

Quality Is Not an Accident

The Philosophical & Economic Foundations Every Lean Six Sigma Practitioner Must Master

SixSigmaKaizen.com Newsletter – Issue 1

Practical Guides for Lean Six Sigma, Kaizen & Quality in Manufacturing Operations

Welcome to the inaugural edition of the SixSigmaKaizen.com Newsletter!

At SixSigmaKaizen.com, we deliver practical, shop-floor-focused guides, tools, templates, and training insights grounded in **Lean Six Sigma, Kaizen, Toyota Production System** principles, **Quality Engineering**, and **Reliability Engineering**. Whether you're a Quality Engineer, Black Belt, Plant Manager, or team leader responsible for manufacturing operations, our resources help you build sustainable improvement – not just run another program.

This first issue lays the essential groundwork. Quality is a discipline with deep intellectual and economic roots. Tools like DMAIC, 5 Whys, FMEA, or poka-yoke only deliver lasting results when built on solid philosophical foundations.

Why Quality Philosophy Matters in Manufacturing Operations

Quality is not an accident. It is not the lucky outcome of good intentions or simply “trying harder.” Quality is a discipline – one with rigorous frameworks, systems thinking, and an economic logic that, once understood, becomes profoundly motivating for teams and leaders.

Organizations that grasp quality at this level make better decisions, sustain improvements longer, and avoid the initiative fatigue that plagues so many Lean Six Sigma or Kaizen rollouts. These ideas are actively used in world-class manufacturing – from automotive and electronics to complex hardware like enterprise storage systems.

The Evolution of Quality: From Inspection to Integration

Quality management evolved through distinct eras, each overcoming previous limitations (still relevant today in high-tech assembly lines):

- **Inspection Era (pre-1920s):** Sort good from bad at the end – reactive and wasteful.
- **Statistical Quality Control (1920s–1950s):** Use data to control processes in real time (Shewhart’s control charts).
- **Total Quality Management (1950s–1990s):** Organization-wide culture and strategy.
- **Systems Integration (1990s–2000s):** ISO 9001, IATF 16949, and integrated management systems.
- **Digital & Data-Driven (2010s–present):** Real-time analytics, predictive quality, and AI-supported defect prevention.

The Three Founders: Deming, Juran, and Crosby

These thinkers provide the bedrock referenced across **ASQ** materials, **Lean Six Sigma** body of knowledge, and **Toyota Way** principles.

W. Edwards Deming – The Systems Thinker

Deming taught that 85–94% of quality problems stem from the **system**, not individual workers. His **System of Profound Knowledge** includes four lenses: Appreciation for a System, Knowledge of Variation (common vs. special cause), Theory of Knowledge, and Psychology.

His famous **14 Points for Management** emphasize creating constancy of purpose, driving out fear, breaking down departmental barriers, eliminating quotas, and instituting leadership and continuous education – core to **Toyota Way** respect for people and **Toyota Kata** coaching routines.

Deming popularized the **PDCA Cycle** (Plan-Do-Check-Act) as the engine of iterative improvement – directly aligned with **Toyota Kata**’s Improvement Kata (scientific thinking pattern) and Coaching Kata.

Joseph M. Juran – The Quality Trilogy

Juran framed quality as a managerial responsibility through three processes:

- **Quality Planning** – Design processes that meet customer needs.
- **Quality Control** – Maintain stability under operating conditions.
- **Quality Improvement** – Achieve breakthrough performance.

He quantified the **Cost of Poor Quality** (often 20–40% of revenue in manufacturing) and popularized the **Pareto Principle** (vital few vs. trivial many) for focused improvement.

Philip B. Crosby – Prevention and Zero Defects

Crosby’s **Four Absolutes**:

1. Quality is conformance to requirements.
2. Quality system is prevention, not appraisal.
3. Performance standard is Zero Defects.
4. Measurement is the Price of Nonconformance (PONC).

His message “**Quality is Free**” shows that investing in prevention dramatically reduces total quality costs.

Quick Comparison – The Founders at a Glance

Dimension	Deming	Juran	Crosby
Primary Focus	Systems & variation; leadership	Management processes & financial visibility	Prevention & cultural standards
Core Framework	System of Profound Knowledge, 14 Points, PDCA	Quality Trilogy, Pareto	Four Absolutes, Quality is Free

First-Hand Account: How One Enterprise Storage Hardware Team Applied These Foundations

A few years ago, I worked with a manufacturing team producing enterprise-grade storage systems — high-density rack enclosures, RAID controllers, precision-machined drive bays, complex PCB assemblies, thermal management components, and integrated firmware validation. These products demanded extremely tight tolerances for signal integrity, vibration resistance, and long-term reliability under 24/7 data-center conditions.

