Discover the power of your total cost of quality

Your guide to getting quality a seat at the table

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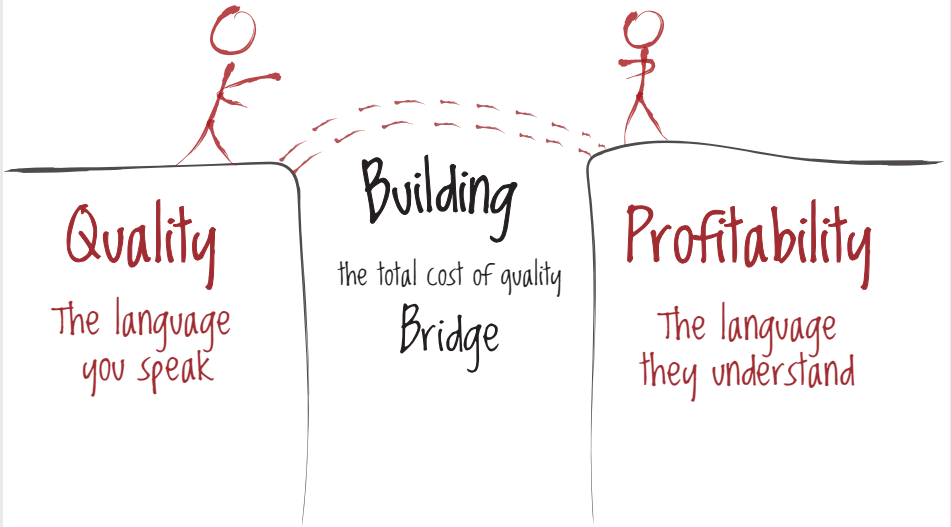
Fundamentals of the total cost of quality (TCoQ)

Discover the power of your total cost of quality



Guide

The chasm of misunderstanding and how to bridge it

If you're completely satisfied with your role as a quality manager, this briefing may not be for you. You're one of the fortunate few (the 30% according to Gartner's 2022 Cost of Quality Survey Report whose bosses grasp the impact of quality on profitability.

This is for the other 70%: the quality managers who are still dealing with 21st-century quality challenges with clunky 20th-century tools. And who can't get the help they need to reach their quality goals because investments in quality (such as a quality management system or QMS) are always viewed as costs—or even luxuries.

If this is you, you're in the right place.

In this series of seven chapters, you'll master the one thing you need to get senior management on your side: the side of quality. You'll learn how to make them care about quality the way you do.

And you'll do this by bridging the chasm between quality as a "cost" and quality as a "critical contributor" to your company's financial performance.

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It's time to give them the bad news about their total cost of quality

The first step in helping senior management view quality as more than a cost is to give them a glimpse of the full extent of that cost.

If your company is anything like the 160 manufacturers surveyed by Gartner in 2022, you only have numbers for the cost of poor quality: the money spent dealing with quality failures that were picked up within the factory or by your customers.

58% of Gartner's respondents only tracked this.

3% only tracked the cost of good quality, defined as money spent on prevention and/or appraisal.

And only **30%** knew—or thought they knew—what their total cost of quality was and could put a figure to this equation:

Total Cost of Quality = Cost of Good Quality (prevention and appraisal) + Cost of Poor Quality (quality failures that were caught on-site or were reported by customers)

And yet even those who think they know what quality is costing them have probably underestimated the true figure. For example, the untracked costs of poor quality can range from hidden reworking costs (such as additional wear and tear on machines and higher energy bills) to the financial impact on brand reputation and customer loyalty.

Your pain as a quality leader—your awareness that things could be so much better—must be translated into financial pain before it can be heard.

All that extra time you spend on ensuring good quality (manual everything, Excel everywhere) because you don't have the right tools, has a cost. All the extra time you spend fixing poor quality (that might not have occurred in the first place with the proper support), has a cost.

In this series, you'll learn how to estimate that cost in the language senior management understands. So you can finally deliver the bad news that needs to be heard before things can get better: "If you think our failure costs are high, well they're higher. What's more, that figure doesn't even include our prevention and appraisal costs, which we're not tracking because we simply don't have the right tools."

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It's also high time they heard the good news that quality really can be free

As a passionate quality professional (you wouldn't be reading this if you weren't), you want to get things right. You understand that quality management—as quality guru Philip Crosby put it—is the simple but challenging task of "doing exactly what you said you were going to do".[1]

According to Crosby, quality is free because it's nothing more than the way things should have been done. Investments in prevention—the tools you need to do your job as a quality leader and get things right, the first time—are as integral to the manufacturing process as the machines on the shop floor.

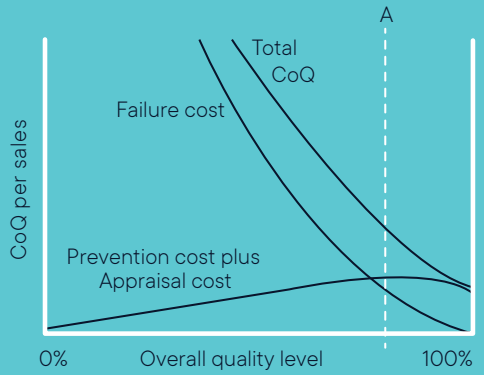
In an ideal world, everyone from the C-suite to sales and production would "get" this. They'd understand that "the way to make products quicker and cheaper is to make them better".[2] (That's from Armand Feigenbaum who formulated the total cost of quality.)

We don't all live in Crosby's ideal world (yet), but there is a way to bring it a little closer.

As it turns out, that ideal world, where quality is free, is a reality in certain companies.

1. https://www.industryweek.com/operations/quality/article/21964139/philip-crosby-quality-is-still-free
2. https://www.industryweek.com/operations/quality/article/21964150/dr-armand-feigenbaum-on-managing-for-quality-part-1

Quality becomes 'free' (declining prevention and appraisal costs accompany declining failure costs) above a certain quality threshold.



(Source: International Journal of Quality & Reliability Management, Vol. 33 No. 9)

In a landmark 2016 study "Is quality still free? Empirical evidence on quality cost in modern manufacturing", researchers in Germany uncovered an interesting relationship between quality improvements and quality costs. As they discovered, "...in manufacturing, ever higher levels of quality are associated with significantly lower quality costs".[3]

These manufacturers were achieving significantly lower levels of failure costs without significant increases in their prevention and appraisal costs. Once the overall level of quality rose above a certain threshold (90% in this study), prevention and appraisal costs actually declined.

3. Plewa, M., Kaiser, G. and Hartmann, E. (2016), "Is quality still free? Empirical evidence on quality cost in modern manufacturing", International Journal of Quality & Reliability Management, Vol. 33 No. 9, pp. 1270-1285. https://doi.org/10.1108/IJQRM-11-2014-0189

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In other words, the higher performers were achieving lower failure rates for free!

