

LEAN AND OPERATIONAL EXCELLENCE

Quality Management

Deming · Juran · Ishikawa · Shingo

PAPER 02 / 03

A Furtherance reference compendium on the intellectual traditions behind organisational design, leadership, execution, and culture.

IN THIS PAPER

Beneath lean lies the quality movement that made it possible. This paper covers the thinkers who turned quality from after-the-fact inspection into a management discipline built into the work. The question it answers: what actually produces quality – and whose job is it?

Deming made quality management's responsibility and a matter of reducing variation; Juran gave it a managerial trilogy and the vital few; Ishikawa made it participatory and tool-based; Shingo engineered defects out at the source. Together they answer: quality is a system property, built in, not inspected in.

W. Edwards Deming 1900–1993

The quality revolution · profound knowledge

CORE THESIS

Quality is **management's responsibility**, and most problems – by his estimate the great majority – lie in the **system**, not the worker. The route to it is reducing **variation**, understanding the difference between common and special causes, and driving out fear so the truth can surface.

FRAMEWORK

Element of profound knowledge	Meaning
Appreciation for a system	Manage the whole, not the parts in isolation
Knowledge about variation	Distinguish common-cause from special-cause
Theory of knowledge	Prediction and learning require theory
Psychology	Understand people and intrinsic motivation

Improvement runs on the **Plan–Do–Study–Act** cycle; his fourteen points and “deadly diseases” translated the philosophy into management practice.

METHODOLOGY

Statistical method fused with a management philosophy, proven in post-war Japanese industry.

SIGNIFICANCE AND CRITIQUE

Catalysed the global quality movement and reframed quality as a management system. The critique: some of the fourteen points are era-specific, and his blanket opposition to targets and merit rating is debated.

Joseph Juran 1904–2008

Quality management · the trilogy and the vital few

CORE THESIS

Quality is **fitness for use**, and it is managed – like finance – through three processes. Improvement should concentrate on the **vital few** causes that drive most problems (the Pareto principle, which Juran named).

FRAMEWORK

The Juran trilogy	What it does
Quality planning	Design products and processes to meet customer needs
Quality control	Hold the process to standard; catch deviation
Quality improvement	Attack chronic problems project by project

METHODOLOGY

Management engineering, taught across post-war Japan and the United States.

SIGNIFICANCE AND CRITIQUE

The managerial counterpart to Deming, and the source of the Pareto principle in quality. The critique: he attracted less of a following than Deming, though his framework is arguably more directly usable.

Kaoru Ishikawa 1915–1989

Company-wide quality control · the seven tools

CORE THESIS

Quality is **everyone's job**. Through **company-wide quality control** and **quality circles**, frontline workers – armed with a few simple tools – can diagnose and improve their own work. Quality is democratised, not reserved for specialists.

FRAMEWORK

Contribution	What it provides
Fishbone diagram	Cause-and-effect analysis of a problem
The seven basic tools	Check sheet, Pareto, histogram, control chart, and more
Quality circles	Frontline teams solving quality problems
“Next process is the customer”	Internal quality accountability along the chain

METHODOLOGY

Leadership of the Japanese quality-control movement, focused on accessible tools.

SIGNIFICANCE AND CRITIQUE

Made quality participatory and gave the world the fishbone diagram and the seven tools. The critique: quality circles, transplanted to the West without the surrounding culture, largely faded.

Shigeo Shingo 1909–1990

Defect prevention · poka-yoke and SMED

CORE THESIS

Do not inspect quality in after the fact – **build it in at the source** and make defects impossible. **Poka-yoke** (mistake-proofing) and source inspection prevent errors from becoming defects, while **SMED** slashes changeover time so small-batch flow becomes practical.

FRAMEWORK

Method	What it achieves
Poka-yoke	Mistake-proofing so errors cannot become defects
Source inspection	Catch the cause, not the symptom, at its origin
Zero Quality Control	Systematic prevention rather than detection
SMED	Single-minute changeover – enabling small batches and flow

METHODOLOGY

Industrial engineering at Toyota and across manufacturing.

SIGNIFICANCE AND CRITIQUE

Engineered defect prevention and the rapid changeover that makes flow possible; poka-yoke is now ubiquitous. The critique: the contribution is technique-centred, strongest in physical production.

Synthesis

Theorist	Focus	Key idea	Register
Deming	The system	Profound knowledge; PDSA	Philosophy + statistics
Juran	Management	The trilogy; the vital few	Managerial
Ishikawa	Participation	Seven tools; quality circles	Frontline / tools
Shingo	Prevention	Poka-yoke; SMED	Engineering

FOR THE OPERATOR

The quality tradition supplies lean's foundation: management-owned reduction of variation (Deming), the trilogy of planning, control and improvement and the vital few (Juran), company-wide participation and simple tools (Ishikawa), and defect prevention at the source (Shingo). For the operator: quality is a system property owned by management and built in at the source – never inspected in at the end. The final paper adds the constraint, statistical and process disciplines.