Total Quality Management

What is Quality?

- Quality involves meeting or exceeding customer expectations.
- Quality applies to products, services, people, processes, and environments.
- Quality is an ever-changing state (i.e., what is considered quality today may not be good enough to be considered quality tomorrow).

Quality is a dynamic state associated with products, services, people, processes and environments that meets or exceeds expectations.

TQM

- Total - made up of the whole
- Quality - degree of excellence a product or service provides
- Management - act, art or manner of planning, controlling, directing,….

Therefore, TQM is the art of managing the whole to achieve excellence.

What does TQM mean?

Total Quality Management means that the organization's culture is defined by and supports the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training. This involves the continuous improvement of organizational processes, resulting in high quality products and services.

Two Views of Quality

Traditional View:

- Process performance = defective parts per hundred produced.
- Focused on after-the-fact inspections of products.
- Employees are passive workers who followed orders.
- One improvement per year per employee
- Focus on short term profits

Total Quality View

- Process performance = defective parts per million produced.
- Continuous improvement of products, processes and people.
- Employees are empowered to think and make recommendations.
- At least 10 improvements per employee per year
- Focus on long term profits and continual improvement.

Traditional View	Total Quality View
➢ ***Productivity versus quality***	
Productivity and quality are always in conflict. You cannot have both.	Lasting productivity gains are made only as a result of quality improvements.
➢ ***How quality is defined***	
Meeting customer specifications.	Satisfying customer needs and exceeding customer expectations.
➢ ***How quality is measured***	
Establishing an acceptable level of nonconformance and measuring against the bench mark.	Establishing high-performance bench marks for customer satisfaction and then continually improving performance.

Traditional View	Total Quality View
➢ ***How quality is achieved***	
Quality is inspected into the product.	Quality is determined by product design and achieved by effective control techniques.
➢ ***Attitude towards defects***	
Defects are an expected part of producing a product.	Defects are to be prevented using effective control systems.
➢ ***Quality as a function***	
Quality is a separate function.	Quality should be fully integrated throughout the organization, i.e. it should be every body's responsibility.

Traditional View	Total Quality View
➢ ***Responsibility for quality***	
Employees are blamed for quality.	80% quality problems are management's fault.
➢ ***Supplier relationships***	
Supplier relationships are short term and cost driven.	Supplier relationships are long term and quality oriented.

⌦ Characteristics of the Total Quality:

- o Strategically based
- o Customer focus (internal and external)
- o Obsession with quality
- o Scientific approach to decision making and problem solving
- o Long-term commitment
- o Teamwork
- o Continual process improvement
- o Education and training
- o Freedom through control
- o Unity of purpose
- o Employee involvement and empowerment

Elements of Total Quality

✓**Strategically Based**

- Comprehensive strategic plan with following elements: vision, mission, broad objectives and following activities
- Provides sustainable competitive advantage in the marketplace.

✓ **Customer Focus**

- "Customer is the driver".
- External customers: define the quality of the product or service delivered.
- Internal customers: define the quality of people, processes, and environment associated with the products or services.

✓Obsession with Quality

- All personnel at all levels approach all aspects of the job from the perspective of "How can we do this better?".
- "Good enough" is never good enough.

✓Scientific Approach

- Hard data are used in establishing benchmarks, monitoring performance, and making improvements.
- Decision making and problem solving is based on scientific principals.

✓Long-term Commitment

- Quality improvement is NOT another management innovation but a whole NEW way of doing business that requires an entirely new corporate culture.

✓Teamwork

- Internal competitiveness vs. External competitiveness

✓Continual Process Improvement

- Continually improve systems (environments) where products are developed and services are delivered by people.

✓Education and Training

- Best way to improve people on a continual basis.
- Train hardworking people “How to work smart?”

✓Freedom through Control

- Involving and empowering employees to simultaneously bring more minds to bear on the decision-making process and increase the ownership employees feel about decisions that are made.
- Well-planned and carried-out controls (not loss of management control).

✓Unity of Purpose

- Internal politics have no place in a total quality organization, rather collaboration is the norm.
- Unity of purpose has nothing to do with Labor Unions.

