leadership, Materials Management, Project Management, Training of Trainers etc.
When Initiated	1991
Times per year	On request or whenever need arises

2. Consulting Service

Name	We have implemented TQM, QCC, ISO-9001 and other Quality Management Tools in many organisations
When Initiated	1991
Times per year	Several times on requirement

3. Conference Organization

Name	Management, Total Quality Management, Quality Control Circles, 5-S Techniques, Suggestion Scheme, Policy Management, Corporate Policy management, Statistical methods for Process improvement, ISO-9001 QMS, SA-8000, ISO-14001 EMS, Leadership, Training of Trainers, Behaviour Modification etc.
Initiation Time	1991
Times per year	When required

4. Other QCC and/or TQM -related Activities

5-S Techniques, Suggestion Scheme, Policy Management, Corporate Policy management, Statistical methods for Process improvement, ISO-9001 QMS, SA-8000, ISO-14001 EMS, Leadership, Behaviour Modification, Training of Trainers etc.

HONG KONG

Hong Kong Productivity Council

GENERAL INFORMATION

1. Organization Data

Name	Hong Kong Productivity Council (HKPC)
Address	HKPC Building, 78 Tat Chee Avenue, Kowloon Tong, Hong Kong
TEL	(852) 2788 5678

FAX	(852) 2788 5900
URL	http://www.hkpc.org
Organization Type	NPO
No. of Employees	HKPC employs approximately 700 highly-trained, skilled consultants and staff.

2. Contact Person in Charge of TQM/QCC

Name	Mr Edmund Sung
Title	Director (Services and Business)
Department	Services and Business Branch
TEL	(852) 2788 5820
FAX	(852) 2788 5900
E-mail	Esung@hkpc.org
Contact in English	Yes

3. Organization Profile

The Hong Kong Productivity Council (HKPC) is a multi-disciplinary organization established by statute in 1967. Its mission is to promote productivity excellence through the provision of integrated support across the value chain to innovative and growth-oriented Hong Kong firms, helping them to effectively utilise resources, add value to their products and services, and strengthen international competitiveness.

HKPC is governed by a Council comprising a Chairman and 22 members. They represent managerial, labour, academic and professional interests, as well as a number of government departments concerned with productivity issues.

The operation of HKPC is supported by fee income from its services and a government subvention in balance.

HKPC provides a diverse range of services in consultancy, training, technology transfer and product development for Hong Kong's manufacturing and related sectors in four key service programmes:
Manufacturing Technologies, Environmental Technologies, Information Technologies and Management Systems.
Some facts and figures about HKPC:

- HKPC's headquarter at the HKPC Building in Kowloon Tong houses over 30 Centres of Excellence, 10 testing laboratories, a library, as well as exhibition and training facilities;
- HKPC employs about 700 highly trained consultants and staff;
- HKPC conducts over 1,500 consultancy projects each year;
- HKPC organises over 1,200 training and seminars each year for over 20,000 participants;
- HKPC organises over 50 exhibitions and study missions each year;
- HKPC receives over 10,000 local and overseas visitors each year;

- HKPC provides services to over 4,000 companies each year; - HKPC publishes 14 trade journals and directories for various manufacturing and related services industries.

TQM/QCC ACTIVITIES

Focus	TQM and QCC; Remark: QCC also regarded as QIT/WIT (Quality Improvement Team/Work Improvement Team)
When Initiated	1981 (for QCC), 1995 (for TQM)
Activities/Services	Training, Consulting, Conference organization and Media exposure
Foreign Partnership	Union of Japanese Scientists and Engineers (JUSE), Japan

1. Training Program/Service

Name	QIT/WIT Facilitator, Malcolm Baldrige Quality Award Model, Quality Improvement Process, TQM Implementation, etc.
When Initiated	1981 (QCC), 1995 (TQM)
Times per year	Around 20

2. Consulting Service

Name	Malcolm Baldrige Quality Management Model Implementation, QIT/WIT Establishment/Facilitation, TQM Implementation
When Initiated	1995
Times per year	Around 10