How sure were those researchers of their findings? Very sure indeed:

> *Given the large sample at hand with its homogenous origin, we confidently conclude that substantial savings in CoQ [Cost of Quality] are possible when reaching higher overall quality levels. The important management implication of these findings is that higher levels of quality do not necessarily require increased spending on prevention and appraisal.*

The key to this happy state of affairs—as you've noticed—lies in achieving higher levels of quality in the first place. Once there, quality (in the form of lower failure costs) is indeed free.

Which makes sense, when you think about it. To take just one example, while an unstable process requires a high sampling frequency, a stable one allows you to reduce your sampling frequency and lower your appraisal costs.

As you well know, achieving these higher levels of quality depends on company-wide alignment and commitment. It requires a culture of quality where prioritizing quality is simply "the way things are done around here".

According to Gartner, a culture of quality gives companies a significant financial advantage, with savings of up to $67 million in employee productivity for every 5,000 employees.[4] And while implementing a QMS doesn't guarantee a culture of quality, it's a crucial enabler of one: an indispensable tool in creating an environment where everyone is involved in—and takes ownership of—quality.

It stands to reason that companies that truly value quality are more likely to invest in a QMS. Our own experience with manufacturers ranging from Fortune 500 companies to small and medium entities suggests that an investment in a QMS (ours in this case) leads to total cost of quality reductions of at least 10%. If we assume that the average total cost of quality is 5.1% of revenue (as Gartner's 2022 survey indicates), a manufacturer with $100 million in revenue stands to save $510,000 per annum.

4. Creating a culture of quality: Four actions to help employees 'live' quality to unlock new sources of value (Gartner, 2021)

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Help them see what you see: Learn how to use your total cost of quality

Many of your problems as a quality leader can be traced to the fact that the full extent of your company's quality costs is hidden.

Surfacing your company's total cost of quality translates the inefficiencies and limitations you're living with into the language that those with budgetary power understand.

It's that all-important bridge between what you know is important (quality) and C-level priorities (profitability).

However, getting senior management to meet you halfway requires careful planning.

There will be barriers to overcome in getting your business to adopt a cost-of-quality model. Gartner's 2022 Cost of Quality Survey Report identified these as the top five:

1. Competing priorities.
2. Concerns about the accuracy of your cost-of-quality data.
3. Disagreements around your definition of the cost of quality.
4. Challenges in communicating its value.
5. The sheer effort of implementing the cost-of-quality model.

In the following chapters, we'll tackle each of those barriers together.

Our aim throughout is to give you the financial perspective you need to champion quality initiatives effectively. Because when you win your next quality victory, everyone, absolutely everyone, wins.

> *It's like in the great stories... The ones that really mattered. Full of darkness and danger they were... Folk in those stories had lots of chances of turning back, only they didn't. They kept going because they were holding on to something. That there is some good in this world, and it's worth fighting for.*
>
> *Samwise Gamgee, The Lord of the Rings*

You know you feel this way about quality.

Let's do this.

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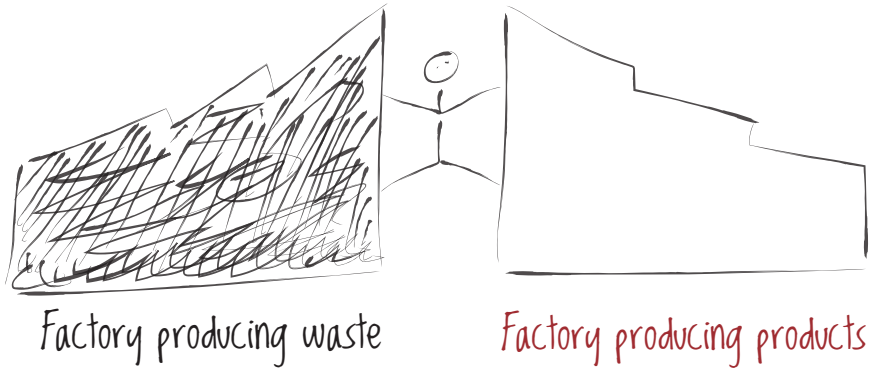
Chapter 2

We need to talk about prevention "costs"

Focus C-level attention on the quality investments you need with this briefing on the costs—and benefits—of prevention



Does your factory have an evil twin?

Guide

There's more to prevention "costs" than many realize. To understand what they are—and what exactly they prevent—we need to turn to quality guru Armand Feigenbaum's idea of the "hidden factory".

According to Feigenbaum (who developed the total cost of quality formula that captures the costs of good and bad quality), every factory has an evil parasitic twin. That other factory produces waste: wasted time, money and opportunities.

And it's being funded by—wait for it—a lack of funding. Specifically, by the fact that you, and quality managers like you, struggle to get the investments you need to ensure the success of the actual factory. The one producing stuff customers want.

This isn't about C-level leaders waking up one morning and deciding to create parasitic waste-producing factories.

It's about the fact that many of them haven't woken up to the reality that unless their quality function is properly funded and supported, the hidden factory is going to thrive—draining profits, morale and your customers' faith in your products.

This is a C-level wake-up call. And here's how you can begin delivering it.

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It's red-pill time: The manufacturing 'reality' you need to reveal

Like Neo and the Matrix, there's a manufacturing reality senior management isn't fully aware of—yet. Feigenbaum called this hidden factory "that part of your organization that exists to do bad work—not because you want to do bad work, but because the whole process is such that you are driven to it".[1]

The solution he proposed wasn't more speeches, campaigns and training courses, important though these are.

Feigenbaum wanted every single person to be properly equipped to create a culture of quality. He wanted everyone to have "the tools, the resources, the objectives and the support" needed to avoid being (as he put it) "nickeled and dimed to death by too many pieces of paper". Or Excel files. Or manual everything.

That was in 1994, long before quality management tools like quality management systems (QMS) were widely available.

And here's the thing: 28 years later in 2022, Gartner's Cost of Quality Survey Report revealed that one out of every three companies do not use any emerging technologies to manage their cost of quality.[2] Only 18% were using a QMS, one of the prime enablers of a culture of quality.

1. https://www.industryweek.com/operations/quality/article/21964151/dr-armand-feigenbaum-on-the-cost-of-quality-and-the-hidden-factory
2. 2022 Gartner Cost of Quality Survey Report

Gartner's 2022 Cost of Quality Survey Report[3] underlined what Feigenbaum suspected when he claimed that hidden factories were consuming 20% to 40% of the capacity of many American companies. According to Gartner, an astounding 46% of a company's cost of quality is actually the cost of poor quality—the failures spotted onsite (internal failures) and by the customer (external failures).

If we add appraisal costs, the total shoots up to 76%. And as many quality costs regularly go unaccounted for, you can be sure that the hidden factory is consuming significantly more than that.

Applying our conservative estimate of 76% to the average total cost of quality (5.1% of revenue), we can conclude that the average hidden factory may well be consuming 3.4% of total revenue. And will continue doing so unless something is done to stop it.

Over the next three chapters, you'll learn how to help C-level execs see the waste that you and your team see: the wasted hours, wasted money and wasted opportunities. You'll scope the full extent of that unacknowledged twin factory, in the language senior management understands: profitability.

