

## Quality Revolution in Japan: Role of Dr. Joseph M. Juran

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### **Abstract**

Post World War II, Japan was almost ruined. There was no worth mentioning production activities as such and quality was deplorable. The former Japanese military and the political leaders were no longer into power. The new generation of Japanese industrialists realised the need for quality improvement and an image change of Japanese products. The new breed of Japanese wanted Japan to develop as an industrialised nation unlike many Asian countries choosing agro-based economy. This change in mindset was instrumental towards Japan's economic turnaround. However, Japan's journey on this path was not easy. The paper focuses on the role of Dr. Joseph M. Juran, quality management expert, in revolutionising quality in the Japanese industry and giving it a rebirth.

**Keywords:** Total Quality Management, Companywide Quality Control, Big Q, Little Q

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### **1. Introduction**

In today's world we often talk about China's growth story and influence on the global economy. We are also of the opinion that although Chinese products are giving tough competition globally, yet, they are qualitatively poor. This was the situation of Japan before the World War II. Japanese products were sold at very low prices but they faced a problem of securing repeat sales as the products were very poor. Post World War II, Japan was almost ruined. There was no worth mentioning production activities as such and quality was deplorable. The former Japanese military and the political leaders were no longer into power. The new generation of Japanese industrialists realised the need for quality improvement and an image change of Japanese products. The new breed of Japanese wanted Japan to develop as an industrialised nation unlike many Asian countries choosing agro-based economy. This change in mindset was instrumental towards Japan's economic turnaround. However, Japan's journey on this path was not easy. Japan was in a vicious cycle of poor industrial development. Japan's poor product quality was the principal obstacle. No one wanted to repeatedly buy such low quality goods. In order to bring about an upward spiral in economic development there was a

need to buy good quality raw material from abroad, which in turn required foreign exchange. Japans' inability to export in turn led to inability to earn foreign exchange. People were not trained to build quality. The country was without guidance thus, a revolution in product quality became essential for Japanese industries (Juran, 1981).

Japan witnessed this quality revolution since the early 1950s. It took Japan nearly 30 years of hardship, with a very strong commitment to quality to become the third industrial power in the present world. The qualitative improvement was the result of efforts to apply the concept and techniques of statistical quality control on a companywide scale.

## **2. Objectives of the study**

The paper focuses on the role of Dr. Joseph M. Juran, quality management expert, in revolutionising quality in the Japanese industry. In order to understand the quality improvements measures advocated by Dr. Juran the paper tries to touch upon some of the relevant areas namely; the Japanese cultural environment and the role of Japanese Union of Scientists and Engineers (JUSE).

## **3. Research Methodology**

The study is essentially theoretical in nature. The materials for this study have been obtained from relevant books, journals, magazines and published work of various research scholars in the field of quality management.

## **4. Japanese Cultural Environment**

It may be said that the Japanese cultural environment has had a very positive influence to the adoption and development of modern quality control. The main features of the Japanese culture towards revolutionising quality are mentioned as under:

- Japanese people are highly adaptable to the foreign culture.
- The density of population in Japan is virtually the highest in the world, and the competition among companies in both domestic and international markets is intense.
- Japanese society is rather homogeneous, with the same race and language. The mobility of Japanese workers among companies is relatively low as compared to the United States. This led to the Japanese companies being very enthusiastic about the education and training of its employees.
- According to Cole and Walder (1981), Japanese industries faced a very tight labour market in the late 1960s and early 1970s. The rising educational levels in

Japan led to an increasing proportion of new labour force entrants who were unwilling to accept the least demanding jobs. Instead, the workers wanted jobs that would allow them to develop their abilities and talents. The introduction of modern quality control and the creation of participative work structures appeared to management to be one reasonable strategy.

- According to Juran (1978), the kind of professionalism observed in the western countries was not observed in Japan. Japanese companies needed to promote ‘companywide quality control’, in which all employees participate, rather than providing a large, central quality department with numerous centralised functions of quality planning, coordination, and auditing.

## **5. JUSE**

JUSE was founded in the year 1946. Its activities became focused on collecting and investigating information relating to modern quality control (QC) activities. The Quality Control (QC) Research Group was formed within JUSE in the year 1949 comprising of people from industry, academic institutions and government. With the aim of reporting the QC Research Group’s findings back to industry, in the same year, the basic QC course for six months was inaugurated. The mood of the Japanese industries towards QC adoption was phenomenal. This led to improving quality, driving down costs, raising productivity, and shortening the lead time by reducing the defects and rework. In this way, QC made a major contribution to recovery and reconstruction of Japanese industry, which had been virtually annihilated in the World War II.

