Quality without the blind spots.

Most capital equipment manufacturing leaders know quality matters. Far fewer can say, with confidence, what **poor quality truly costs** them.

Quality-related losses are often fragmented, buried in operations, and quietly absorbed as normal. When added up, they frequently amount to as much as **10% of revenue.**

This is **the Cost of Poor Quality**. Hard to see. Difficult to measure. And expensive to ignore.

So the real question is: do you accept it, or do you try to understand it?

Published in March 2026. Insights are based on market conditions at the time of release.

Why would you care?

In today's manufacturing environment, small inefficiencies can add up to big losses. Supply chains are more complex, margins are tighter, and customers expect flawless delivery. In this context, **poor quality is not just a technical issue**. It quietly becomes **a business problem**.

The Cost of Poor Quality (COPQ) is more than scrap, rework, or warranty claims. It creeps into **operations, planning, and customer relationships**, often hiding in ways that leaders don't immediately see.

Common ways COPQ shows up include:

- **Hidden drain on profitability:** Rework, delays, excess inventory, and lost sales quietly erode margins, often unnoticed because quality costs are scattered across functions.
- **Customer impact:** Even a single defect reaching the customer can trigger warranty claims, lost contracts, or long-term brand damage.
- **Operational inefficiency:** Teams spend time firefighting issues instead of focusing on value-added work, slowing delivery and innovation.
- **Competitive pressure:** Organizations that understand and manage COPQ move faster, earn trust, and keep customers coming back, while others struggle to keep pace.

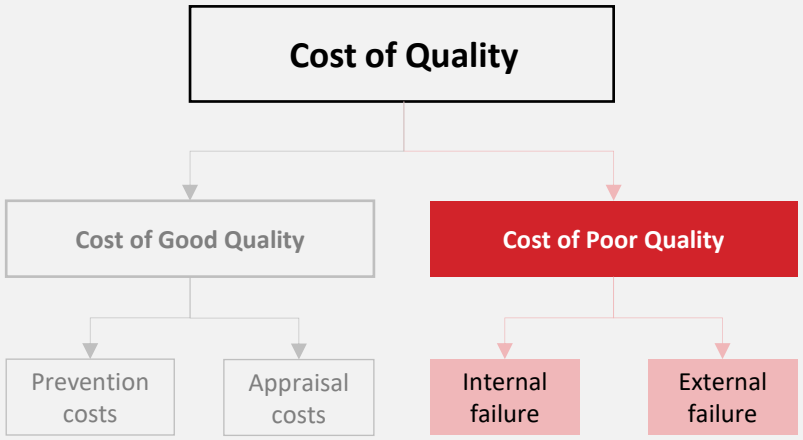
The good news? **COPQ is measurable, traceable, and manageable**. But only if you first see it clearly.

As you read, ask yourself: **where are hidden costs quietly building up, which defects are hitting operations and customers the hardest, and how do others keep COPQ under control?**

Wondering where to start? Keep reading.