3. Conference Organization

Name	Quality Management Convention; co-organized with Hong Kong Quality Management Association (HKQMA)
When Initiated	1991 (cooperated with HKQMA)
Times per year	Once per two years

4. Other QCC and/or TQM -related Activities

Strategic Planning, Managing For Result, Benchmarking, Business Process Improvement, Performance Management, Balanced Scorecard, Six Sigma

JAPAN
Union of Japanese Scientists and Engineers

GENERAL INFORMATION

1. Organization Data

Name	Union of Japanese Scientists and Engineers (JUSE)
Address	5-10-11, Sendagaya, Shibuya-ku, Tokyo 151-0051, Japan
TEL	81-3-5379-1230
FAX	81-3-3356-1798
URL	http://www.juse.or.jp/

Organization Type	NPO
No. of Employees	100
No. of Members	1,004 member companies

2. Contact Person in Charge of TQM/QCC

Name	Mr. Ichiro Kotsuka
Title	General Manager
Department	Operations Division
TEL	81-3-5378-9812
FAX	81-3-5378-1220
E-mail	juse@juse.or.jp
Contact in English	Yes

3. Organization Profile

JUSE was established in May 1946 and authorized as a juridical foundation under the supervision of the Science and Technology Agency (now the Ministry of Education, Culture, Sports, Science and Technology) of the Japanese government. The objective of JUSE is to promote systematic studies needed for the advancement of science and technology, whereupon to contribute to the development of culture and industry. The field of science and technology that JUSE has been involved in since its establishment is “soft” technology in which mathematical and statistical methods can be applied to corporate management. Quality management has been the primary subject of JUSE and great efforts have been made to develop and disseminate technology for it. Today, JUSE is widely known in and out of the country as a "Center of Quality in Japan". JUSE has administered the Deming Prize, which is well known in the field of Total Quality Management. In recent years, more than 20,000 people per year, including roughly 500 of senior managers from enterprises, have been taking part in our education and training courses in the fields of TQM. The activities of JUSE are today implemented with the support and cooperation of approximately 1,700 persons from academic fields, industries, and governmental institutions. These people are members of 200 different JUSE-affiliated committees. Most JUSE income is derived from its undertakings for the member companies. No financial support by the government is received. JUSE has its headquarters and an annex in Tokyo, and a branch office in Osaka. It has two affiliated companies, the Institute of JUSE, Inc. (computation center) and JUSE Press Co., Ltd., adjacent to its headquarters.

TQM/QCC ACTIVITIES

Focus	TQM, QCC, Reliability Engineering, Software Quality, ISO9000, ISO14000, ISMS, and Clinical Testing
When Initiated	May 1946
Activities/Services	Training, Consulting, Conference organization, and Media exposure
Foreign Partnership	USA -American Society for Quality (ASQ) EU - European Organization for Quality (EOQ)

	India - Confederation of Indian Industry (CII) Korea - Korean Standards Association (KSA)

1. Training Program/Service

Name	(1) TQM Seminar for Top Management (2) TQM Seminar for Managers (3) TQM Seminar for Section Chiefs (4) Introductory Course for TQM (5) Policy Management Seminar (6) Strategy Planning Seminar for Policy Deployment (7) Introductory Course for Purchasing Department (8) Introductory Course for Sales Department (9) International Seminar for TQM (English) (10) QC Basic Course (11) QC Introductory Course (12) Problem Solving Seminar for Foreman (13) Problem Solving Seminar for QC Circle Leader (14) Quality Management Correspondence Course (15) Quality Function Deployment Seminar (16) Introductory Seminar on Quality Function Deployment (17) Introductory Course for P7 (18) Introductory Course for N7 (19) Problem Solving Skill-up Seminar Using PC (20) Introductory Course for Problem Solving Method-"It's Easy with EXCEL" (21) Introductory Course for Problem Solving Practice-"It's Easy with EXCEL" (22) Task Achieving Type QC Story Seminar for Management (23) Good Manufacturing Practice Seminar (24) QC Circle Seminar for Managers (25) QC Circle Course for Promoters (26) QC Circle Leader Course (27) Task Achieving Type QC Story Seminar for Facilitators (28) QC Circle Elementary Course for Beginners (29) Skill-up Course for Conceptional Development
When Initiated	(1) TQM Seminar for Top Management (1957) (2) TQM Seminar for Managers (1955) (3) TQM Seminar for Section Chiefs ((1992) (4) Introductory Course for TQM (1956) (5) Policy Management Seminar (1989) (6) Strategy Planning Seminar for Policy Deployment (1996) (7) Introductory Course for Purchasing Department (1983) (8) Introductory Course for Sales Department (1983) (9) International Seminar for TQM (English) (1988) (10) QC Basic Course (1949) (11) QC Introductory Course (1951)