In the rest of this chapter, you'll get to grips with the one "cost" of quality that drives down all the others and dismantles the parasitic factory: effective investments in prevention. Our first task, therefore, is to understand the real nature of prevention "costs".

The cost that's like no other: Why effective prevention is an investment

When effectively applied, prevention costs prevent costs—including the costly rework, warranty claims and customer dissatisfaction that result from poor quality.

When Gartner tracked changes in the cost of poor quality over three years, it discovered that the top 25th percentile (in terms of their culture of quality) saw their costs of poor quality fall by at least 16%.[3] Our own experience indicates that manufacturing companies that invest in our QMS see their total cost of quality go down by at least 10%.

Time and money spent on effective prevention are clearly in quite a different category from the other costs of quality (such as appraisal costs and costs of internal and external failure). Prevention "costs" aren't just another cost of quality. They're an opportunity to drive down costs and drive up profitability.

3. 2022 Gartner Cost of Quality Survey Report

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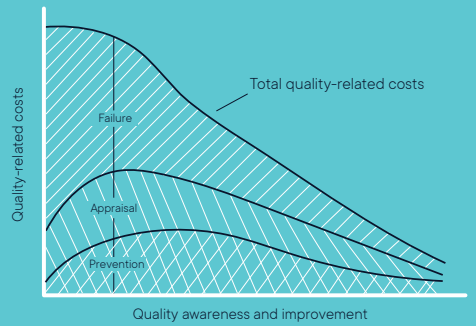
The effect of improvements in quality on quality-related costs



(Source: British Standards 6143-2, 1990)

Take this cost-of-quality diagram for example. While it's evident that rising quality levels are accompanied by decreasing quality costs, it's easy to forget what's driving those improvements. Appraisal costs and the costs of poor quality certainly aren't.

But if we accept a widely used definition of prevention costs—"the costs of all activities specifically designed to prevent poor quality in products"—it's obvious that the driver is, in fact, effective prevention operations. Such operations, and the money spent on them, are active agents in driving down all the other costs of quality.

That said, not all prevention operations are effective or efficient. You're probably all too aware of the improvements your team can't pursue because prevention tasks that should have been automated years ago (repetitive manual everything) are still consuming all their time.

The two kinds of prevention "costs": Effective prevention investments and the cost of ineffective prevention operations

The bad factory has prevention costs in the form of wasted time and effort. (Think of all those tedious prevention-related tasks that can, and should, be automated.) We can all agree that these prevention costs are bad.

The legitimate factory has prevention investments in tools that support a culture of quality, drive down the total cost of quality, and dismantle that parasitic twin factory. These investments are powerful enablers of innovation, productivity, profitability and—let's not forget it—professional fulfilment.

Distinguishing between these two types of prevention costs—and what they represent—is crucial. In the rest of this chapter, you'll learn how to use this difference to begin building a case for the critical investments in prevention your company needs.

Your first challenge: Identifying your prevention costs

Prevention is a broad concept. There's a huge array of activities that could fall under this category. If you're finding it hard to come up with a list, you're not alone.

To get you thinking about what you already do—and what you could be doing—here's a rough guide.

Prevention			
Observations	Document management	Management of change	Document register
Process flowcharts	Process improvements	Audit planning & findings	SOP training
Revision management	Regulatory compliance	Training	Risk assessment
FMEA	Measurement system analysis	Traceability	SPC
Audit trails	Capability studies	Reporting & analysis	Root cause analysis
(CA)PA Management	Supplier onboarding	Near misses	Preventive maintenance

There's a lot to consider so it might be tempting to oversimplify or overcomplicate. While keeping things simple is good (particularly at the beginning—you can always add complexity to your model later), oversimplification can lead to missed costs and trends.

Tip 1: Don't lump everything under your total spend for quality assurance personnel. There are many people involved in prevention and you need to account for those costs as well. Breaking prevention costs down into smaller chunks or groups of activities will help you see and monitor trends.

Tip 2: Don't think you have to arrive at a comprehensive list. Instead of attempting to cover everything, focus on the areas that have the greatest impact on your costs.

Your second challenge: Estimating your prevention costs

We've called this a challenge for good reason. Prevention costs are the black box of the quality world: few companies seem to know what theirs are.

While 58% of respondents in Gartner's survey (only) tracked their costs of poor quality, a mere 3% (only) tracked their costs of prevention and appraisal.

We see similar results in our Cost-of-Quality workshops. While it isn't unusual to find participants who can quantify their costs of poor quality, few have accurate data for their prevention and appraisal costs.

Indeed, one of the biggest barriers to adopting a total cost of quality model can be a company's concerns about the accuracy of their cost of quality data and the sheer effort of tracking all those costs. In an ideal world, you'd have all your costs of quality on a dashboard, tracked in real-time by a QMS that's constantly collecting, updating and quantifying your operations. (Ours already does this and we're convinced this is what the future of Quality Management looks like.)

To get there, though, you need to develop a business case with what you have. The good news is that this can be enough.

In *Managing Quality* (Wily, 2016), the authors claim that "even the most rudimentary attempts at quality costing" can be beneficial—and that "costs are the most effective way of drawing attention to [...] situations in ways that other data cannot". Our advice echoes this. A ballpark figure is better than none at all. Your numbers don't need to be perfect. As long as they're indicative, you already have useful information.

As you work out your estimates, look out for inefficiencies—the prevention "costs" that prevention "investments' would eliminate or reduce. To take just one example, an inefficiency (or "cost") that's often overlooked is the amount of time spent searching for documents in your quality manual. If a user takes one minute to locate the right document in a SharePoint-based solution and you have 100 people in your factory searching for a document every day, that adds up to 20,000 searches per 200-day year. How much would you save if that same search could be done instantaneously? A cool $10K by our calculations. (20,000 minutes = 333 hours or $10K).

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Stuff to look out for in the next chapters

In this chapter, you've explored the difference between prevention costs and prevention investments—and begun considering where investments in prevention might eliminate or reduce those costs.

To help you make a compelling case for crucial investments in prevention, the next three chapters will introduce the tsunami of costs (appraisal costs and the costs of internal and external failure) that result from inadequately funded prevention. Look out for the ratio between what you're spending on prevention (investments and costs) and your costs of internal and external failure.

This ratio can be an eye-opener.

If you're spending more time and money on correcting poor quality than on preventing it, you're not (yet) in control of your processes.
The hidden factory is winning.

Don't let it.

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Chapter 3

Three red flags that your appraisal costs are too high

Gain the clarity you need to boost quality, profitability and job satisfaction

Guide

There are at least three ways your appraisal costs can get out of hand. In this segment we'll investigate all three—and what to do about them.

We'll also work on estimating your appraisal costs—so you can make a persuasive financial case for any tool you need to bring those costs right down. (And free your team for the real work of continuous improvement.)

