Cost of Quality (COQ) & Lean Accounting Cheat Sheet

Prevention, Appraisal, Internal Failure & External Failure Costs | TQM & Six Sigma Economics

1. THE 4 QUALITY COST CLASSIFICATIONS (COQ FRAMEWORK)

Category	Classification Definition & Purpose	Practical Factory Floor Examples
1. Prevention Costs (Conformance Cost)	Incurred to prevent defects, non-conformance, and errors from occurring in the first place.	• Employee quality training and certification • Robust product design engineering • Supplier quality audits and vendor certification • Preventive machinery maintenance
2. Appraisal Costs (Conformance Cost)	Incurred to detect defects and errors through inspection, testing, and auditing.	• Incoming raw material testing • In-process robotic vision inspections • Finished goods quality lab tests • Calibration of test instruments
3. Internal Failure Costs (Non-Conformance Cost)	Incurred to fix defects discovered BEFORE product is shipped to the customer.	• Net scrap costs (wasted material) • Rework labor and machine time • Downtime caused by defect troubleshooting • Re-inspection of reworked items
4. External Failure Costs (Non-Conformance Cost)	Incurred because defective products were delivered to the customer. **MOST EXPENSIVE CATEGORY!**	• Customer warranty repairs and replacements • Product recalls and legal liabilities • Customer service complaint processing • Lost future sales and damaged brand goodwill

2. TOTAL QUALITY MANAGEMENT (TQM) OPTIMIZATION TRADE-OFF

Economics Dimension	Conformance vs. Non-Conformance Trade-Off	Lean Six Sigma Strategy
Trade-Off Dynamics	As spending on **Prevention & Appraisal (Conformance)** increases, expenses on **Internal & External Failures (Non-Conformance)** plummet exponentially.	Investing $1 in robust product design (prevention) saves $10 in factory rework and $100 in customer warranty recalls (the 1-10-100 Rule).
Optimal Conformance Level	**Total Quality Cost = Conformance Costs + Non-Conformance Costs**. Minimum total cost occurs at modern high-quality targets.	Drive toward zero defects. Total cost of quality is minimized when defects are prevented at the source.