	(12) Problem Solving Seminar for Foreman (1966) (13) Problem Solving Seminar for QC Circle Leader (14) Quality Management Correspondence Course (1971) (15) Quality Function Deployment Seminar (1989) (16) Introductory Seminar on Quality Function Deployment (1989) (17) Introductory Course for P7 (1995) (18) Introductory Course for N7 (1984) (19) Problem Solving Skill-up Seminar Using PC (Unknown) (20) Introductory Course for Problem Solving Method-"It's Easy with EXCEL" (Unknown) (21) Introductory Course for Problem Solving Practice-"It's Easy with EXCEL" (Unknown) (22) Task Achieving Type QC Story Seminar for Management (1995) (23) Good Manufacturing Practice Seminar (Unknown) (24) QC Circle Seminar for Managers (1980) (25) QC Circle Course for Promoters (1972) (26) QC Circle Leader Course (1977) (27) Task Achieving Type QC Story Seminar for Facilitators (Unknown) (28) QC Circle Elementary Course for Beginners (Unknown) (29) Skill-up Course for Conceptional Development (Unknown)
Times per year	(1) TQM Seminar for Top Management (1) (2) TQM Seminar for Managers (6) (3) TQM Seminar for Section Chiefs (4) (4) Introductory Course for TQM (2) (5) Policy Management Seminar (3) (6) Strategy Planning Seminar for Policy Deployment (1) (7) Introductory Course for Purchasing Department (2) (8) Introductory Course for Sales Department (2) (9) International Seminar for TQM (English) (1 or 2) (10) QC Basic Course (4) (11) QC Introductory Course (6) (12) Problem Solving Seminar for Foreman (2) (13) Problem Solving Seminar for QC Circle Leader (7) (14) Quality Management Correspondence Course (2) (15) Quality Function Deployment Seminar (2) (16) Introductory Seminar on Quality Function Deployment (4) (17) Introductory Course for P7 (2) (18) Introductory Course for N7 (7) (19) Problem Solving Skill-up Seminar Using PC (1) (20) Introductory Course for Problem Solving Method-"It's Easy with EXCEL" (1) (21) Introductory Course for Problem Solving Practice-"It's Easy with EXCEL"(1) (22) Task Achieving Type QC Story Seminar for Management (1)

	(23) Good Manufacturing Practice Seminar (1) (24) QC Circle Seminar for Managers (4) (25) QC Circle Course for Promoters (5) (26) QC Circle Leader Course (7) (27) Task Achieving Type QC Story Seminar for Facilitators (5) (28) QC Circle Elementary Course for Beginners (6) (29) Skill-up Course for Conceptional Development (2)

2. Consulting Service

Name	Lectures, in-house seminars, on-site consultations, TQM diagnosis, preliminary assessment of management systems
When Initiated	Since 1960s
Times per year	150

