Tishk International University
Engineering Faculty
Mechatronics Department

Total Quality Management

TOPIC: Introduction (1)

2nd Grade- Spring Semester 2019-2020

Instructor: Sivakumar

Introduction to TQM

Total Quality Management

Objectives

IN THIS LECTURE WE ARE GOING TO DEAL THE FOLLOWING IN DETAIL

What is quality?

Dimensions of quality

What is TQM?

Gurus of TQM

Evolution of TQM

Role of leadership in TQM

Quality Management

Main pillars of TQM

Obstacles to TQM implementation

Benefits of TQM

What is quality?

Quantified definition of Quality:

$$Q = P / E$$

where,

Q = quality

P = performance

E = expectations

If Q is greater than 1, then the customer has a good feeling about the quality of product or service.

Dimensions of quality

Dimensions of quality are the different features of product or service.

Functionality:

Functionality refers to the core features and characteristics of a product that satisfy the customer.

Reliability:

Reliability is measured by mean time between failures (MTBF) and mean time to first failure. Reliability is an indicator of durability of products.

Usability:

A product should be user friendly. The customer should be able to use the product easily without the help of expert.

Maintainability:

It refers to the ease with which a product can be maintained in the original condition. Maintainability is measured as mean time to repair (MTTR).

Efficiency:

Efficiency is how much out put is taken by different products on giving same input.

Aesthetics:

A product or service should not only perform well but also appear attractive. It also includes color, finish and overall look of product or service.

Serviceability:

It includes:

- How well the customers are treated?
- How complaints are handled and resolved?
- How much time you take to resolve problem?

This feature plays a vital role in service organizations.

What is TQM?

TQM implies that ***every one*** associated with the organization is committed towards ***continual improvement*** of the organization through ***customer satisfaction***.

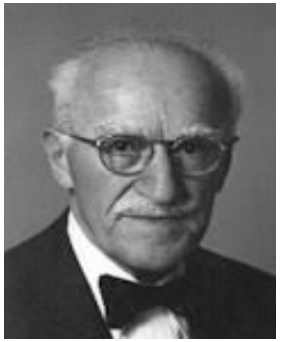
TQM – A Road to success

Gurus of TQM

- **Dr. Walter Shewhart (1891-1967)**
  USA
  Achievement: Control Charts

- **Dr. Edward Deming (1900-1993)**
  USA
  Achievement: PDCA cycle

- **Joseph M Juran (1904 – 2008)**
  USA
  Achievement: Juran Trilogy



- **Philip Crosby (1926 – 2001)**
  USA
  Achievement: Zero Defect philosophy

- **Kaoru Ishikawa (1915 – 1987)**
  Japan
  Achievement: Fish bone diagram

Evolution of TQM

- Quality Management philosophy was evolved in Japan after second world war.
- An American expert Edwards Deming helped Japanese to apply concepts of TQM.
- In 1968 the Japanese shaped the phrase Total Quality Control and became the world quality leader.
- In the 1980 the U.S. Navel Air Systems coined the TQM phrase. The Navy based most of the principles on the Japanese Total Quality Control philosophy.
- In 80's most companies in the world started applying this concept and enhanced their productivity and profitability remarkably.

Role of leadership in TQM

- Promoting cultural change
- Leading from the front
- Open communication
- Removing barriers between departments
- Instilling more customer focus
- Aligning company goals with Vision and Mission

Strategy for quality evolved with time is given:

Inspection

↓

Quality control **Pre-world war 2**

Quality Assurance **Post world war 2**

↓

Quality Management

↓

TQM (Evolution of Quality)

In 1985 the Americans came up with the term TQM to represent essentially the Japanese way of quality management.

Quality Control	Quality Assurance
• Reactive approach	• Proactive approach
• Focuses on product/service	• Focuses on process
• Find defects	• Prevent defects
• Line function	• Staff function

Quality Management:

QM comprises all activities of the overall management function that determines the quality policy, objectives and responsibilities & implement them by means such as quality planning, quality control, quality assurance and quality improvement with in the quality system.