Here are two fundamental truths about appraisal costs:

(1) You should hardly have any appraisal costs at all.
(2) If your appraisal costs are high, it pays to listen carefully to what they're telling you.

Let's start with the first.

The ideal manufacturing environment—one with stable, perfectly controlled processes—would have very few appraisal activities. (Any that remained would validate processes, not products.)

You could pretty much predict the quality of your output based on the accuracy of your machine settings and the quality of your raw material.

There'd be no need for expensive QC instruments and teams to validate the quality of your output. Effective supplier management and low-frequency sampling—coupled with modern automated machinery—would be enough.

That's the ideal.

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In the real world, you'll always need a certain level of appraisal. The question is how much.

Here are three signs of suboptimal appraisal operations and what to do about them.

First red flag
There's a culture of inspection.

If you doubt the stability of your processes, you might find yourself relying on testing to keep faulty products from leaving the factory.

Many quality managers are stuck with a culture of inspection simply because they haven't been given the resources to create a culture of *prevention*.

These companies are—in effect—paying to identify products that should not have been produced in the first place. Their appraisal costs are the price they pay for inadequate prevention.

This culture of inspection comes with serious disadvantages. Here are the top four.

(i) It's hugely expensive—and the costs only keep rising.
The average manufacturer spends 32% of its total cost of quality on appraisal operations. That's a lot of money to waste on non-value-added activities. Instead of tackling the disease of poor quality, a culture of inspection treats—and has to keep on treating—the symptoms.

(ii) It sucks resources from where they're needed most.
Inspection becomes a distraction from the stuff that really matters: understanding the root causes of poor quality and driving continuous improvement. As Edward Deming put it, "Quality comes not from inspection but from the improvement of process."

(iii) It creates unnecessary friction.
A culture of inspection puts your quality team in direct conflict with production managers who, naturally, want to ship fast. Quality personnel are seen as the cause of production delays and poor on-time delivery. (Stress no one needs.)

(iv) It makes a tough hiring situation worse.
A culture of inspection can be particularly frustrating and demoralizing for keen quality professionals. If you and your team are driven to get things right, the first time, and haven't been given the tools to do so, you're likely to leave for a more supportive environment. (If this is your situation, please go straight to the previous chapter on prevention "costs" for ideas on how to change things around.)

First-line response

Stabilize your processes with effective investments in prevention.

Second red flag

There's a culture of over-appraisal.

This can happen when a company invests in effective prevention (great!) but continues with previous levels of appraisal (not so great). In such cases, the quality team often hasn't been able to validate the stability of their improved processes.

Without verifiable evidence that their prevention efforts are working—and with no way of predicting if this will continue—they are forced to over-appraise. And as we all know, quality inspections are costly in terms of personnel, equipment, consumables and training.

For example, if you test 10% more than you need to, you're spending 10% more on trained personnel. Your equipment needs 10% more calibration, costs 10% more in terms of maintenance and may suffer a 10% decrease in its lifespan. There will also be more data to process, making data management more complicated.

Statistical process control (SPC)—which validates the stability of processes and predicts the likelihood of deviations—is what's needed here.

The right SPC solution will interpret your quality data to reveal opportunities to adjust your sampling frequency and reduce appraisal costs—*without compromising quality.*

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Freed from conducting unnecessary appraisals, your quality team can finally focus on raising their game and building a strong company-wide culture of quality.

Response

Apply statistical process control to verify the stability of your processes and adjust your appraisal activities accordingly.

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Third red flag

There's a culture of manual everything.

Here we have a situation where processes are stable, appraisal operations have been optimised *and yet appraisal costs are significantly higher than they should be.*

One of the culprits is what Miller and Vollmann (in their 1985 *Harvard Business Review* article, "The Hidden Factory") call "transactions"—the "exchanges of information [that are] necessary to move production along".[1]

The financial impact of these manual transactions generally goes unnoticed. They form the hidden appraisal costs no one talks about.

Take, for example, your master data management, which includes managing specifications; defining target values and tolerances; retrieving, reviewing and archiving certificates of analysis for incoming goods; and communicating results with other departments.

In practice, this involves a whole host of manual transactions. (Just sharing test results means calls and emails between the QC/lab team and the shopfloor/warehouse.)

All these costs add up.

1. https://hbr.org/1985/09/the-hidden-factory

Almost forty years ago, Miller and Vollmann identified “quality transactions” as a major cost—accounting for between 25% and 40% of manufacturing overhead in the electronics industry.

Today, well into the 21st century, there’s no excuse for high transaction costs. Automation—in the form of the right quality management system (QMS)—is the way forward for manufacturers who are serious about minimizing these hidden costs.

Another source of inefficiency is manual data and trend analysis. This can steal between 15% and 20% (one whole day a week!) of a highly skilled quality engineer’s time. Typical time-wasters include:

- Waiting for slow systems
- Searching and cleansing data
- Maintaining Excel files or outdated systems

Quality engineers are far too valuable to be wasted on preparing data for data analysis. There are solutions out there to do it for them.

Freeing your quality engineers to focus on data interpretation will make a huge difference to your quality improvement efforts.

Response

Automate transactions and other manual appraisal operations with a QMS.

Next steps

Estimating and using your appraisal costs.

In this segment we’ve explored what appraisal costs mean and—we hope—given you fresh insights into what to do next.

Implementing these insights will require effective investments in prevention and appraisal.

To make your case, you’ll need to estimate the financial impact of your appraisal operations. Depending on your situation, this will help you:

- Demonstrate the need for investments in improving prevention
- Reduce sampling frequency, and
- Minimize transaction costs through automation

As any reduction in appraisal costs has a direct impact on profitability, understanding what yours are (and how to reduce them) gives you a powerful lever for change. It gets you heard by senior management—and gets you those vital investments in quality you’ve been waiting for.

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Chapter 4

How internal failure costs predict your company's future

Uncover hidden internal failure costs and turn losses into profit

Guide

Internal failure costs—the costs of dealing with nonconforming output—are the icebergs of the total cost of quality.

However big they are, they're actually bigger. And if they seem small, there's probably much more going on beneath the surface.

If you are like many quality professionals, you're probably deeply concerned about the costs—professional and financial—of nonconforming output. Getting things right, the first time, is simply part of your professional DNA.

Perhaps you've even considered leaving your job because top management isn't making the necessary investments in effective prevention.

There's plenty of such advice on quality forums.

Don't hang around a sinking ship!

Get out before your career is damaged by a situation you aren't allowed to fix.

We're here to say there is another way.

In this chapter, you'll explore the full extent of your company's internal failure costs.

You'll examine what this means for your company's future and why a decisive change of direction is crucial.

And you'll discover tested tips on estimating your real internal failure costs.

By the end of all this, you'll be equipped to discuss the business impact of internal failure costs in the language top management understands—profit. (An important first step in making a persuasive case for vital investments in prevention.)

To get you started, we've captured some of this info in a handy memo for you to share with top management. It's yours to use, so make it your own: add your findings, tweak the message to suit your circumstances and, most importantly, share the results with those who need to know the full costs of internal failure.

