

THE HISTORICAL CHANGES OF JAPANESE QUALITY CONTROL AND TRENDS AND TASKS OF QUALITY ISSUES

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Abstract

TQC, the features of Japanese QC (JQC), is forced to change now. There are many problems related to QC field, such as magnification of quality objects, social quality, thoroughness of CS, enforcement of PL law, applications of ISO standards concerning the QA system and the environmental management system, and still more recent American industrial tendency which attaches importance to TQM and so forth. On the occasion of JQC have passed for fifty years, since 1945. I would like to look back upon its QC history and discuss the meaning of the recent changes in QC concepts and the theoretical framework of its QC.

1. Introduction

JQC at the beginning was taught by American QC, and since then, Japan has overcome economical and social difficulties both at home and abroad, and constructed the Japanese unique QC so-called TQC. Therefore it is said that Japan has developed to become an economic super power by TQC. In the 1990s, on account of internationalization, informatization, globalization, and the environmental problems of the earth, TQC is forced to establish the new concept. I would like to discuss what JQC should be and recent QC problems, as well as the shift of TQC to TQM, etc.

2. JQC history

JSA was established in 1945, JUSE in 50 which are both JQC promoting organs. At the same time, SQC was introduced from America, and regular QC started.

(Table 1)

2.1 Introduction of QC(SQC)(1945 ~ 1955)

In 1946, the QC concepts and methods were introduced from America. And then, seminars of SQC have been held by QC organs which contributed to the foundation making. In 1950, Dr. Deming came to Japan to introduce SQC. For the memory of this event, Deming Prize system was started in 1951, and this system has contributed to the progress of JQC. At the beginning, many enterprises adopted SQC, and obtained good results in the QC process and the reduction of faults.

2.2 Base making of TQC(1955 ~ 1969) and Establishment of TQC(1970 ~ 1979)

In 1954, Dr. Juran came to Japan, and stressed that QC should contribute to the improvement of the enterprise constitution, and established the base of TQC.

From 1955 to 64, the QC activities have expanded to assembly industries. The QCC activity was advocated by Dr. Ishikawa, and it became the feature of later JQC and was looked at by the world

eyes. And after the 1st grand meeting in 1963, it contributed to the mutual enlightenment of workers. The QCC expanded country-wide gradually. At first stage, the JQC were aimed at the restraint of scattering in manufacturing to assure the quality of products. The time changes from the age when Japanese products were called "made in Japan" to the age when consumers select quality products. Then QC concept changed from "product out" to "market in" of consumer oriented. Thus, QC activity gradually changed from SQC at manufacturing spot to company-wide QC, and the foundation of TQC was established. To promote TQC systematically, many QC methods were enforced. And QC enlightenment activities were promoted in various ways.

Thus, this period was epoch-making age, because of the base making of JQC, and the establishment of TQC, and JQC was looked at by the world eyes.

In the 1970s, economical and social violent shocks occurred in the world. Similarly, in Japan, the environment of enterprises was severe. Japanese enterprises were confronted with such difficult tasks, as the enforcement of management constitution, the restructuring, the productivity, cost reduction, saving of resource and energy and so on. For the purpose of activation of the business depression, QC methods and activities have been developed and applied for the severe market quality. The features of QC in this age are importance attached to QC in the development & design stage, development and application of new QC tools, and expansion of QC from the manufacturing enterprises to any other enterprises as third industry.

2.3 Expansion of QC object and Internationalization(1980 ~ 1989)

TQC in this age, are completed and fulfilled its function. Notable QC activities are the TQC for business, sales, service, soft ware field, etc. and the expansion of QCC activities. On the other hand, the increase of export has caused frictions of trading. This gives proof of high quality of the Japanese products. Consequently, people from many countries visited Japan for the purpose of inspection and study of JQC. Thus, JQC and QCC were gradually permeated to all over the world through internationalization of QC.

2.4 Socialization and internationalization of QC-renovation of TQM(1990 ~)

Entering into 1990, the environment of enterprises has been influenced greatly by social and international matters. Various problems of international QC which bring turning point to JQC concept have occurred, and for new age what JQC/JTQC should be is asked for the qualitative renovation.

3. Recent QC tendency in foreign countries

3.1 Introduction of JQC activity

As mentioned above, JQC are marked from foreign countries. From the point of view that JQC events and Deming Prize System contributed to the diffusion and promotion of JQC greatly, America decided October as QC month, and practices all kinds of QC events, and makes efforts to promote QC senses.

