

A Competitive Strategy through Total Quality Management

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Introduction

Quality awareness is becoming a world wide phenomenon with the definition of quality extending beyond a conventional understanding of the term. More and more companies are becoming conscious of the fact that approach to business improvement, of cost reduction programs, productivity drives, special task forces etc., do not yield enough fruits. On the other hand, the success achieved through total quality approach has been marvellous.

Quality begins with the customer. Total quality means designing goods and services that fully meet the customers perceived requirements. It means organizing quality business processes capable of delivering products and services which constantly and consistently not only satisfy but delight the customer. It also means employing and developing quality people which are committed to quality planning, quality control and continuous quality improvement.

Standards like the ISO 9000 series, awards like the Deming prize (Japan), the Malcom Baldrige Award (U.S.A.), the Rajiv Gandhi National Quality Award (BIS, India) and the ZED Maturity Assessment Model, QCI are the recognition given to quality in recent times.

Total quality management is not an optional extra. It is more than a set of standards and procedures. It is not only about the quality of products. It is the way the company itself thinks and breathes. It must become a way of life and not just the flavor of the month. Quality means fully satisfying agreed customer requirements at the lower internal cost.

Significant business benefits result through delivering quality products and services. Cost of quality savings improve profitability, give increased return on net assets and expand market share opportunities.

The total quality approach results in sustained business success. Only satisfied customers come back and recommend to others. Harnessing the creative talents of all the employees improves quality in every part of the business. That is why so many companies are now involved in total quality management.

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Consistently meeting requirements and addressing future needs and expectations pose a challenge for organizations in an increasingly dynamic and complex environment. To achieve this objective, the organization might find it necessary to adopt various forms of improvement in addition to correction and continual improvement, such as breakthrough change, innovation and re-organization.

To improve quality, an organization must have a value system that promotes quality. Many prominent quality Gurus, such as W.Edwards Deming, M.M.Juran, Phillip Crosby stress the importance of building a quality culture as a pre-requisite to major quality improvement efforts.

The adoption of a quality management system is a strategic decision for an organization that can help to improve its overall performance and provide a sound basis for sustainable development initiatives.

Monitoring customer perception can include obtaining input from sources such as:

- Customer satisfaction surveys
- Customer data on delivered product quality
- User opinion surveys
- Lost business analysis
- Compliments
- Warranty claims
- Dealer reports

Quality Management Principles

Organization's performance can be improved by applying quality management principles mentioned in ISO 9001 series

- Customer focus
- Leadership
- Engagement of people
- Process approach
- Improvement
- Evidence - based decision-making
- Relationship management

5 “S” Principles-A way of work life

The 5-S is a concept, which forms the basis of all activities being undertaken during daily operations in the work place. The understanding and implementing philosophy, concepts and practices of 5-S nurture excellence in all areas of an organization. They are as follows :

1. SEIRI Sorting (Proper arrangement/segregation)
2. SEITON Straighten up (Orderliness/systematic arrangement)
3. SEISO Shower (Cleanliness)
4. SEIKETSU Sweep (Maintain high standard of housekeeping)
5. SHITSUKE Schooling (Training and discipline)

“ A place for everything and everything in its place ”

5 “S” pledge

A typical pledge taken by all employees before commencement of work at Machine Tool Prototype Factory, Ambarnath, a unit of Indian Ordnance Factories, Ministry of Defence , Govt. of India is reproduced below :

- I will not make things dirty
- I will not spill over the things
- I will not scatter things around
- I will clean things immediately
- I will rewrite things that have gotten erased
- I will keep right things at right place

Three Approaches for TQM

First Approach (By following ISO 9001 certification norms)

This approach is based on the basis of following facts:

- Principle of PDCA cycle
- Mission , vision and value statements
- Quality policy , quality objectives ,functional level quality objectives , calibration of monitoring equipments, internal quality audits , corrective and preventive action, management review
- Revision in quality policy, quality objectives and functional level quality objectives
- Setting up benchmarks
- Continual improvements

World Overview of Management System Standard Certifications

The International Organization for Standardisation, Geneva conducts survey each year. As per latest ISO Survey released on Management System Standard Certifications, the total number of certificates issued in 2015 are 15,19,952 compared to 14,76,504 issued in 2014, showing an increase of 3%. Out of this number, ISO 9001-Quality Management System

certificates issued in 2015 are 10,33,936. The trend shows that the standards are ,being adopted by different countries and the phenomenon has become popular, the world over.