3. Conference Organization

Name	(1) Reliability & Maintainability Symposium (2) Symposium on Quality Control of Software Production (3) Quality Function Deployment Symposium (4) Quality Control Symposium (5) TQM Forum for Top Management (6) Quality Forum for Managers (7) All Japan QC Circle Conference (8) National QC Circle Conference (9) International Convention on QC Circles (co-sponsored with 13 NPO organizations within Asia) (10) International Conference on Quality (co-sponsored with ASQ and EOQ) (11) World Conference for Software Quality (co-sponsored with ASQ and EOQ)
When Initiated	(1) Reliability & Maintainability Symposium (1971) (2) Symposium on Quality Control of Software Production (1981) (3) Quality Function Deployment Symposium (1991) (4) Quality Control Symposium (1965) (5) TQM Forum for Top Management (1964) (6) Quality Forum for Managers (2000) (7) All Japan QC Circle Conference (1971) (8) National QC Circle Conference (1963) (9) International Convention on QC Circle (1976) (10) International Conference on Quality (1969) (11) World Conference for Software Quality (1995)
Times per year	(1) Reliability & Maintainability Symposium (1) (2) Symposium on Quality Control of Software Production (1) (3) Quality Function Deployment Symposium (1) (4) Quality Control Symposium (2)

	(5) TQM Forum for Top Management (1) (6) Quality Forum for Managers (1) (7) All Japan QC Circle Conference (1) (8) National QC Circle Conference (3) (9) International Convention on QC Circle (1) (10) International Conference on Quality (1 every 3 years) (11) World Conference for Software Quality (1 every 5 years)

4. Other QCC and/or TQM -related Activities

JUSE manages three quality awards: The Deming Prize, Japan Quality Medal, and Japan Quality Recognition Award. All are awarded to individuals/organizations practicing/promoting excellent TQM.

MALAYSIA
National Productivity Corporation

GENERAL INFORMATION

1. Organization Data

Name	National Productivity Corporation
Address	P.O. Box 64, Jalan Sultan, 46904 Petaling Jaya
TEL	603-79557266
FAX	603-79561966
URL	http://dominoapp.npc.org.my/npc.nsf/index?OpenFrameset
Organization Type	Partially governmental
No. of Employees	304

2. Contact Person in Charge of TQM/QCC

Name	AB. RAHIM YUSOFF
Title	Director
Department	Training Division
TEL	603-79561152
FAX	603-79558068
E-mail	abrahim@npc.org.my
Contact in English	Yes

3. Organization Profile

National Productivity Corporation (Incorporation) (Amendment) Act 1996

The National Productivity Corporation (NPC) formerly known as the National Productivity Centre, was established in 1962 as a joint project between the United

Nations Special Fund and the Federal Government, with the International Labour Organisation acting as its executing agency.

In 1966, the National Productivity Council (Incorporation) Act No. 19 was passed making the Centre an autonomous body. It was later amended as the National Productivity Council (Incorporation) (Amendment) Act A305 1975, to cater for expansion of the Centre's role. This act was subsequently amended as the National Productivity Centre (Incorporation) (Amendment) Act A801 1991.

With the Act coming into effect on 1 December 1991, the National Productivity Council became the National Productivity Corporation. In keeping with the expanded role of the Corporation, the Act was further amended to become National Productivity Corporation (Incorporation) (Amendment) Act 1995. In accordance with the provisions under Section 7 of the Act, the functions of the Corporation are as follows:

- To lead in the promotion and dissemination of productivity related information and issues;
- To establish an information and reference centre for productivity indices for the country and for management systems and case studies;
- To generate local expertise in the field of productivity, quality, management and entrepreneurship;
- To enhance the development of human resource both at the supervisory and management levels in the country;
- To advise on and coordinate the implementation of programmes and activities related to productivity and quality;
- To assess and certify supervisory and management training programmes, entrepreneurship programmes and productivity and quality management programmes conducted by the private sector for the public;
- To conduct training or other programmes relating to productivity, quality, management and enterpreneurship;
- To provide consultancy services relating to productivity, quality, management and entreprenuership;
- To collect, produce and publish information on productivity, quality, management and entrepreneurship and other related matters;
- To carry on business undertakings for the purpose of the discharge of its functions under this Act with the approval of the Minister;
- To report annually to the Ministry on the progress and problems of raising productivity in commerce and industry and to make recommendations on the manner in which such problems may be dealt with; and
- To do such matters and things as may be incidental to or consequential upon the discharge of its functions under the Act.