3.2 Establishment of the QC prize system in foreign countries

In America, after the model of Deming prize, Malcom Baldrige National Quality Award (MBNQA) system was enforced in 1988, to promote QC senses and to improve quality. The object of this prize is to commend enterprises which obtain good results. Another object is to promote QC senses by announcing successful practices. Another countries, for example, EC and Korea have adopted this system similarly.

3.3 American enterprises learn JTQC system

American enterprises in the 1980s,lost their competitive force,because of the hollwing out of industry,undervaluation of the manufacturing,the attitude to profit first,etc.Then,they attended to Japanese competitive force,and reserched causes of them sufficiently.They study TQC thoroughly,and gain results gradually.

The attitude to study JQC and the productivity is connected to the joint efforts of governments and industries to recover the manufacturing power and brought restoration of industries and competitive force.

4.Reconstruction of the qualiy concept and the renovation in JQC

JQC is influenced by recent changes in management environment,and what JQC should be is obliged to shift the paradigm.Recent revolutional waves of the industrial society bring various problems and change of concept to Quality and JTQC.

Recent changes around the management are the social quality,harmony with the environment of the earth,the security for consumers,etc.Accordingly,certifications of Quality system by ISO 9000s,environmental management system by ISO 14000s and enforcement of the PL law are examples of new QC concepts and tendency.

5.Transfer from TQC to TQM

5.1 Background of Transformation to TQM

It is said that TQC was the cause which formed high quality of Japanese products,and diffused at world market.Nowadays the age of TQC,including QA concept,changes to the age of TQM as one of the management activities.Concepts and activities of QC and QA as mere activity to keep quality and to insure reliability are developing to concepts connected to the management.In succession to America,new quality paradigm,which are the CS-oriented management and the transformation of TQC to TQM,for example,was born.When we observe American succes in TQM and the recovery of their industry,we feel the necessity of activation of TQC keenly.We feel that in the long TQC history,it felled into mannerism or uniform activities by the workers in charge of QC.

In order to promote the expansion of the TQC on the global standpoint of the new age,it is necessary to make a restart as means which contribute to management activities dealing with environmental change.JSQC and JUSE changed the name of TQC to TQM in 1996.Originally,because of the view that TQC were the management activities by nature,TQC was also named TQM at a portion.JUSE stated that usual TQC adhered to the application of the management resources,while TQM expand object to reconstruction and renovation,making a part of support management policy with the cooperation of the top management and workers in charge of QC.TQC is one method of management,and on the contrary,TQM is management itself.And under the condition that there are many management problems such as restructuring,BPR and CE.TQM responds to ISO 9000s and PL law.Thus,TQM is going to break down the mannerism of TQC.

(Figure 1)

5.2 Causes for change to TQM

- (1) TQC activity was called TQM in foreign countries.
- (2) Real function of QC activity corresponds to the name of TQM.

(3) This was a chance to break down mannerism of TQC.

5.3 Fundamental idea and policy of TQM

Base;TQC activity -humanity,Quality first,CS,leadership of top manager,QCC, etc.Aim ;improvement of enterprises constitution as a method of management activity Plan;to contact with management policy and make powerful tools for management (1)Planning of management strategy ,establishment of tooL (2) fusion with marketing for the new product development (3) Positive application for IT to elevate quality of information(4)bringing up creative talented man based on respect for humanity(5)Countermeasure to global standard.Fusion with ISO 9000s&14000s

6.New method of American management renovation

In the 1990s,the reason of remarkable rebirth of American enterprises is that they pursued reasons why they weakened in competition to recognize that CS-oriented management policy keeping quality is the foundation of competitive force..

They adopted the method TQM which was advocated by "Made in America ".They made researches of JTQC completely.Clear differences are found in understanding of the meaning of quality and its development.B.T.Gail who is the author of "Managing Customer Value "proposes in it that we should recognize the progress of quality concept as a powerful arm in management strategy.He analyzes following four stages.Especially,he understands Stage 1 ~ 3 as the aspects of TQM.He insists on that if enterprise would cope with quality elevation from now,they should aim Stage 3 at least,and final object of enterprise activity is to get to Stage 4.Stage 1.Conformance Quality Stage2.Customer Satisfaction Stage3.Market-Perceived Quality and Value Relative to Competitors Stage4. Quality as a key to Customer Value Management.

(Figure 2)

He states that this activity should be promoted with tie-up of all stake holder under top's leadership in order to elevate quality of products,service,and enterprise activity from the stand point of customer and market.