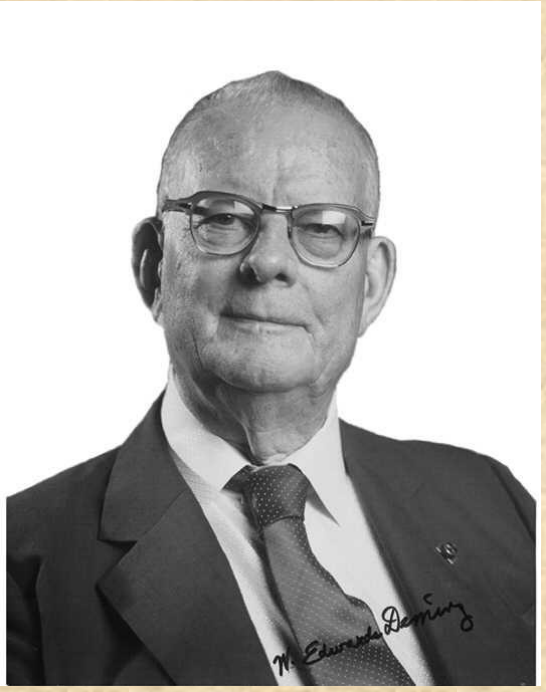
✓Employee Involvement and Empowerment

- Basis for involving employees:

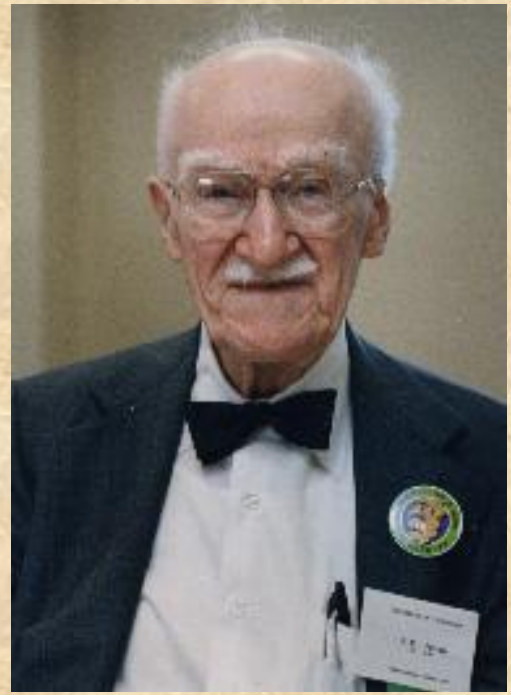
1. To increase the likelihood of a good decision or a better plan;
2. To promote ownership of decisions by involving the people who will have to implement them.

- Empowerment means not just involving people but involving them in ways that give them a real voice.

Gurus of TQM



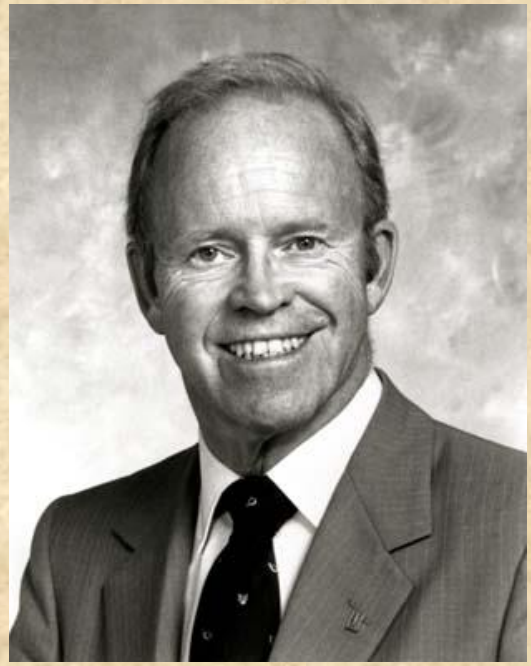
Dr. W E Deming



Dr. J M Juran

Gurus of TQM

Dr. Genichi Taguchi



Dr. Philip Crosby

W E Deming

- Reduction in process variability by extensive use of statistics will lead to improvement in quality and increase in productivity
- Talked about New Climate (organisational culture)
  - Joy in work
  - Innovation
  - Co-operation
- Win-Win approach
- He proposed a 14 point TQM programme