TQM/QCC ACTIVITIES

Focus	TQM and QCC and others
When Initiated	Since 1982
Activities/Services	Training, Consulting, Conference organization and Media

	exposure

1. Training Program/Service

Name	Short course programme (e. g. QCC for Facilitators, TQM for Management)
When Initiated	1982
Times per year	programme in 2003 (Quality Management Programme)

2. Consulting Service

Name	1) TQM 2) QCC 3)ISO 9000, 2000
When Initiated	QCC: 1982, ISO 9000, 2000: 1995
Times per year	Average: 20

3. Conference Organization

Name	1) Seminar as TQM 2) Regional & National QCC Convention
When Initiated	1984
Times per year	11 time

4. Other QCC and/or TQM -related Activities

TQM Model Company Project (Consultancy Project)

THE PHILIPPINES

Development Academy of the Philippines

GENERAL INFORMATION

1. Organization Data

Name	Development Academy of the Philippines
Address	DAP Building., San Miguel Avenue, Pasig City 1600, Philippines
TEL	(632) 631-09-21 to 30
FAX	(632) 631-21-23
URL	Http://www.dap.edu.ph
Organization Type	National Productivity Organization (government corporation)
No. of Employees	447 (292 regular staff, 155 non-regular)

2. Contact Person in Charge of TQM/QCC

Name	Arnel D. Abanto
Title	Assistant Vice President
Department	Center for Quality and Competitiveness
TEL	(632) 631- 21-37
FAX	(632) 631-21-37
E-mail	Adabanto@dap.edu.ph

Contact in English	Yes

3. Organization Profile

The Development Academy of the Philippines (DAP), as the National Productivity Organization (NPO) was established in 1973, by virtue of Presidential Decree Number 205, its mandate has been to assist in the country's development efforts in two ways: as change catalyst and as capacity builder. Remaining constantly focused on this two-fold mission, it has assisted in building individual and institutional capabilities for developmental change through training, research, and technical assistance. Specifically, is has helped in shaping new government policies, crafting innovative development programs, and modernizing the management of government agencies and private enterprises.

As the NPO, DAP acts as the implementing arm of the Asian Productivity Organization (APO) activities in the country. The APO, of which the Philippines is a founding member, is an inter-governmental agency dedicated to the promotion of productivity improvement to accelerate economic growth of member countries through mutual cooperation.

TQM/QCC ACTIVITIES

Focus	TQM and QCC
When Initiated	Since 1980's
Activities/Services	Training, Consulting, Promotions, and Publications
Foreign Partnership	Key Partner: Asian Productivity Organization (APO) including the National Productivity Organizations in 19 APO-member countries

1. Training Program/Service

Name	a. Training Course on TQM – 5 days b. Training Course on Quality Management Assessment – 4 days c. Training Course on Quality Control Circle – 3 days d. Training Course on QCC for Facilitators and Leaders – 4 days
When Initiated	a. For TQM: 1996 b. For QCC: 1980's
Times per year	a. TQM: Twice a year (public offering); for in-company training, as the need arises b. QCC: same

2. Consulting Service

Name	For year 2003 alone: a. In-company training on TQM; TQM Installation b. In-company training on QCC; QCC Installation
When Initiated	January 2003
Times per year	As the need arises

3. Conference Organization

Name	We only provide assistance/support to partner associations in the conduct of International, National and Regional Conference on Quality and QCC
When Initiated	1980's
Times per year	Once

4. Other QCC and/or TQM -related Activities

We also help in institutionalizing a National Quality Award System and Program, from policy formulation to institutional infrastructure building and systems administration. We conduct training for Quality Management Assessors, Application Development, and develop criteria handbooks for business sector, health care sector, education, and public sector including handbook for assessors/examiners.