Understanding COPQ

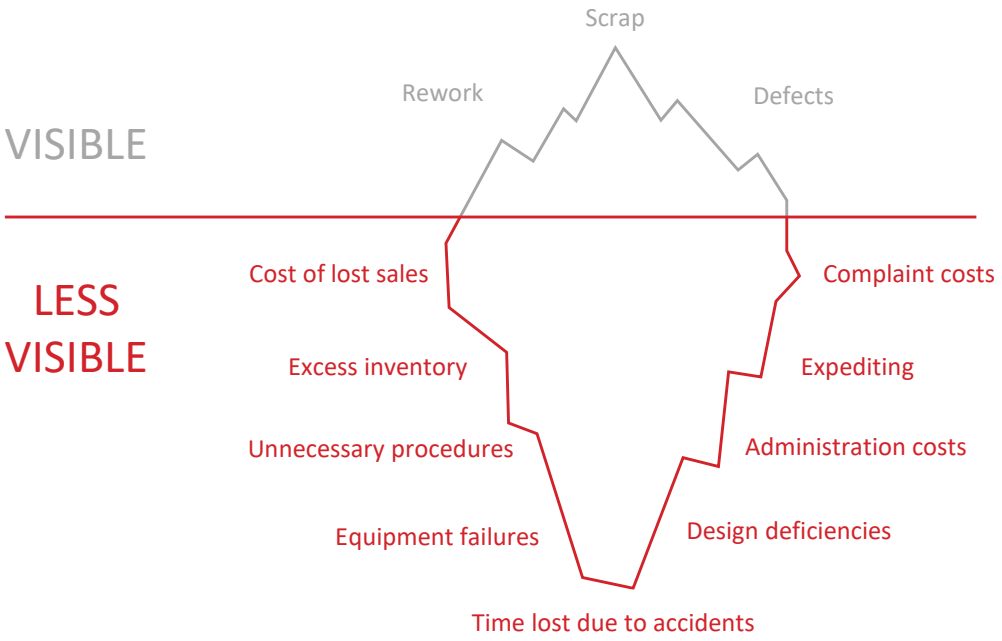
- **COPQ stands for Cost of Poor Quality**. It refers to the costs that would disappear if products or services were produced or delivered for the first time; in other words, **the costs caused by defects, errors, inefficiencies, or any failure to meet quality standards**.
- COPQ is usually broken down into two main categories:
  - **Internal failure costs:** Costs from defects found before the product reaches the customer. Examples include rework, scrap, retesting, and downtime caused by defects.
  - **External failure costs:** Costs from defects discovered after the product reaches the customer. Examples include warranty claims, product recalls, customer complaints, legal liabilities, and loss of reputation.
- **COPQ is often associated with the other parts of the Cost of Quality framework: COGQ, or Cost of Good Quality**, which also accounts for:
  - **Prevention costs:** Expenses to avoid defects in the first place, such as training, process improvement, quality planning, and preventive maintenance.
  - **Appraisal costs:** Expenses from measuring, inspecting, or auditing products to ensure quality, such as inspections and testing.



A key insight: the later a defect is discovered in the quality chain, the more expensive it is to correct.

Organizations aiming to reduce COPQ face several challenges, including: accurately measuring quality-related costs, building organizational awareness, selecting and implementing effective tools and methodologies, and standardizing data across departments.

The COPQ iceberg



Much like an iceberg, **the visible costs of poor quality** (rework, scrap, and defects) are only the tip.

Beneath the surface lie **the hidden costs that quietly sink margins**: lost sales, excess inventory, unnecessary procedures, and operational disruptions. These hidden costs often go unnoticed because they are **scattered across functions, buried in processes, or assumed to be "business as usual".**

Understanding the full iceberg is more than a diagnostic exercise. It reveals where inefficiencies accumulate, highlights where leadership attention is needed, and shows why COPQ is rarely solved by quick fixes alone.

The question for every leader: Are you tracking the hidden costs before they escalate?

On the next slide, we'll explore **the challenges organizations face when bringing these costs to the surface, and why addressing them requires coordinated effort across people, processes, and systems**.

Navigating the challenges of COPQ

Reducing COPQ is rarely straightforward. While the visible costs are easy to spot, the hidden costs are dispersed across processes, teams, and systems. Addressing them effectively requires more than technical fixes. It demands clarity, coordination, and a shared understanding across the organization.

01 AWARENESS

One of the main barriers to reducing COPQ is limited awareness.

Teams often consider only the visible costs like scrap or rework, overlooking inefficiencies, delays, or customer dissatisfaction.

Without a clear, shared understanding of what counts as poor quality and consistent terminology, efforts to identify, track, and reduce COPQ remain fragmented and ineffective.

02 MEASUREMENT

Accurately measuring COPQ is difficult.

Costs are spread across multiple functions, many quality-related losses are absorbed into operational budgets, and KPIs are inconsistent.

Without comprehensive measurement and standardized metrics, leaders lack the data needed to identify the largest pain points or quantify the true financial impact of poor quality.