World Overview - 2013 based on ISO Survey 2013 (Updated data not available)

The status of ISO 9001 certificates of quality management systems issued world wide, are shown below:

Region	No. of Countries	No. of certificates issued
Africa	45	9,674
Central & South America	33	51,459
North America	03	38,586
Europe	49	4,69,739
East Asia & Pacific	27	4,76,106
Central & South Asia	14	32,373
Middle East	13	19,050
Total	184	10,96,987

The table shows that more and more countries are moving in the direction for adopting ISO 9001 certification.

Top 10 countries for ISO 9001 certificates -2013 based on ISO Survey 2013 (Updated data not available)

Rank	Country	No. of certificates
1	China	3,37,033
2	Italy	1,60,966
3	Germany	56,303
4	Japan	45,990
5	United Kingdom	44,585
6	Spain	42,632
7	India	40,848
8	USA	34,869
9	France	29,598
10	Brazil	22,128

The above data shows that China tops the rank of all countries which means quality management system movement has become more popular in China compared to other countries based on number of QMS certificates issued in 2013.

Second Approach (From self - assessment to best-in-class performance)

Performance maturity levels of an organization

The self- assessment tools use 5 maturity levels. The top management can obtain an overall view of the organization's behavior and its current performance.

Maturity level	Performance level	Guidance
1	No formal approach	No systematic approach evident, poor results or unpredictable results.
2	Reactive approach	Problem- or corrective – based systematic approach ; minimum data or improvement results available .
3	Stable formal system approach	Systematic process – based approach , early stage of systematic improvements ; data available on conformance of objectives and existence of improvement trends.
4	Continual improvement emphasized	Improvement process in use : good results and sustained improvement trends .
5	Best-in-class performance	Strongly integrated improvement process , best in–class benchmarked results demonstrated

Self assessment w.r.t. criteria of International Quality Awards

Most popular international quality awards are :

1. Malcolm Baldrige award (U.S.A) – launched by American Society of Quality (ASQ)
2. Deming award (Japan) – open to all countries
3. European quality award (EFQM)

National Quality Awards :

1. Rajiv Gandhi National Quality Award (RGNQA) – BIS is an adaptation of Malcolm Baldrige National Quality Award (U.S.A.)
2. Golden Peacock National Quality Award – Institute of Directors, New Delhi.
3. CII Quality Award – CII-EXIM Bank Award for Business Excellence.

Stimulus to quality improvement

Adopting the criteria of these quality awards helps the organization in the following ways :

Encouraging Indian organizations to make significant improvements in quality for maximizing, consumer satisfaction and for successfully facing competition in the global market as well.

Recognizing the achievements of those organizations which have improved the quality of their products and services and thereby setting an example for others.

Establishing guidelines and criteria that can be used by industry in evaluating their own quality improvement efforts.

Providing specific guidance for other organizations that wish to learn how to achieve excellence in quality, by making available detailed information on the quality management approach adopted by award winning organizations to change their culture and achieve eminence.

Areas covered

Manufacturing sector

Bio- technology
 Chemical industry
 Electrical and electronic industry
 Food and drug industry
 Gems, jewellery and allied industry
 Metallurgical industry
 Textile industry
 Engineering industry and others

Service sector

Education
 Finance
 Health care
 Information technology
 Utilities
 Others

Categories of Awards

Best among the winners (Best of all)
 Category award winners
 Commendation certificates

Criteria of Evaluation of Quality Award based on 'In search of excellence', BIS publication

Parameter	Marks	
	Large scale	Small scale
Leadership	100	200
Policies, objectives and strategies	100	-
Human resource management	50	100
Resources	100	-
Processes	150	100
Customer focused results	200	200
Employees satisfaction	50	-
Impact on environment and society	100	200
Business results	150	200
Total	1000	1000

List of Deming Quality Award winners from India floated by Japan:

- 1998 Sundaram-clayton Limite , Brakes Division, Chennai
1999 Sundaram Brake Linings Limited, Chennai
2000 Brakes India Limited, Foundry Division, Chennai
Mahindra and Mahindra Limited, Farm Equipment Sector, Pune
Rane Brake Lining Limited, Chennai
Sona Koya Steering Systems Limited, Gurgaon
Birla Cellulosic, Kharach-A unit of Grasim Industries Limited
2004 SRF Limited, Industrial Synthetics Business, Gurgaon
Lucas TVS Limited, Hosur (Bengaluru)
Indo-gulf Fertilizers Limited, Sultanpur (U.P.)
2005 Krishna Maruti Limited, Seat Division, Gurgaon
2006 Rane Engine Valves Limited, Madras Rane TRW Steering Systems Limited, Steering Gear Div., Chennai
2007 Asahi India Glass Limited, Auto Glass Division, Gurgaon
Rane (Madras) Limited, Chennai
Reliance Industries Limited, Hazira Manufacturing Division (GJ)
2008 Tata Steel Limited, Jamshedpur
2010 National Engineering Industries Limited, Jaipur
2011 Sanden Vikas India Limited, Faridabad
2012 SAF Limited, Chemicals (India)
Mahindra & Mahindra Limited, Farm Equipment Sector, Swaraj Division, Mohali
2013 RSB Transmission Limited, Auto Division Jamshedpur (Unit 1), Pune & Pant Nagar Plant
2014 Mahindra & Mahindra Limited, Mahindra Powerol Business (India)
2015 National Engineering Industries Limited (India)

List of Award winners of Rajiv Gandhi National Quality Awards floated by BIS, New Delhi:

Best of all categories

- 1991-92 Kirloskar Cummins Limited Pune
1993 SAIL, Bhilai Steel Plant
1994 ITC LIMITED – ILTD Division, Chirala(A.P.)
1995 ITC LIMITED – ILTD Division, Anaparti(A.P)
1996 TATA Bearings – TISCO, Kharagpur, WB
1997 (Joint winners) L&T, Bangalore Works & Ammunition Factory, hadki (Maharashtra)
1998 Mathura Refinery -IOCL, Mathura
1999 (Joint winners) Gujrat Co-operative Milk Marketing Fed.,
Anand (AMUL) & Tata Cummins Limited, Jamshedpur
1999 Tata International Ltd. Devas (M.P.)
2001 Birla Cellulosic, Baruch (Gujrat)
2002 (No Award)
2003 (Joint winners) IOCL Gujrat Refinery (Vadodra) &
Grasim Industry Ltd. Chemical Division, Nagda

2005	Moser Baer India Ltd., Greater Noida
2006	SAIL – Bhilai Steel Plant, Bhilai
2007	SAIL – Bokaro Steel Plant, Bokaro
2008	Satluj Jal Vidyut Ltd., Shimla (H.P.)
2009	Tata Motors - Lucknow
2010	Vikram Cements Works (UltraTeach Cement), Khor (MP)
2011	DAV ACC Senior Sec. Public School, Baramna, Himachal Pradesh
2012	Rail Wheel Factory, Yelahanka Bangalore.
2013	Navjaat Bhaskar
2014	Larsen & Toubro Limited
2015	Ordinance Factory, Khamaria (Jabalpur)

CII-EXIM Bank Award for Business Excellence

(The award is based on the internationally recognised EFQM Excellence Model)

Award winners so far are:

1997	H.P India Ltd
1998	Maruti Udyog Ltd.
2000	Tata Steel Ltd
2002	Infosys Technologies Ltd.
2005	Tata Motors Ltd (Commercial Vehicle Business Unit)
2006	TCS Ltd
2009	Bosch Ltd, Diesel System Business - Bengaluru
2013	Bosch Ltd, Diesel Systems business - Nashik
2014	Godrej Locking Solutions & Systems Godrej & Boyce Mfg. Co. Ltd

Third Approach

ZED Maturity Assessment Model

As per the vision of Prime Minister Shri Narendra Modi, “Our manufacturing should be zero defect so that our goods are not returned from the international marketplace, and our manufacturing should be with zero effect, so that it has no negative impact on the environment”. Accordingly, ‘ZED Certification Scheme’ has been launched by Ministry of Micro, Small and Medium Enterprises under the National Manufacturing Competitiveness Program assigning Quality Council of India, the role of a nodal agency. After ZED assessment and adoption of proper tools, MSMEs can reduce wastages substantially, increase productivity, expand their market as IOPs have more IPRs, develop new products and processes etc.

