Quality Gurus and Their Contributions

QUALITYGURUS

W. Edwards Deming

- Brief Overview
  - Known as one of the quality gurus for his significant contributions to quality management and process improvement.
  - Recognized for being a statistician, consultant, and professor.
  - Prominent for his work and influence in Japan after World War II.
- Key Contributions
  - Deming's 14 Points: A set of management practices to guide companies in promoting quality assurance and process improvement.
  - The Deming Cycle (PDCA): A systematic series of steps for continuous improvement (Plan, Do, Check, Act).
  - System of Profound Knowledge: A theory of management that outlines four areas (appreciation for a system, knowledge about variation, theory of knowledge, psychology) for effective organizational transformation.
  - Introduced statistical process control (SPC) methods to engineers in Japan to enhance product quality.
- Impact
  - Shifted the focus from inspection to improving all stages of the production process.
  - Influenced the Total Quality Management (TQM) movement globally.
  - Helped in rebuilding Japan's post-war economy and transforming it into a global industrial leader.
- Books & Publications
  - "Quality, Productivity, and Competitive Position" (1982)
  - "Out of the Crisis" (1986): Where he detailed his famous 14 Points for Management.
  - "The New Economics for Industry, Government, Education" (1993)

Philip B. Crosby

- Brief Introduction
  - A quality management guru and author.
  - Known as an ambassador for the concept of "Doing It Right the First Time" (DIRFT).
- Books and Publications (Philip Crosby)
  - "Quality is Free"
    - Published in 1979
    - Popularizing the concept that quality in business systems ultimately pays for itself
  - "Quality Without Tears"
    - Published in 1984
    - Defining practical approach to managing quality in businesses
  - "The Absolutes of Leadership"
    - Published in 1996
    - Exploring leadership principles in relation to quality
- Major Contributions
  - Advocated for "zero defects" in business processes.
    - Zero Defects
      - Idea that there should be no tolerance for errors.
      - Believes that organizations should aim for perfect products and services.
      - Based on the philosophy that mistakes are preventable.
  - Developed the 4 absolutes of quality management.
    - 4 Absolutes of Quality Management
      - Quality means conformance to requirements, not elegance.
      - System for achieving quality is prevention, not appraisal.
      - Performance standard must be Zero Defects, not "close enough".
      - Measure of quality is the Price of Non-Conformance (PONC), not indices.
  - Conceptualized the idea of the "cost of quality".
    - Cost of Quality
      - Introduced the concept that the cost of poor quality (COPQ) should be measured.
      - Proposed it's typically around 20% of sales.
      - Focuses on the costs that are incurred as a result of producing a poor quality product or service.
  - Introduced Crosby's Quality Vaccine, a systematic continuous improvement plan.
    - Crosby's Quality Vaccine
      - A systematic proactive approach to prevent quality problems.
      - Implemented through the 14 steps he proposed.
  - Popularised the 14-step quality improvement process.
    - 14-Step Quality Improvement Process
      - Detailed roadmap for organisations to achieve quality improvement.
      - Steps include management commitment, quality improvement teams, measurement, cost of quality evaluation, corrective action, zero defects planning etc.

Walter Shewhart

- Brief Introduction
  - American physicist
  - Engineer
  - Statistician
  - Work at Bell Laboratories
    - Quality control
    - Development of statistical methods
- Contributions
  - Control charts
    - Basic tool of statistical process control
  - Concept of "three sigma"
    - Three standard deviations from the mean
  - Deming-Shewhart cycle (PDCA)
    - Plan, Do, Check, Act
- Influence
  - Inspiration for Edward Deming
  - Basis for Six Sigma
  - Used by industries globally
- Books
  - "Economic Control of Quality of Manufactured Product"
  - "Statistical Method from the Viewpoint of Quality Control"
- Legacy
  - Shewhart's philosophy incorporated into Total Quality Management (TQM) systems
  - His principles remain relevant in fields like manufacturing, service delivery, marketing, and more.

Joseph M. Juran

- Biography
  - Born: December 24, 1904
  - Nationality: American-Romanian
  - Occupation: Quality Management Guru, Engineer, and Management Consultant
- Contribution to Quality Management
  - Juran Trilogy
    - Quality Planning
      - Establishing organizational goals and steps to meet them
    - Quality Control
      - Evaluating work performance and taking steps to improve it
    - Quality Improvement
      - Develops ways to meet or exceed quality goals
  - Juran's Quality Handbook
    - Comprehensive guide for understanding and applying quality management principles and techniques
  - Cost of Quality
    - Juran classified the costs of quality into prevention, appraisal, and failure costs
    - Emphasized that improving quality can lead to lower costs
  - Pareto Principle
    - Business strategy inspired by the Italian economist Vilfredo Pareto
    - Suggests that by resolving 20% of the issues, 80% of the problems can be resolved
- Training and Consultation
  - Founded the Juran Institute to provide training on quality management
  - Consulted many large corporations, like Xerox and General Motors
- Notable Quotes
  - "Quality planning consists of developing the products and processes required to meet customer's needs."
  - "Having quality as a weapon is partial adaptation to a new mode of managerial thinking."
- Influence and Legacy
  - Juran's teachings and principles have influenced many modern quality management practice
  - His work continues to be relevant and used in various industries today