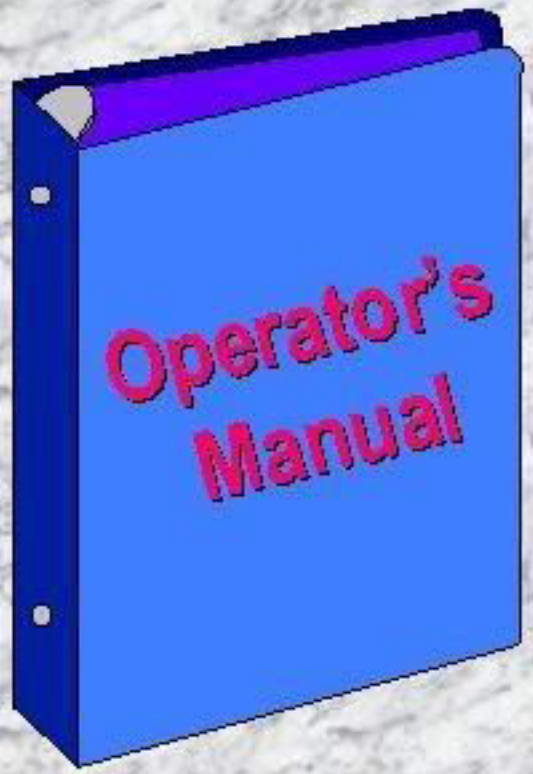
QC - QA - QM RELATIONSHIP

Quality Control would be the car's measurement features, the dials on the dashboard tell how much fuel is available, how fast they are going, as well as various conditions of the operating system

QC - QA - QM RELATIONSHIP

Quality Assurance is the Operator's Manual

- Identifies the Operating Components
- Discusses Maintenance Requirements
- Describes Proper Handling and Operating Procedures



QC - QA - QM RELATIONSHIP

Quality Management
is the philosophy
which drives the
Operating System

If the operator of the vehicle chooses not to pay attention to the measurement features and operating procedures, the results may be disastrous.