Manufacturing has been recognized as the main engine for growth of economy. The share of manufacturing sector in Indian National GDP over the years has stagnated to 14-15% only. The National Manufacturing Policy of Government of India envisages share of manufacturing to reach the target of 25% of the National GDP by 2022. To achieve a sustained rate of growth, the

manufacturing sector needs to build an ecosystem to face the challenges posed by globalization, environmental issues, etc.

There are 50 parameters on which an MSME is to be assessed and rated under ZED scheme. Assessment of unit will be done on minimum 30 out of 50 parameters, including 20 essential/mandatory parameters. Additional 25 parameters will be applicable for MSMEs supplying to Defense sector. Each parameter has 5 levels. The rating is based on a weighted average level. Rating of each parameter will be done as per the following:

S. No.	Level	Marks
1.	Struggler	0
2.	Beginner	2
3.	Organized	3
4.	Achiever	4
5.	World Class	5

The proposed rating levels are:

S. No.	Average score (Total points/Applicable Levels)	Rating
1	Above 2.2-upto 2.5	Bronze
2	Above 2.5-upto 3.0	Silver
3	Above 3.0-upto 3.5	Gold
4	Above 3.5-upto 4.0	Diamond
5	Above 4.0-upto 5.0	Platinum

The scheme is an extensive drive of the Government of India to enhance global competitiveness of MSMEs by providing them financial support in assessment, rating and handholding of its manufacturing processes on quality and environment aspects 'The Government has decided to implement the ZED Certification Scheme for 22,222 MSMEs unit with a total budget of Rs. 491 Crores (including Government of India contribution of 365 Crores) during the 12th Five Year Plan.

Limiting Factors

There are number of misconceptions about quality in the minds of different people as mentioned below :

- Higher quality costs more.
- Emphasis on quality leads to reduced productivity.
- The labor force is entirely to blame for poor quality.
- Quality improvement requires large investments.
- Quality can be assured by strict inspection.

The findings of latest researches have proved all these misconceptions wrong.

- India has been ranked 39th among the 138 countries in the 2016-17 Global Competitiveness Index (GCI). The index was released as part of the World Economic Forum's (WEF) Global Competitiveness Report for 2016-17.
- Based on statistics from the International Monetary Fund's World Economic Outlook Database, India's total Gross Domestic Product amounted to \$8.721 trillion as of October 2016. Therefore, exports accounted for about 3% total Indian economic output.
- India has been placed at 130th position among the 190 countries in the recently released World Bank's Ease of Doing Business index for the year 2017.
- India has been ranked 79th out of 176 countries in the recently released Corruption Perception Index (CPI) for the year 2016 by the Berlin-based corruption watchdog of Transparency international (TI).

Success Story of India

In spite of limitations and constraints as mentioned above, India has made strides in quality movement. The country is moving fast on the path of nurturing quality culture in different organizations. The following instances prove the facts:

Top 10 countries for ISO 9001 growth based on ISO survey 2013 (Updated data not available)

Rank	Country	No. of certificates
1	Italy	23,975
2	India	12,248
3	USA	8,692
4	Germany	4,602
5	Australia	3,938
6	Columbia	3,510
7	China	3,163
8	Taipei, Chinese	2,578
9	Indonesia	2,498
10	Greece	2,497

The above data shows that India is second in rank with respect to ISO 9001 growth of certificates is concerned which is a healthy trend.

Distribution of winning Deming Award organizations since 2000

India	23
Japan	14
Thailand	12
China-	2
USA	2
Singapore	1
Taiwan	1

India commands top position compared to the rest of the world as far as winning of tough Deming Quality Awards are concerned. Enlightened Indian organizations have surpassed others in terms of ISO 9000 certification growth as well as winning of national/international quality awards are concerned.

Acknowledgements

This paper is based on the following documents as reference material:

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