## **6. Juran: A Brief History**

Joseph M. Juran was born in the year 1904 in, Braila, Romania. He emigrated to the United States in the year 1912 and became an U.S. citizen in the year 1917. Juran’s major contribution has been in the field of management, particularly quality management. Juran has been called the ‘father’ of quality and a quality ‘guru’. He is recognised as the person who added the human dimension to quality i.e., broadening it from its statistical origins to what we now call total quality management (TQM). Juran extended the definition of quality from ‘conformance to specification’ to ‘fitness for use’. He also considered two aspects of product quality namely; ‘freedom from deficiencies’ and the other ‘product features’. Earlier quality improvement was primarily focused on reducing deficiencies but over time has developed to include even

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adding product features that meet the needs of the customers in a wider way. This has become more and more important. Juran introduced the concept of 'Big Q' to distinguish it from the concept of 'Little Q'. According to Juran, 'Big Q' not only included product quality ('Little Q') but also quality of services such as accounting, invoicing, communication and so on. The concept of 'Big Q' contributed enormously to the concept of TQM.

The *Quality Control Handbook* was first published in 1951 by Dr. Juran. Till now there have been four editions of the book and Juran has been the editor-in chief. The handbook has contributions from quality experts and is considered to be very useful for quality practitioners across the world. It not only provides important reference on quality improvements but also acts as a source of inspiration to many.

### **7. Role of Juran in Revolutionising Quality on Japan**

As a result of the publication of his *Quality Control Handbook*, JUSE invited Juran to hold quality control (QC) courses for top and middle level managers of Japanese companies beginning in 1954. More than 400 Japanese companies attended these lectures, with many of the participants belonging to the ranks of corporate chairman and senior executives of their most important industrial companies. These course materials became the basis of a management seminar series that was offered to several decades of Japanese managers. These courses had an immeasurably large impact on Japanese QC. It clearly positioned QC as a management tool and extended the QC philosophy which was previously restricted to narrow fields of production and inspection to almost every area of organisation activities.

#### *Juran and Companywide Quality Control (CWQC)*

It was Juran who advised the JUSE to use the term 'companywide quality control' (CWQC) in order to distinguish this activity from total quality control, or TQC as proposed by Freigenbaum. CWQC is characterised by the following three features:

- Participation of all the departments of the organisation.
- Participation of employees at all levels and departments (from top management to line workers and salesmen).
- Integrated process control (including quality, profits, quantity, safety and social worth).

Quality Assurance, which means quality control in a new product development, is the central concept of CWQC. It is intended to control the different aspects of quality.

CWQC is intended to govern work including those which falls outside the task of quality control. It may be mentioned that QC is a part of CWQC. JUSE initiated the Middle-Management QC Course in 1955 and the Special course for Executives in 1957. It may be mentioned here that these courses have been improved over time and are still held today.

The concept of CWQC had tremendous impact on the Japanese companies. The Deming Application Prize in the years 1961 and 1962 went to two companies namely; *Teijin* (a synthetic fiber manufacturer) and *Sumitomo Electric Industries*, respectively. At these two companies, QC activities were broadly defined to include suppliers' activities as well as other company activities such as market research, design, purchasing, production, inspection, sales and administration. The top management internal assessment in the form of 'hoshin kari' (policy management) is one of the most important CWQC activities. The revolutionary results obtained by CWQC campaigns conducted by these companies and the success posted by these two companies stimulated QC campaigns being conducted by many other Japanese enterprises. Although CWQC in Japan began in the manufacturing industries, in 1975 it spread its wings to the non-manufacturing industries such as hotels, banking, insurance transportation, electrical power, etc. It is worth mentioning that the concept of CWQC advocated by Juran was adopted by many American, Indian and Thai companies and they have won the Deming Application Prize to broaden their definition of QC activities and extend their QC activities to every link in the production chain.

The First International Conference on Quality Control (ICQC) was held in 1969 in Tokyo. At this conference Juran appreciated ICQC for their vision and courage in organising the historic seminar. He congratulated the Japanese for demonstrating to the world that determination and hard work can lead to tremendous qualitative improvements, even after the ravages of war, within the life span of a single generation. In 1981, Juran emphasised that the important features of CWQC activities that led to the transformation of Japanese industries from poor to the best are a massive, quality related education and training programs, annual programs of quality improvement and upper management leadership of the quality function.

## **8. Conclusion**

Juran has been one of the greatest quality thinkers. He believed that qualitative improvements in the organisation were an outcome of the management's leadership

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role in propagating quality within an organisation. In the year 2001, the board of directors of the American Society for Quality (ASQ) approved a senior medal named in his honour, The ASQ Juran Medal in recognition of his long-term contribution to quality and the importance of this idea (Watson, 2005). Juran has been instrumental in scripting the quality revolution in Japan. Moreover, in recognition to his development of quality control in Japan as well as facilitating U.S. and Japan friendship, Dr. Juran was presented with 'The Order of the Sacred Treasure (2<sup>nd</sup> class)' in 1981 by the late Japanese Emperor, Hirohito. The Japanese zeal for learning and for self-sufficiency brought out a follow-up of numerous courses, by local experts, for engineers and managers at all levels. These were the outcome of Deming's lectures in statistical methodology and Juran's courses on management of quality control. It is rightly said that if Deming is considered to be 'The American Who Taught the Japanese About Quality', Juran is credited as 'The Creator of Modern Quality Management'.

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