Time is running out, so let's just say it as it is.

Date: Today
To: Top management
From: Your quality team
Subject: We're burning through cash

Our company makes products we're all proud of. But we're also producing crap—way too much crap.

Crap is what defective, nonconforming output looks like—and feels like—to us, your quality team.

As we all know, there's a cost to that crap: reworking nonconforming output and scrapping output that can't be reworked costs money.

But here's the thing: these internal failure costs aren't really costs at all. *They're large, avoidable losses.*

According to Gartner's 2022 Cost of Quality Survey Report, manufacturers who track their total cost of quality spend an average of 25% on internal failure costs (the costs of fixing or disposing of nonconforming products). And as the average spend on quality tends to be around 5% of revenue, it's reasonable to assume we're losing at least 1.25% of our revenue on internal failure costs.

What's more, the real figure is certainly higher.

In fact, it's so much higher that internal failure costs are known as icebergs: what you see is a fraction of what's actually there. Which means *we stand to gain a whole lot more than just 1.25% of our revenue by getting things right, the first time.*

In this memo, we'll walk you through what our internal failure costs mean for our future—and highlight the significant gains to be made by cracking down on them.

Here are three key insights about internal failure costs, their impact, and how to profit from them.

First insight

Our internal failure costs are hidden —and bigger than we imagine.

It's easy to assume that quality issues are under control if customers aren't complaining, and warranty costs and returns are low.

However, low external failure costs can carry a hefty price tag. They can be low because of the money spent coping with internal failures—all the nonconforming output we deal with onsite.

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It would be reasonable to assume that we know exactly what our internal failure costs are. Like many companies (90% according to Gartner's 2022 Cost of Quality Survey Report), we do track them.

But—and this is crucial—we only track some of them.

We tend to monitor the internal failure costs that are easy to track and quantify. (This is mainly because we lack the digital tools—an effective quality management system (QMS), for example—to track anything else.) What's more, we may even be ignoring the ways we compensate for poor quality. (More of this later.)

Returning to the idea that the bulk of our internal failure costs are hidden, we can think of them in terms of the four layers of an iceberg:

- The peak everyone sees
- The area just below the surface that's easy to forget
- A large midsection that's often ignored
- An enormous base we're barely aware of

Here's what each section means for us.

The peak everyone sees

Like most manufacturers, we track the obvious costs of nonconforming output, such as scrap and rework.

84% of manufacturers surveyed by Gartner track the cost of scrap. 76% track the cost of rework and defect rework.[1]

The area just below the surface that's easy to forget

Our awareness of our internal failure costs dips significantly once we turn to less straightforward costs. We're not alone in this. Only 44% of manufacturers account for what they spend on corrective action processes, while 43% track their disposal costs.[2]

A large midsection that's often ignored

Only about a third of manufacturers track what they spend on re-inspection (38%), rework of supplier rejects (38%), re-testing (35%), non-material rework costs (31%) and failure analysis costs (27%).[3]

Take non-material rework costs for example. These range from the wear and tear of equipment, to what we spend on additional energy, labour, raw materials and cleaning steps.

There's a reason we tend to ignore these costs. Tracking them efficiently is almost impossible without appropriate digital tools.

An enormous base we're barely aware of

These can be the most dangerous costs because they are so well disguised.

At this level of the iceberg, internal failure costs are treated as a "normal" part of the manufacturing process. Typical culprits include excess material allowances; planned overruns; standby machines, equipment and personnel; safety stocks; and the use of concessions to maintain production schedules (an unsustainable tactic that removes any incentive to get things right, the first time).

1, 2, 3: 2022 Gartner Cost of Quality Survey Report

And because these inefficiencies are “built in”, they aren’t even regarded as the costs of poor quality.

As a rule of thumb, manufacturers pay 50% more for nonconforming batches—*and pass these costs on to their customers*. What this means, of course, is that a quality-conscious producer with significantly lower internal failure costs can easily undercut and outcompete the rest.

Impact

Reduced price competitiveness and market share.

Opportunity

Increased price competitiveness and bigger market share.

Second insight

Internal failure costs can spiral out of control.

Internal failures disrupt the smooth functioning of any factory. For example, reworking nonconforming output causes planning headaches and delays—particularly if additional cleaning or line clearance is involved.

This, in turn, impacts other orders, causing more delays, overtime and, possibly, penalties for late shipments.

Indeed, the very process of dealing with these disruptions creates more disruption. Without the support of tools that automate the necessary communication, employees are caught up in a distracting flurry of emails and phone calls.

The result of all these disruptions is a huge, and potentially damaging, lapse in collective focus.

Unsurprisingly, employees surveyed by Gartner reported a loss of focus after significant quality incidents. According to them, losing focus was the main cause (mentioned by 73%) of work-related errors. (A lack of appropriate training and lapses in judgement trailed far behind in second (62%) and third (58%) place.)[4]

4. Anticipating Poor Quality Performance: How to Catch Quality Errors Sooner, Gartner, 18 June 2021

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As Gartner's findings suggest, quality issues can trigger a spiral of doom in which mistakes that disrupt production workflows lead to a loss of focus, which in turn causes more mistakes and disruptions. While the average employee makes 134 errors a year, those at organizations with "lower focus" commit 71% more errors.[5]

Manufacturers who remain stuck in this spiral of doom eventually lose the ability to forecast production, sales and revenue. As more time and factory space are dedicated to off-spec output, less output is generated for fewer customers, at increasingly higher costs.

Impact

Inability to compete with manufacturers with a virtuous cycle of quality.

Opportunity

Escaping the spiral of doom. Embracing a virtuous—and profitable—cycle of quality.

5. Anticipating Poor Quality Performance: How to Catch Quality Errors Sooner, Gartner, 18 June 2021

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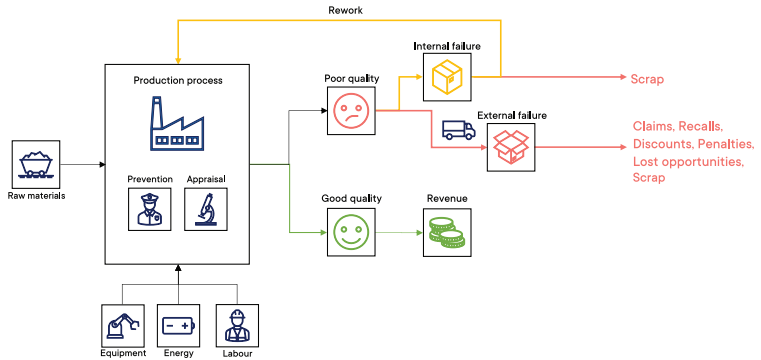
Third insight

High internal failure costs destroy morale and motivation—for everyone.

The impact of internal failure costs is more than financial. Disrupted production schedules and nonconforming output demoralize and demotivate everyone.