The team faced chronic issues: first-pass yield hovered around 72%, internal rework on connector soldering and mechanical alignments consumed hours per shift, and external failures (warranty returns for intermittent thermal or connectivity problems) were costing significant money and damaging customer trust with major server OEMs.

Initially, the response was classic “inspection-era” thinking: add more final test stations, increase sorting, and push operators harder with slogans and quotas. Rework and scrap kept rising. Leadership blamed “careless assembly techs” and “supplier quality.”

A new Quality Manager, drawing explicitly from Deming, Juran, and Crosby, shifted the conversation. In the first all-hands meeting he presented data showing that over 90% of defects traced to **common cause variation** in the system — inconsistent torque settings on automated screwdrivers, subtle differences in incoming PCB flatness from multiple suppliers, thermal profiles that varied by shift due to undocumented oven calibration drift, and unclear standard work across teams.

Using Deming’s lens of **Appreciation for a System** and **Knowledge of Variation**, the team stopped tampering with every blip on control charts. Instead, they mapped the entire value stream (Lean tool) and applied Juran’s **Quality Trilogy**:

- **Quality Planning:** Redesigned incoming material qualification and process parameters using FMEA and process capability studies (Cpk targets).
- **Quality Control:** Implemented statistical process control (SPC) on critical variables and standardized work instructions.
- **Quality Improvement:** Launched targeted Kaizen events on the “vital few” issues identified via Pareto analysis.

They adopted Crosby’s prevention mindset and “Zero Defects” as a cultural standard — not as a statistical guarantee, but as the expectation that requirements would be met the first time. Quotas and fear-based metrics were removed (Deming Point 11); instead, leadership focused on removing barriers to pride of workmanship (Point 12) and driving out fear (Point 8).

The team practiced **Toyota Kata** routines daily: operators and supervisors used the Improvement Kata to set small target conditions, run PDCA-style experiments on one variable at a time, and document learnings. Coaching Kata helped leaders ask better questions rather than dictate solutions.

Results after 18 months were striking:

- First-pass yield rose to 94%.
- Internal rework and scrap dropped by over 65%.
- External warranty claims fell sharply, directly improving the **Cost of Quality** profile — shifting dollars from failure costs into prevention and training.
- Team morale improved noticeably; operators began voluntarily suggesting poka-yoke improvements because they felt ownership instead of blame.

The key lesson? Treating quality as a system problem (Deming), managing it through structured planning/control/improvement (Juran), and insisting on prevention with clear standards (Crosby) transformed performance. Tools alone would not have sufficed — philosophy provided the “why” that sustained the effort.

Practical Takeaways You Can Use Tomorrow

1. Review one process in your operation through Deming’s System of Profound Knowledge — ask: Is the problem common or special cause?
2. Calculate a rough **Cost of Poor Quality** for your biggest defect category (use Juran’s categories: Prevention, Appraisal, Internal Failure, External Failure).
3. Run a short team huddle using the Kano Model or simple VOC questions to ensure your internal “customer” (next process step) requirements are clearly defined.
4. Introduce basic **Toyota Kata** practice: Pick one small target condition and run a PDCA experiment this week.

Download / Share This Guide

The full “Ultimate Guide to Quality Philosophy & Foundations” (with detailed tables, PDCA details, COQ optimization, ISO 9001 principles, and more) is available on the site. Use it as a training reference for your next Lean Six Sigma or Kaizen workshop.

Next Issue Preview

“Translating Philosophy into Practice: Mastering PDCA and Toyota Kata Routines on the Shop Floor” — with templates, coaching tips, and a real manufacturing example.

Call to Action

What is one quality philosophy challenge your team is facing right now in manufacturing operations? Reply or comment below.

Share this newsletter with a colleague building their Lean Six Sigma or Quality Engineering skills.

Thank you for subscribing. Together, we’ll build knowledge that drives real results in Lean Manufacturing, Quality Assurance, Team Training, and Operational Excellence.

Stay curious, stay improving,

Diamond Dave

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References

ASQ Body of Knowledge • Deming’s *Out of the Crisis* • Juran’s *Quality Control Handbook* • Crosby’s *Quality is Free* • Toyota Kata (Mike Rother) • ISO 9001:2015 Quality Management Principles • Lean Six Sigma DMAIC framework.

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just let me know the exact adjustments. This PDF will make an excellent foundational training handout aligned with corporate manufacturing operations, team management, and quality education best practices.