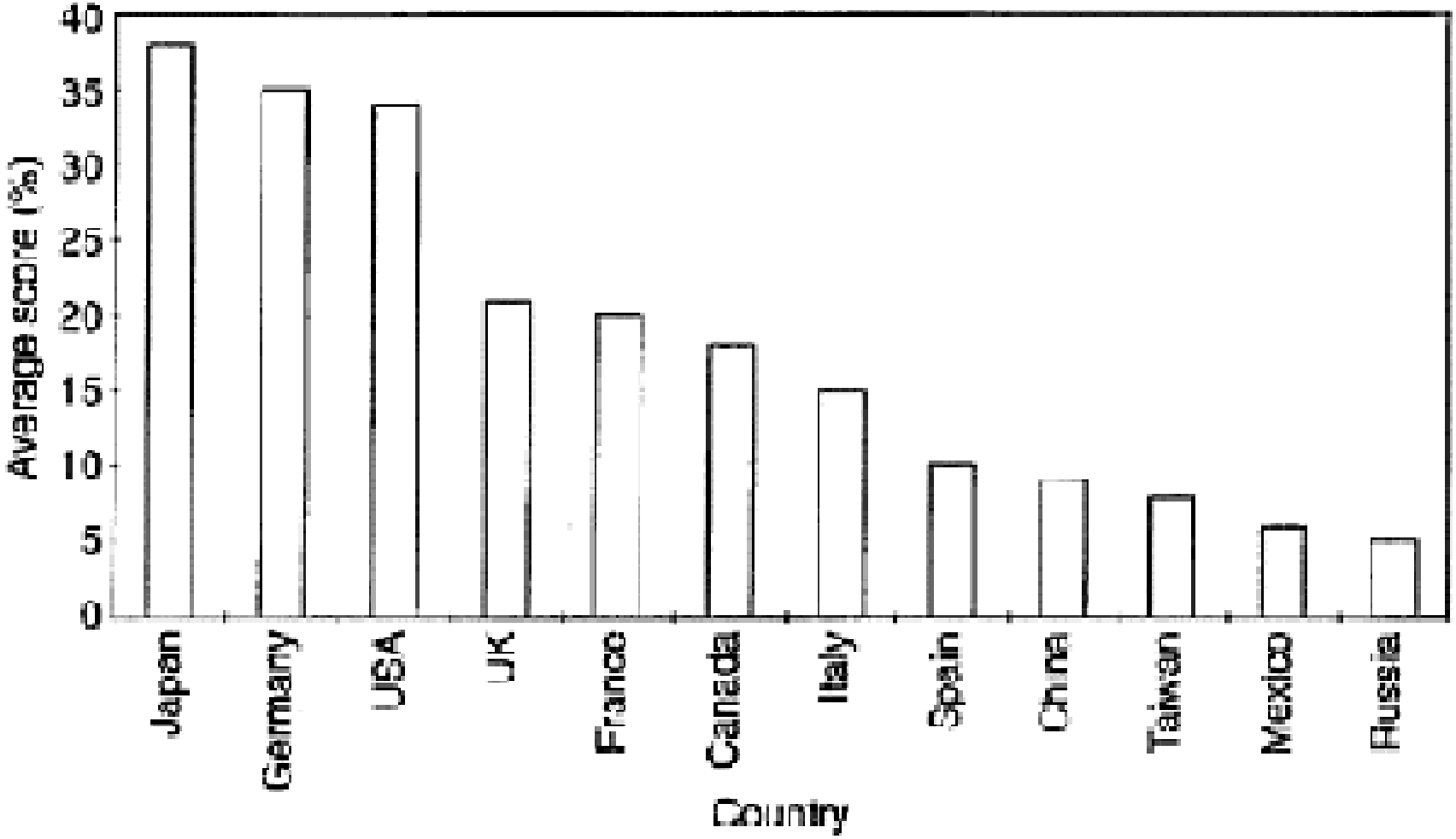
Main pillars of

Total Quality Management

- Customer Satisfaction
- Continual Improvement
- Employee Involvement
- Management commitment

- Performance Measurement
- Statistical Process Control
- Supplier evaluation
- Acceptance Sampling
- Process Capability/6σ

According to a worldwide Gallup poll of 20 000 people conducted recently by Bozell Worldwide of America, world consumers believe the best quality goods are made by Japan.



Evaluation of business parameters – Study report

	Country					
	Taiwan		Japan		Korea	
Business parameter	Mean	Rank	Mean	Rank	Mean	Rank
Market price	4.11	5	4.20	4	4.08	5
Product quality	4.72	1	4.88	1	4.56	1
Delivery	3.98	7	4.48	2	4.32	3
Advertising	3.00	9	3.20	9	2.89	9
Service before sale	4.02	6	3.56	8	3.27	8
Service after sale	4.49	4	4.20	4	4.00	6
Assortment	3.94	8	3.68	7	3.73	7
Warranty	4.68	2	3.80	6	4.38	2
Handling of complaints	4.55	3	4.48	2	4.21	4

Obstacles to TQM implementation:

- Lack of management commitment
- Inability to change organizational culture
- Improper planning
- Lack of continuous training and education
- Isolated individuals and departments
- Ineffective measurement techniques
- Paying inadequate attention to internal & external customers
- Inadequate use of empowerment and teamwork
- Failure to continually improve

Benefits of TQM include:

- **Improves competitive position**
- **Increase adaptability to global markets**
- **Elevated productivity**
- **Eliminates defects**
- **Significantly reduces waste.**
- **Reduces quality costs**
- **Improves management communication**
- **Raises profits**
- **Customer loyalty**