A big part of the problem is the friction they cause among teams with competing priorities. Quality teams become demotivated by their demotivated colleagues in production, and vice versa. Logistics and support personnel grow increasingly frustrated by customer complaints.

To get a feel for what's at stake, consider this sketch of what goes right—and wrong—in our value chain.



At the top, we have what quality guru Armand Feigenbaum called the "hidden factory"—the shadowy part of our operations where equipment, energy and labor are wasted on producing nonconforming output.

Below it is the factory we're all proud of: the one producing quality output for our customers.

Both factories have workers and both attract a different kind of worker. The question is *who do we want as colleagues?*

Impact

An environment that tolerates poor quality will not be tolerated by the very people we need to attract and retain. There's a "growing conviction" among today's employees that "life is too short to waste on demoralizing work".[6]

Opportunity

Creating a high quality environment for high-quality personnel, thereby securing our future.

Conclusion

The bad news really is the good news.

As you've noticed, the problem of internal failure costs carries huge potential for significant gains—in profitability, customer satisfaction and employee morale.

According to Gartner, companies are already saving millions of dollars by tackling their costs of poor quality.[7]

Double-digit improvements in first-time-right rates are possible with appropriate investments in prevention. To take just one example, NelfKoopmans, a Dutch paint manufacturer, saw their first-time-right rate rise by 35% with a QMS that, among other things, helped them identify processes that needed adjustment.

We too can turn our internal failure costs into profit. We look forward to discussing the specific, and significant, financial gains with you.

Let's do this right away. At least 1.25% of our revenue is at stake.

6. "Purposeful Business the Agile Way", Harvard Business Review, March-April 2022
7. https://www.gartner.com/en/supply-chain/insights/power-of-the-profession-blog/worried-about-costs-heres-an-obvious-place-to-stop-burning-cash

Next steps

Arriving at a credible estimate of internal failure costs for top management

Exact figures are not the point here. (In any case, trends might be more revealing than absolute values.)

Some of your internal failure costs will be easy to pin down. For example, a significant portion of the costs of waste will be documented in invoices from external parties.

Rework, on the other hand, can be harder to quantify. To arrive at a useful guesstimate, think of rework in terms of T-shirt sizes: small/medium/large. This leaves you with only three standard costs to calculate and apply.

Rough estimates will be enough to make your case to senior management.

We suggest that you treat any initial figures as a work in progress. You can always refine them when you have more data and the tools to capture the relevant costs automatically.

The important thing is to get going.

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Chapter 5

External failure costs: Paying the price of customer dissatisfaction

Tackle the steep costs no manufacturer can afford

Guide

External failure costs are where poor quality gets personal.

Nonconforming products that were supposed to be rectified in the plant were shipped out to paying customers—customers who might now be unhappy enough to turn into ex-customers. *While the other costs of poor quality are a cost to a business, external failure costs can cost a business its business.*

In this chapter, we'll be examining external failure costs and how best to respond to them. More than any of the other costs of poor quality, these uniquely damaging costs can act as a powerful incentive to create a profitable culture of quality. The threat is real, but so are the returns.

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Two kinds of external failure costs you need to know

There's more to external failure costs than meets the eye. While some of these costs are tangible (and relatively easy to track), others extend into the future and can be difficult to pin down. Here's what to look out for.

1. The usual tangible costs—with a dangerous twist
There are two kinds of costs to consider in this category—the reasonably predictable and the dangerously unpredictable.

Examples of reasonably predictable costs include the costs of handling customer complaints and returns, managing recalls, approving claims, reworking defective products under warranty, and taking corrective and preventive action (CAPA).

The main thing to note about these costs is how easy it is to underestimate them. Few manufacturers have the tools to factor in associated costs such as transportation, resolution planning and emergency production.

The second kind of cost is easy to track but can be alarmingly unpredictable.

A case in point was Ford's decision (way back in the '70s) to allow cost-benefit analysis to determine whether to ship cars (the Ford Pinto) with a known quality vulnerability—or fix the problem. Based on assumptions about compensation for deaths and injuries, Ford decided to ship.

As things turned out, Ford completely underestimated the external failure costs involved. A single lawsuit (and there were many) resulted in Ford paying $128 million in compensation—more than 90% of what it would have cost to fix the issue on every Pinto during production.[1]

And as you can imagine, Ford's immediate, tangible external failure costs weren't the only ones.

2. The steep intangible costs that extend into the future
A significant element of external failure costs is intangible—and no less costly for being impossible to quantify precisely.

The massive reputational damage Ford suffered—with sales of the Pinto declining by 60% over six years—highlights the way poor quality strikes at the heart of customer relationships.[2]

There are various ways to gauge the impact of quality issues on a brand's reputation. Some of the more common ones include social media sentiment analysis and net promoter score.

However, linking sales and market share to quality issues via these metrics is an art, not a science. While they may support a manufacturer's gut feelings about the impact of quality failures, they do not prove it.

And yet while causation cannot be proven, the fact remains that without satisfied, loyal customers, any business is soon out of business.

1, 2: https://www.autoweek.com/news/a2099001/ford-100-defective-pinto-almost-took-fords-reputation-it/

What's more, the very future of a business can be at stake when external failure costs drain time, talent and resources from vital activities such as innovation and process improvements.

All too often, funds that should have been used to finance capital investments, grow the business and enter new markets are diverted to address the latest quality crisis.

The 1:10:100 rule and where manufacturers should be putting their money

At this point, you're probably wondering how other manufacturers are managing their—potentially crippling—external failure costs.

Results from Gartner's 2022 Cost of Quality Survey Report suggest that they're putting 52% of their total cost of quality into appraisals (27%) and internal failure costs (25%) such as rework and scrap.

This allocation may seem sensible. After all, it's much less costly to fix issues within the factory than to address defects that reach the customer. And, as we've seen, the full extent of external failure costs—tangible and intangible—can be steep indeed.

However, it is not ideal.

While quality costs nothing at the beginning of the manufacturing process (because quality is simply a matter of doing what you said you'd do), the costs of dealing with defects rise exponentially as products near shipment.

This escalation is captured in the handy 1:10:100 rule developed by George Labovitz and Yu Sang Chang in 1992. Applying and extending the rule, we can anticipate that if inspection costs $1 per unit, rectifying nonconformance will rise to $10, managing CAPA to $100, resolving complaints to $1,000, and dealing with recalls to $10,000.

According to this well-accepted model, investing in prevention is, clearly, the most effective—and cost-effective—way to ensure that nonconforming output never reaches the customer and incurs external failure costs.

But there's more.

Relying on appraisals and rework to keep nonconforming output from being shipped is risky.

Unless quality is built in (with appropriate investments in prevention), there's a real danger of slipping into a full-blown crisis—as one of Boeing's most dramatic quality failures demonstrates.

After a door blew out midflight in January 2024, Boeing's CEO, Dave Calhoun, revealed the existence of "shadow factories" specializing in *rework*: "In our shadow factories, we put more hours into those airplanes than we do to produce them in the first place."[3]

In short, Boeing had been spending more time fixing defects than manufacturing planes, and this—according to Calhoun—would have to stop.