Kaoru Ishikawa

- Brief Introduction
  - Japanese quality control statistical expert
  - Influential in the development of quality initiatives in Japan
  - Renowned for his innovative quality management methodologies
- Education
  - Doctorate in engineering from Tokyo University
- Professional Experience
  - Employed by Nissan
  - Later became a professor at the Engineering Faculty at Tokyo University
- Contributions
  - Ishikawa Diagram (Fishbone Diagram)
    - Visual tool for identifying & presenting possible causes of a problem
    - Encourages comprehensive thought about root causes of a problem
  - Company Wide Quality Management (CWQM)
    - Promoted concept that quality does not only belong to the Quality Department but all people at all levels
    - Quality control is the responsibility of all workers and all divisions
  - Democratization of Quality
    - Advocated for the involvement of the entire organization in quality management
  - Quality Circles
    - Conceptualized small groups of employees working together proactively to identify and solve work-related problems
  - Consumer-Oriented Approach to Quality
    - Believed that improving quality always leads to lower costs and higher productivity
  - Advocated Use of Seven Basic Quality Tools
    - Encouraged the use of Pareto Charts, Cause and Effect diagrams etc.
- Awards and Recognition
  - Received many awards such as Deming Prize for Dissemination and Promotion (Overseas) in 1968
- Books and Publications
  - "Introduction to Quality Control"
  - "What is Total Quality Control? The Japanese Way"
  - "Guide to Quality Control"

Armand V. Feigenbaum

- Brief Introduction
  - Education
    - Massachusetts Institute of Technology (MIT)
      - Bachelor's degree in engineering
      - Master's degree in economics
      - Doctorate in Science
  - Career
    - Early career at General Electric (GE)
      - Developed concept of Total Quality Control
    - Later stage, established own company
      - Feigenbaum & Associates, focusing on engineering and total quality management.
- Contributions to Quality Management
  - Three-step process for implementation of Total Quality Control
    - Quality Leadership
    - Modern Quality Technology
    - Organizational Commitment
  - Total Quality Control
    - 1951: Introduced the concept of Total Quality Control
    - Application across all organization levels
    - Contributions to quality are responsibilities for all employees
  - Hidden Plant
    - Concept of additional productivity
    - Lost due to inefficient quality management
  - Quality Costs
    - Developed concept that total cost of a product is the sum of all costs
    - Quality is a means to lower cost and improve productivity
- Influence
  - Influenced the modern view of Quality Management
    - Emphasized the importance of quality in the innovation process
  - His work used globally by organizations in various industries

Genichi Taguchi

- Brief Introduction
  - Japanese Quality Control Statistician
  - Influential in Japan & the U.S
  - Known for developing a methodology to improve quality & reduce cost
- Quality Contribution
  - Taguchi Methods
    - Engineering method to optimize product/process design
    - Focuses on reducing variation and failure
    - Provides a systematic application of design and analysis techniques
  - Loss Function
    - Idea that the quality of a product is not binary (good or bad)
    - There is a continuous level of loss with the variation from the ideal
    - This concept forms the basis of Taguchi methodology
  - Robust Design
    - Aims at reducing the effects of variation without eliminating the causes
    - Used to create products/processes that are insensitive to changes
    - Has three stages: system, parameter and tolerance design
  - Signal-to-Noise Ratio
    - A measure used to investigate design options
    - Provides a statistical measure to predict variability
    - Used in the parameter design stage
- Influence and Legacy
  - Quality Engineering
    - Taguchi's concept are widely used in different industries
    - Made significant contributions to industrial statistics
  - Quality Improvement
    - Remarkable influence on developing methods for efficiency
    - Promote quality improvement activities in business
  - Awards and Honors
    - Received numerous awards including the Deming Prize
    - Honored for the development and dissemination of quality methodology
- Literature and Works
  - Numerous journals, papers, and books
  - Widely published on quality control and statistics
  - Noteworthy publication: 'Introduction to Quality Engineering' and 'System of Experimental Design'

Taiichi Ohno

- Brief Introduction
  - One of the architects of Kaizen and Toyota Production System (TPS)
  - Known as the father of Lean Manufacturing
  - Career
    - Spent most of his career at Toyota Motor Corporation
    - Served as a production engineer and manager
    - Later rose to executive level
- Contributions
  - Kaizen
    - Continuous improvement process focusing on efficiency and effectiveness
    - Emphasizes small, incremental changes over time
  - Toyota Production System (TPS)
    - System developed to improve productivity and eliminate waste
    - Was a response to the limitations of mass production
  - Just-in-Time (JIT)
    - Production strategy to improve a business' return on investment by reducing inventory and associated carrying costs
    - Part of TPS
  - Kanban
    - Schedule/Inventory system that tells what to produce, when to produce it, and how much to produce
    - Part of TPS
  - Heijunka (Production leveling)
    - Method to reduce wastes (muda) and fully utilize resources
    - Part of TPS
- Impact
  - Transformed Toyota into leading automaker
  - His concepts have been applied across industries
  - Many companies have implemented his ideas for lean operations
  - Influenced quality management and operations
  - His ideas have played a key role in Japan's post-war economic recovery.

Quality Gurus