03 SYSTEMS IMPLEMENTATION

Effective COPQ management depends on tools that can collect, integrate, and analyze data across the organization.

Many companies rely on outdated or siloed systems, which make it hard to see trends, track recurring issues, or prioritize interventions.

Digital dashboards, integrated ERP/quality systems, and advanced analytics are essential for visibility and proactive action.

04 PROCESS CONTROL

Weak process governance allows defects and inefficiencies to recur.

When quality control is reactive rather than proactive, problems often reach customers or disrupt production.

Standardized, well-documented processes, along with robust process controls, are critical to prevent defects, streamline operations, and embed continuous improvement into daily work.

05 LONG-TERM IMPROVEMENT

Reducing COPQ sustainably is about more than technical fixes. It requires cultural change, cross-functional collaboration, and structured improvement initiatives such as Lean, Six Sigma, or Total Quality Management.

Leadership sponsorship, clear accountability, and alignment across sites and teams are essential to maintain progress and embed quality ownership throughout the organization.

Understanding these challenges is the first step. Each one represents both a barrier and an opportunity: the more clearly you see them, the more effectively you can target improvements. On the next slides, we'll explore where to start, what to measure, and how to prioritize actions.

Where to start with COPQ

Effectively addressing COPQ begins with asking the right questions. Understanding the scale, sources, and patterns of poor quality is essential before committing to solutions. Focusing on the areas below helps uncover hidden costs and clarify where interventions can have the most impact.

	**Clarity & Awareness**	▪ *Does the organization have a shared understanding of COPQ?* ▪ *Are teams aligned on what costs are included (scrap, rework, warranty, lost sales) and how they affect operations?*	Leaders and employees must grasp the magnitude and impact of COPQ for improvement efforts to be effective.
	**Measurement & Transparency**	▪ *Is COPQ measured consistently across the organization?* ▪ *Are the metrics meaningful, standardized, and visible to decision-makers?*	Reliable measurement and transparent reporting are essential to prioritize action and assess progress.
	**Ownership & Accountability**	▪ *Who is responsible for tracking and reducing COPQ at different levels (plant, division, corporate)?* ▪ *Is accountability clear, and can teams act on the data?*	Clear governance, roles, and accountability structures ensure cross-functional alignment and sustained improvement.
	**Systems & Analytics**	▪ *Which tools and digital systems track COPQ?* ▪ *Are ERP or quality management systems integrated, providing real-time visibility?* ▪ *Are analytics or predictive approaches leveraged to identify issues before they escalate?*	Effective systems are critical to make the invisible costs visible.
	**Continuous Improvement**	▪ *Are there initiatives targeting COPQ reduction, such as Lean, Six Sigma, or process improvement programs?* ▪ *Are employees encouraged to propose changes and experiment with solutions?*	Embedding quality improvement into the culture ensures that responsibility extends beyond the quality department and is part of everyday work.
	**Guidelines & Processes**	▪ *Are there standardized processes for managing quality and reducing COPQ?* ▪ *Are root cause analyses conducted systematically, and are lessons learned applied to prevent recurrence?*	Clear procedures and consistent application across sites are essential for sustainable results.

Taking action on COPQ

SHORT TERM

Establish a quality leadership task force

Create a cross-functional group led by senior stakeholders to own the COPQ performance.

This team aligns definitions, prioritizes improvement initiatives, and ensures that leadership attention translates into clear accountability and resource allocation.

Leadership buy-in is critical to drive cross-functional actions and maintain focus on high-impact opportunities.

Comprehensive COPQ baseline diagnostic

Analyze existing data across plants and product lines to identify where the highest costs occur, scrap, rework, warranty claims, and operational inefficiencies.

This assessment surfaces “quick wins,” quantifies the scale of the problem, and provides a clear starting point for improvement initiatives.

It ensures all teams share a common understanding of where COPQ is impacting performance.

Implement a structured QMS

Introduce or strengthen a Quality Management System to standardize procedures, embed Plan-Do-Check-Act cycles, and provide a backbone for consistent quality control.