Transforming the threat of external failure costs into opportunities

One of the saddest job descriptions on LinkedIn is the role of "customer complaints coordinator". If a business is receiving so many complaints that it needs someone to "coordinate" them, what it really needs is a "customer complaints *preventer*".

Preventing poor quality—rather than merely detecting and dealing with it more efficiently—is the way forward. (And the way to returns of at least 100X or more, according to the 1:10:100 rule.)

Just as dealing with the impact of external failure is a strategic C-level activity, investments in preventing poor quality should be a C-level priority. Indeed, according to the management consulting company, McKinsey, "all organizations should recognize that when a trigger looms, an investment in quality capabilities can often open major new opportunities for competitive advantage".[4]

It's time to apply the "trigger" of external failure costs and start crucial conversations about prevention with top management. The 1:10:100 rule is on your side. Here's to your success!

3. https://www.industryweek.com/operations/continuous-improvement/article/55001296/boeing-executives-failed-to-lead-waved-off-lean
4. https://www.mckinsey.com/capabilities/operations/our-insights/manufacturing-quality-today-higher-quality-output-lower-cost-of-quality

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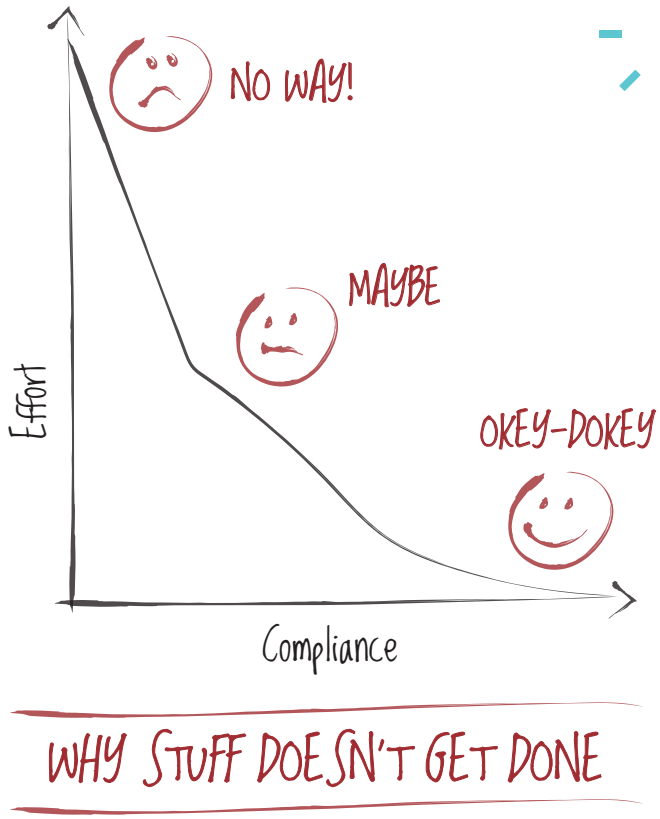
Chapter 6

Drive down your TCoQ with 3 fundamental truths about human nature

A jargon-free explanation of how to lower your TCoQ



Over the past five chapters, you've explored the concepts you need to estimate your total cost of quality (TCoQ).

As we near the end of this guide, TCoQ may still seem a rather "alien" subject—one that belongs to analysts and researchers, rather than to practical quality professionals.

In this chapter, we'll be pausing to focus on the idea that some of the most complicated and costly quality problems stem from simple—but unmet—needs. And that fixing them requires working with (rather than against) some fundamental facts about human nature.

As quality guru Philip Crosby once observed, "There really isn't any system you can put in place that causes things to happen; it's a question of understanding the basic concepts."[1]

Back to basics: Quality in ten words

In his 1995 interview with Industry Week, Philip Crosby captured just how straightforward—and difficult—quality is. Quality, he said, is doing exactly what you said you were going to do.

Crosby's definition makes a couple of crucial assumptions. It assumes that we're able and willing to do what we said we'd do. And that we have an effective process for doing it.

With these assumptions in mind, Crosby's "recipe" for quality looks something like this:

As usual, the devil is in the details—so let's zoom in.

1. https://www.industryweek.com/operations/quality/article/21964139/philip-crosby-quality-is-still-free

If quality is this simple, why is it so hard?

According to our equation, there are at least three ways things can go wrong.

We might have:

(i) People who aren't capable and committed.
(ii) Processes that aren't effective.
(iii) Capable, committed people who aren't following effective quality processes (with compliance represented by the "+" in the middle).

Given that we all want quality outcomes, why do issues with people, compliance and processes persist?

In 2019, Gartner surveyed 300 end users of quality processes to uncover the reasons for noncompliance.[2] (An important undertaking given that 45% of customer complaints stem from noncompliance with a quality process—and one in two employees agree that they didn't fully comply with the last quality process they "completed".)

The results revealed that noncompliant personnel understood and believed in the value of the quality processes they were circumventing. They didn't need more education about the importance of quality processes. They needed better processes.

Specifically, they needed processes that required much less effort, were clearer (in terms of what needed to be done and when) and offered a sense of accountability.

In other words, noncompliance could be traced to the reasons kids don't do their chores—or find creative ways to reinterpret them. If whatever-it-is takes too long, they skip steps, look for shortcuts or avoid doing it altogether. If anything is unclear, it doesn't get done—or doesn't get done right. And if no one's keeping track, it might not get done at all.

This is human nature—and it's something we don't grow out of.

2. Quality Process Adoption: Emphasizing Value Isn't Enough (Gartner, 2020)

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Tackling the three major obstacles: Effort (too much), clarity (too little) and accountability (not enough)

Of these three, effort is the most significant driver of noncompliance.

Only 25% of the employees Gartner surveyed said their quality processes were easy to comply with. What's more, as performance (in terms of ease of use) increased from the 25th to the 75th percentile, compliance rose by 30%. (Doing the same for clarity and accountability increased compliance by 19% and 18% respectively.)

While Gartner's study focused on noncompliance, the barriers it identified —too much effort, too little clarity, and not enough accountability—also affect our ability to "comply" with the other requirements of quality: deploying capable, committed people and ensuring effective quality processes.

The fact is that there is a lot of friction in any manufacturing environment.

This friction occurs every time anyone needs to access, record, analyze, communicate and respond to information. Which is pretty much all the time.

Indeed, it's fair to say that quality management is all about communication. And that many quality problems either began as an information/ communication problem—or were made worse by it.

In short, if we want to ensure that all three elements of our quality equation are securely in place, we need to reduce the effort it takes to make this happen; increase clarity about what needs to be done, and when; and create accountability for doing it.

And to achieve this, we need to transform the way we engage with information.

Making quality happen, one question at a time

Let's begin by considering three key questions—and the responses that help to ensure quality. As we'll see, each challenge can be traced to one or more of the three major obstacles Gartner identified: too much effort, too little clarity, and not enough accountability.