W E Deming 14 Points

	Rule	Explanation
1.	Create constancy of purpose	Attention must be paid to problems not only of today, but also of tomorrow. Therefore invest in research, innovation and people
2.	Do not live with delays and mistakes	Do not tolerate error – "get it right first time"
3.	Cease mass inspection	Spend time on improving the process
4.	Stop accepting solely the lowest bid	Accept tenders on prospective quality, not the price-tag
5.	Constantly look for systems' problems	Know how the system works and keep records on it. Constantly maintain and improve the system
6.	Institute modern on-the-job training	Invest in people
7.	Institute modern supervision techniques	A supervisor should be a coach, not judge nor policeman
8.	Drive out fear	Fear holds back innovation and quality improvement. Management must respect and encourage staff
9.	Break down barriers	Departments which do not work together suboptimize performance. Co-ordinate activities to maximize synergy
10.	Eliminate meaningless imperatives and slogans	Do not prescribe to staff. Give them the proper "tools" to do their job better
11.	Eliminate numerical quotas	Numbers are *less* important than quality. Smart employees will never exceed the quota. They know that, if they do, the quota will be raised
12.	Remove barriers to pride of workmanship	Staff cannot improve their work if the problem is outside their control. Therefore management should remove the problem
13.	Educate and train	Staff need to be continuously trained in how to do their job. Change is an integral part of today's business environment and staff have to be properly equipped to cope with it
14.	Continuously pursue the above 13 points	Create a management structure which will actively promote the above 13 points every day

Juran's 10 Points

- Build awareness of need and opportunities for improvement
- Set goals for improvement
- Organise the overall improvement programme
- Provide the training
- Solve problems through project methodology
- Report progress
- Give recognition
- Communicate results
- Keep score
- Institutionalise the improvement process

Philip Crosby

- Do it right the first time
- Zero Defects
- Absolutes of QM
  - Quality is defined as conformance to requirements, not as 'goodness' or 'elegance'
  - The system for causing quality is prevention, not appraisal – Quality is Free
  - The performance standard must be Zero Defects, not "that's close enough"
  - The measurement of quality is the Price of Non-conformance, not indices.
  - Cost of quality is only the measure of operational performance

Crosby 14 points

- Management commitment
- Quality improvement team
- Quality measurement
- Evaluation of cost of quality
- Quality awareness
- Corrective action
- Establish committee for zero defect planning
- Supervisor training
- Zero Defect Day
- Goal Setting
- Error cause removal
- Recognition