It is said that the criteria of MBNQA which is the standard of management quality contributed to the basic idea of TQM.That is to say,criteria of MBNQA is the criteria systematized from TQM diagnosis and evaluation of the results.TQM,to which the importance of "Market-Perceived Quality" is attached highly,took a new concept into management strategy,and was promoted as a powerful method of management renovation to gain remarkable results.

(Figure 3)

7.Impetus of JQC concept shift

7.1 Change of the quality estimation scheme and shift of QC paradigm

CS activity couldn't obtain expected effects nor good business results in Japan.This reason was that in spite of the call of customer first,CS activity continued working formally with the mentality of product-out QC.Japanese CS must get rid of such fixed and superficial actions and Japanese enterprises must develop management activities that bear customer's real request in mind.

The features of the activities are ;

- ① All members of enterprise conduct every business bearing CS in mind throughly
- ② Through life cycle of goods,CS is maintained to raise "Life Time Value "
- ③ Endeavor on the view point that all activities in enterprise are related to CS
- ④ Promote CS activity on the priority basis which contribute to business results That is to say,the bases of QC are put on the completion of CS which act in the sprit of Market-In.And QM of real customers first should be done.

7.2 ISO Quality system certification

Among recent many themes about QC,from the view point of Global Standardization,the concepts of JQC are forced to shift throughly.Japan is influenced by this international quality certification system.ISO 9000s are demanded by the customer to the supplyer.According as these requirements are used for certification system and adopted as a condition for commercial transaction,they have increased as an important matter.

Many enterprises have acquired certification of this international quality system. The direct reasons are favorable dealings of foreign trade,but the other reasons are reconstruction and consolidation of existing QC system.

This certification ssystem is utilized to deal with internationaltendency of QA and as a means to rationalize the trade of products of high quality.Existing TQC is self-controlled QC/QA on the supplyer side-position,and on the contrary,this quality system is certified by purchasers' assessment on public quality system.Accordingly this quality system can be said a contracting QC on the purchaser-side position.Thatis to say,JQC is characterized by supplyer-oriented type,on the contrary ISO 9000s are featured by consumer-oriented type.

In the age of global standardization,Japan is asked to deal with this international quality system actively,and to change the concept of Japanese QC which is represented by TQC.

In this opportunity,it is also important to inspect and improve QC/QA system completely with linkage ofthe certification system of ISO 9000s.

(Figure 4)

7.3 Enforcement of PL law

In Japan,PL law was enforced in July 1995.

In order to prevent PL problems of products defect,QA including security should be done throughly.It is said that the way of thinking and system of usual QA are not enough.In order to supply safe products to customers,enterprises should review guarantee obligation to enlarge scope,and the improvement of QC system is needed.Especially,renovational change and review of QA concept leads to "activity-demonstrated QA" from usual "TQC-oriented QA" .

It is important to grapple with PL problems as a part of TQM which advanced from TQC.For PL prevention,it is needful to establish a management policy for safe products and at the same time,to reconstruct QA system and QA program rearrangement.And still more,it is necessary to make efforts to establish a safe product design,and to practice a synthetic PL control,namely,documents and information control for QA,establishment of safe product design engineering,and rearrangement of saftyprogram.

7.4 Reengineering(BPR)activity and new QC concept

BPR aims at thorough review and renovation for business,and the fundamental idea which

construct this basis is management renovation from the viewpoint of customer-oriented. We can find that BPR starts from customer-oriented QA.

Among Q,C,D which are three elements for customers, in Japanese management renovation, manufacturing efficiency is preferred according to enterprises' logic, and C (cost) and D (delivery) are dealt preferentially, while renovation by Q (quality) is put aside. It is not too much to say that BPR begins from renovation of enterprises' climate and organization, in other words, BPR is not simply tools for rationalization, but it means development of enterprises' quality management with CS.

Here, it is said that the conventional thinking to quality from enterprise-side logic should innovate from customer-side logic on the base of CS.

(Figure 5)

8. Conclusion

The concept and activities based on past JQC, are needed to change and to reform point of view and activities. What QM should be and the thinking about quality should be based on the basic ideology of TQM and the activity which is concerned deeply in management. The enterprise should have the fundamental thinking of customer-first for CS. It is important to grapple with the new concept of the quality based on the new enterprise ethics, social consciousness and a world-wide view. Following conditions are needful for a "Respectable enterprise."

(Figure 6)

① Enterprise activities attached importance to "quality" and tender for the stake-holder, society and the earth. ② To the sensitive quality from the rational quality ③ To the activity of customer-side logic from that of supplier side Logic ④ To quality management for citizen from management attached importance to market ⑤ To the global standards of quality from the Japanese standards of quality

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