A robust QMS enables reliable documentation, process audits, and ongoing monitoring, turning quality management into a structured, proactive function rather than reactive firefighting.

LONG TERM

Enhance quality culture

Raise organization-wide awareness of COPQ through training, clear communication, and alignment of incentives.

Encourage employees at all levels to report issues, propose improvements, and take ownership of quality.

Recognition of measurable improvements strengthens engagement and builds a culture where quality is integral to decision-making.

Strengthen supplier quality collaboration

Many capital equipment manufacturers rely on complex supply chains.

Engaging suppliers in joint audits, training, and alignment on quality standards ensures that defects are addressed at the source.

Defining COPQ and COGQ metrics with suppliers and clarifying expectations reduces recurring issues and improves overall supply chain performance.

Improve RCA & preventive actions

Implement structured root cause analysis (RCA) programs for every major defect or failure.

Use techniques like 5-Whys, fishbone diagrams, and failure mode analysis to uncover underlying causes.

Feed lessons learned into preventive measures, update process controls, and monitor effectiveness to ensure that similar issues do not recur.

Using Strategic Intelligence to understand COPQ

Hidden costs and inefficiencies are rarely visible in a single report. Strategic intelligence can help leaders see the full picture: how your organization performs internally, how peers and other industries tackle quality challenges, and how suppliers and customers influence outcomes. By combining internal data with external insights, you can make more informed, strategic decisions without guessing where the biggest issues lie.

COMPANY INTELLIGENCE

What: Systematic review of internal COPQ and COGQ data across divisions and sites

Why: Reveal inconsistencies, hidden costs, and performance gaps

Outcome: Where are the highest hidden costs; which processes drive most of the losses

CROSS-INDUSTRY INTELLIGENCE

What: Benchmark quality practices and methodologies in other sectors

Why: Learn from approaches that have delivered measurable results

Outcome: Which initiatives have worked elsewhere; what practices could be adapted to your organization

360° view

CUSTOMER INTELLIGENCE

What: Analyze voice-of-customer data, warranty claims, and complaints

Why: Connect poor quality with operational impact and customer experience

Outcome: Which quality issues impact customers the most; which external failures are most costly

CHAIN INTELLIGENCE

What: Assess supplier performance, quality practices, and alignment with standards

Why: Reduce upstream defects and strengthen supply chain reliability

Outcome: Which suppliers contribute most to COPQ; where are the improvement opportunities upstream

Wrapping up

Quality quietly shapes industrial performance. Hidden inefficiencies, recurring defects, and scattered costs erode margins, disrupt operations, and risk customer trust. **Most organizations struggle because COPQ is poorly measured and often treated as a technical issue rather than a business priority.**

By combining internal insights with cross-industry and supplier perspectives, leaders can pinpoint the largest cost drivers, prioritize high-impact improvements, and embed practices that prevent recurring failures. **Understanding COPQ in context allows organizations to reduce hidden costs, improve reliability, and make decisions with confidence.**

Curious where the highest costs are hiding in your operations? This insight is the first step to turning them into measurable improvement.

Ready for more? Let's connect.

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Metodija brings over 20 years of advisory experience in similar projects and leading complex teams in strategic and operational support. He is a highly accomplished professional who serves as a Managing Partner of EMBS Group. With his exceptional leadership qualities, Metodija plays a pivotal role in driving our organization's success and ensuring our clients receive the highest level of service. Beyond his professional accomplishments, Metodija is known for his ability to inspire and motivate the team. Fluent in multiple languages, including English, Polish, and Macedonian.

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French-born Project Manager with over six years of professional experience in business consulting and management gained in companies like Marsh & McLennan and Nielsen. Having lived in four different countries, Simon deeply understands the international environment. His expertise in project management, strategic thinking, data analysis, and exceptional interpersonal skills make him a key player in delivering successful outcomes for the clients, particularly in the construction and industrial manufacturing sectors.