SRI LANKA

Sri Lanka Association for the Advancement of Quality and Productivity

GENERAL INFORMATION

1. Organization Data

Name	Sri Lanka Association for the Advancement of Quality and Productivity(SLAAQP)
Address	No 25, Fife Road, Colombo 5, Sri Lanka
TEL	0094-1-553974
FAX	0094-1-553974
URL	N/A
Organization Type	non-government
No. of Members	91

2. Contact Person in Charge of TQM/QCC

Name	Mr. Sunil G. Wijesinha
Title	President, SLAAQP
TEL	094-1-553974
FAX	0094-1-553974
E-mail	qpasl@slt.lk
Contact in English	Yes

3. Organization Profile

The Organisation

Sri Lanka Association for the Advancement of Quality and Productivity (SLAAQP) is an independent, non-governmental organisation established in 1996 by a group of quality and productivity professionals for the purpose of promoting quality and productivity nationally to help in the rapid industrial and economic development of the country.

Prior to the establishment of the SLAAQP an association by the name " Quality Circles Association of Sri Lanka" (QCASL) was in existence since 1989, and it had as its major activities promoting quality circles in industry. The majority of members of QCASL deemed it necessary to expand the scope of activities of the association very much and thus was born the SLAAQP.

Objectives

The SLAAQP aims to assist organisations enhance their quality and productivity and consequently accelerate the industrial and economic development of the country. The SLAAQP seeks to realize its objectives by:

- Performing the role of national training consultant, adviser and clearing house for information on quality and productivity improvement
- Promoting and disseminating modern quality and productivity philosophies, techniques and developing related skills in people
- Sharing experiences and propagating quality and productivity awareness
- Liaising and cooperating with national, regional and international quality and productivity organisations in the promotion of quality and productivity for national development

Membership

SLAAQP currently has four categories of membership and is open to professionals, managers, executives, technical personnel and students as well as institutions and organisations

The Categories are:

- 1 Honorary Life Member
- Individual Member
- Institutional Member
- (Universities and Institutes of education)
- Organizational Members
- (State or private enterprises)

Activities

- Convention /Awards
  - Annual National Convention on Quality and Productivity (on-going)
  - Regional Convention on Quality and Productivity (held in 1997 in Colombo)
  - International Convention on Quality Control Circle (ICQCC) (held in 1998 in Colombo)
- Establishing Quality / Productivity Circles in Schools
- National Registration of Quality Circles
- Publishing a Newsletter "Productivity News"
- Training/consultancy on Quality/Productivity

TQM/QCC ACTIVITIES

Focus	TQM, QCC and others (Productivity, Kaizen, 5S and TPM)
When Initiated	Since 1989 through QCASL

Activities/Services	Training, Consulting, Conference organization, Media exposure and Convention
Foreign Partnership	Presently exploring possibility of liaising with IQA, UK

1. Training Program/Service

Name	Training for Management, Training for Supervisors
When Initiated	1989 through the QCASL
Times per year	2-3

2. Consulting Service

Name	Setting up QCCs
When Initiated	1999
Times per year	Depend on request

3. Conference Organization

Name	● Annual National Convention on Quality and Productivity ● Regional Convention on Quality and Productivity ● International Convention on Quality Control Circle (ICQCC)
When Initiated	1991
Times per year	Once

4. Other QCC and/or TQM -related Activities

Seminars and workshops on;
- Productivity
- Kaizen
- 5S
- Suggestion Systems
- TPM

TAIWAN
Pioneer Enterprise Think Tank

GENERAL INFORMATION

1. Organization Data

Name	Pioneer Enterprise Think Tank
Address	No.275,Chien Hsing Rd.,Lung Tan,Tao-Yuan Hsien,Taiwan
TEL	886-3-4895881
FAX	886-3-4791646
URL	www.pett.com.tw
Organization Type	Private
No. of Employees	22

2. Contact Person in Charge of TQM/QCC

Name	Joseph Lin
Title	Managing Director
Department	Consulting Business
TEL	886-3-4895881-15
FAX	886-3-4791646
E-mail	JosephLin@pett.com.tw
Contact in English	Yes

3. Organization Profile

Pioneer Enterprise Think Tank (PETT) has been established since year 1970 by Mr. Chaw-Son Tsong. The mission of the Tank is to promote TQM、QCC、SPC and other quality related management skills as well as to provide consulting programs to escalate quality level of Taiwanese enterprises. After years of efforts, the Tank was well known and renowned as an efficacious TQM、QMU、QCC and SPC consulting company. Most of the current leading 500 companies in Taiwan had received training / consulting programs on TQM, QCC, QMU, SPC, etc., from PETT since the establish of the Tank. Mr. Tsong was also rewarded "The 2nd National Quality Control Award" in year 1991 due to his great contribution to promote the country's quality level.
Mr. Tsong was graduated from National Tokyo University, Engineering Graduate School and majored in Quality Control. During his stay in Japan, he studied under instruction of Dr. Ishikawa and had been engaged as a lecturer in JUSE.