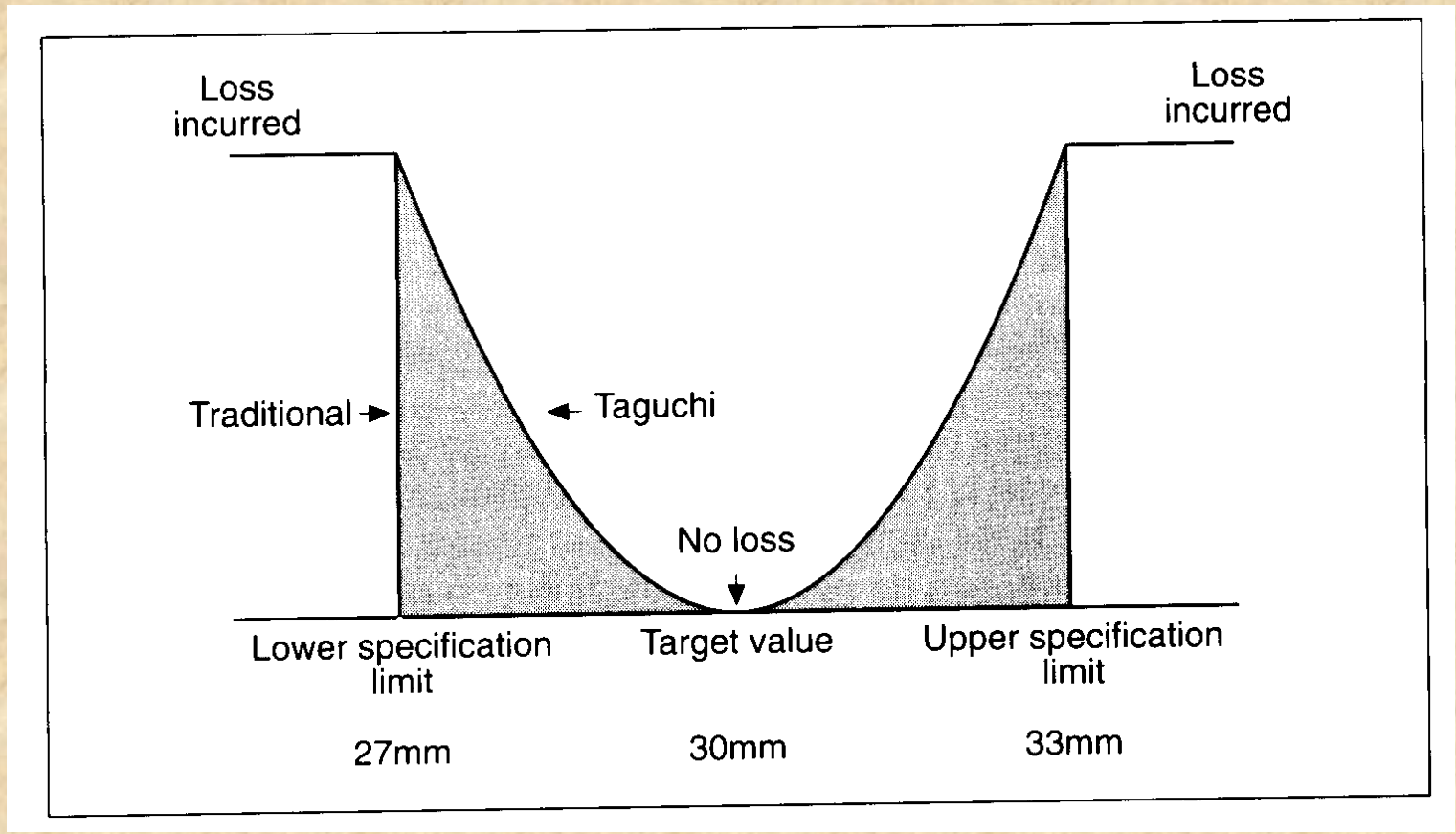
Genichi Taguchi

- His methodologies held ensure customer satisfaction
- Taguchi's Loss Function
- Taguchi Method – Design of Experiments

Taguchi's Loss Function

- A quality product is a product that causes a minimal loss (expressed in money!) to society during it's entire life. The relation between this loss and the technical characteristics is expressed by the loss function

Taguchi's Loss Function



ISO 9000

The **ISO 9000** family of standards relate to quality management systems and are designed to help organizations ensure they meet the needs of customers and other stakeholders. The standards are published by ISO, the International Organisation for Standardization and available through National Standard Bodies.
ISO 9000 deals with the fundamentals of quality management systems, including the eight management principles on which the family of standards is based. ISO 9001deals with the requirements that organizations wishing to meet the standard have to meet.

Benefits

- ✓Create a more efficient, effective operation
- ✓Increase customer satisfaction and retention
- ✓Reduce audits
- ✓Enhance marketing
- ✓Improve employee motivation, awareness, and morale
- ✓Promote international trade
- ✓Increases profit
- ✓Reduce waste and increases productivity

Quality Circles

A **quality circle** is a volunteer group composed of workers (or even students), usually under the leadership of their supervisor (but they can elect a team leader), who are trained to identify, analyze and solve work-related problems and present their solutions to management in order to improve the performance of the organization, and motivate and enrich the work of employees. When matured, true quality circles become self-managing, having gained the confidence of management.