PETT consists of 4 divisions. They are:
1.Training Division
2.Consulting Division
3.Publish Division
4.Pioneer Quality Control Research Association（PQCRA）
National Headquarter on Quality Control Circle

TQM/QCC ACTIVITIES

Focus	TQM, QCC, and others (QMU, SPC, ISO9000s, QS9000 consultation)
When Initiated	TQM—1980,QCC—1970 and QMU(Quality Management Unit)—1975
Activities/Services	Training, Consulting, and Conference organization

1. Training Program/Service

Name	● TQM---Enterprise officials training program ● SPC---Basic course for statistical quality control ● QCC---Q-PAT Method for work floor technician, QCC facilitator training program ● QMU---Quality management training program for managers or supervisors
When Initiated	● TQM—1980

	● QCC—1970
Times per year	● TQM—10 ● QCC—50 ● QMU—20 ● SPC—6

2. Consulting Service

Name	● TQM Consulting Program ● QMU Consulting Program（Quality Management Unit） ● QCC Consulting Program
When Initiated	1970
Times per year	10

3. Conference Organization

Name	● International Convention on QC Circle ● National Convention on QC Circle ● National Golden Award Convention on QC Circle
When Initiated	1970
Times per year	● International Convention on QC Circle—in turn of Convention Committee's decision, ● National Convention on QC Circle--Quarterly, （Held by monthly before '90. 170 times had been held since 1970 until now） ● National Golden Award Convention on QC Circle—Yearly

4. Other QCC and/or TQM -related Activities

QMU（Quality Management Unit）/ SQC（Statistical Quality Control）

II. Other Organizations

CHINA

China Association for Quality (CAQ)

Name	China Association for Quality (CAQ)
Address	No. 12 Zhongjing Jidao, P.O. Box 2210, Beijing 100032, China
TEL	86-10-66079146
FAX	86-10-66021408
URL	http://www.caq.org.cn/

INDIA

Quality Circle Forum of India (QCFI)

Name	Quality Circle Forum of India (QCFI)
Address	306, Ⅲ Floor, Navketan Chambers 62. SD Road, Secunderabad 500 0003, India

TEL	90-631-8068
FAX	90-780-5660
URL	http://www.geocities.com/Heartland/Acres/3257/about. html

INDONESIA

Indonesian Quality Management Association (IQMA)

Name	Indonesian Quality Management Association (IQMA)
Address	Menara Kartika Chandra F. 502-504 J1.Gatot Subroto Kav. 18-20, Jakarta 12930, Indonesia
TEL	021-525-6671
FAX	021-520-2348
URL	http://www.pacific.net.id/~pmmi/1ind.htm

SINGAPORE

SPRING Singapore (Standards, Productivity and Innovation Board) Corporate Headquarters

Name	SPRING Singapore (Standards, Productivity and Innovation Board) Corporate Headquarters
Address	2 Bukit Merah Central Singapore 159835
TEL	65-6279-3709
FAX	65- 6274-8078
URL	http://www.spring.gov.sg/portal/main.html

SOUTH KOREA

Korean Standards Association (KSA)

Name	Korean Standards Association (KSA)
Address	Machinery Complex Annex, 13-31, Yoido-Dong, Yongdungpo-ku, Seoul 150-729, Korea
TEL	82-2-369-8102
FAX	82-2-369-8109
URL	http://www.ksa.or. kr/

THAILAND

QC Headquarters of Thailand

Name	QC Headquarters of Thailand
Address	Rama 6 Road, Ratchathewi, Bangkok 10400, Thailand
TEL	662-481-419
FAX	662-464-300

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