1. How do we ensure that our people are capable and committed?

Capability and commitment are tricky to define or prove, so let's drill down to the basics:

- *What's preventing them from doing the right thing?*
- *What are we doing to remove those barriers?*

As we all know, smart people do dumb things when they don't have the info they need—when they need it—to act intelligently.

Take, for example, shipments of noncompliant products that should have been blocked but somehow ended up with the customer.

If all you have is manual communication, crucial signals are easily missed.

People go on coffee breaks and can't be reached. The lab forgets to contact them again; the product gets shipped; and the company is hit with all the additional costs of external failure.

Critical messages should not be left to chance. Automating communication via a QMS removes effort, increases clarity and ensures accountability.

In this case, synchronized status updates between a QMS and the ERP system—or automated emails and alerts from a QMS—would have prevented nonconforming output from reaching the customer.

2. How do we ensure that our quality processes are effective?

Once again, let's break this down into some basic (but tough!) questions:

- *How easy is it to detect problems with a process?*
- *How quickly can you figure out what's causing the problems?*
- *How confident can you be that your processes are under control?*

Without easy access to crucial information (that a QMS provides), you're flying blind—with no insights to feed your decision-making and no input for improvements.

In this scenario, you're faced with three big problems.

i: Quality issues are detected and escalated manually

As you already know, manual detection and escalation are time-intensive and error-prone. They're also a huge waste of talent.

Powerful fix: Configure the appropriate alerts in a QMS and leave your team free to focus on vital operational improvements.

ii: There's limited insight into root causes
Scattered data and a lack of suitable data analytics tools mean that quality teams are often buried in data and starved of insights. Without a clear overview of the situation, continuous improvement becomes extremely difficult.

Powerful fix: The right QMS spots trends in deviations, surfaces root causes and reveals their consequences instantly. Your team can then take a data-driven approach to problems, focusing on areas with the greatest impact on your TCoQ and overall quality performance.

iii: You lack confidence in your processes
Because you can't be sure which processes are well controlled, you're forced to conduct unnecessary "just-in-case" checks. This wastes time and money (as you can't risk the costs and reputational damage of external failure).

Powerful fix: Statistical process control helps quality teams figure out which processes are well controlled, uncover bottlenecks and gradually shift from product testing to process testing. This helps you optimize the allocation of test capacity, reduce inspections and drive down appraisal costs.

An emphasis on process audits—rather than on product audits—is a sure sign of a mature quality function. Effective, well-controlled processes naturally yield high-quality, conforming output.

3. How do we ensure that people comply with quality processes?

Let's start by turning the spotlight away from people to processes. Do our quality processes reflect what we know of human nature?

It's no secret that quality processes can be unnecessarily tedious and confusing. And yet ease of use is about much more than just user "comfort". It's a critical enabler of compliance and a quality-first mindset.

An effective QMS anticipates pain points—and makes compliance easy and intuitive. (As we've already discovered, a significant reduction in effort can boost compliance by 30%.)

Tracking—and the accountability it creates—can be useful but, wherever possible, compliance should be automated. In an ideal situation, production simply could not proceed if a quality process had been skipped.

A QMS can be used to embed quality processes into production, thereby enforcing adherence. For example, you could implement a system in which production could not continue unless the necessary line clearance and cleaning steps had been completed.

This has the added advantage of increasing organizational agility. Instead of waiting for people to "adjust" to a new process, refinements and alterations could be introduced immediately.

How driving up quality drives down your TCoQ

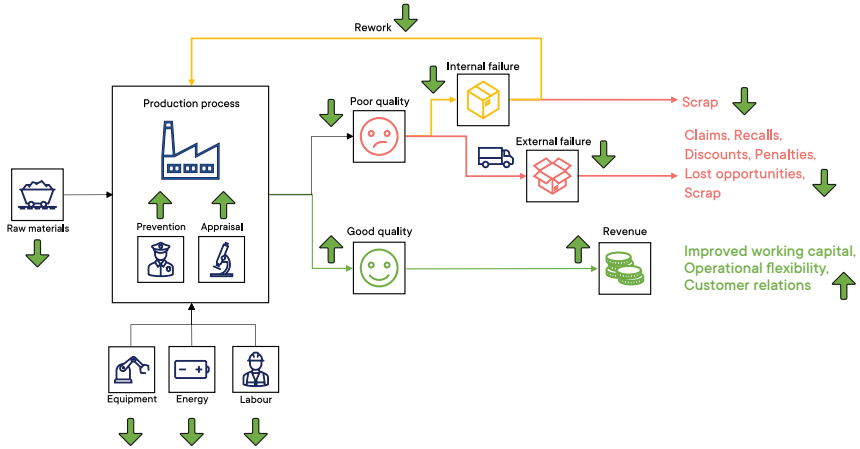
Reduced effort, increased clarity and automated compliance are crucial enablers of a robust culture of prevention.

And effective prevention drives down TCoQ.

As we've seen over this series, the cost of quality is the cost of poor quality: the extensive product inspections, rework, scrap, and all the hassles and expense of external failure.

Investing in the right QMS not only brings down your TCoQ—it enables quality teams to postpone hiring, minimize firefighting, and focus on quality improvements.

And finally—if you're wondering how all this fits together—here's a handy visual of what's possible when capable, committed people comply with increasingly effective quality processes.



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Chapter 7

Earning a seat at the table with TCoQ

Communicating TCoQ for Big Q impact

Guide

Congratulations! You've made it to the crucial final chapter.

By this point, you've examined the main elements of your TCoQ—and gained fresh insights into the crucial difference between quality costs and quality investments.

In this chapter, we'll be exploring how to share these insights for the outcomes you need.

We'll cover:

- How to approach and interpret your TCoQ.
- How to communicate the results.
- And how to move forward in creating a Big Q culture where quality is valued as a strategic differentiator—and always has a seat at the table.

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What your TCoQ is telling you

There are at least three ways to slice and dice your TCoQ.

• Per process

Zoom into the cost of each process and multiply that cost by the number of times the process is carried out.

• Per bucket

Step back to consider the "buckets" of prevention, appraisal, internal failure and external failure. (Pro tip: If figuring out how much you're spending on prevention is difficult, start with a rough estimate. Take the quality team's salaries and deduct the cost of the time team members are spending on the other processes in your CoQ.)

• Per leg

Take a broad overview of what you're spending on the two major "legs" of quality—poor quality (internal failure and external failure) and good quality (prevention and appraisal). Look out for the ratio between the cost of poor quality and good quality. If you're spending more on poor quality, there's a job to do!

Before beginning your analysis, give your estimates a quick reality check. How steep is the rise in costs, from good quality to poor quality?

In Chapter 5 (External failure costs: Paying the price of customer dissatisfaction), we looked at the 1:10:100 model and focused on the way costs rise exponentially from internal to external failure. If your data doesn't show a sharp rise in costs across the good quality–poor quality spectrum, you probably don't have the full picture.

Next, consider the distribution of your costs—the ratios among the four buckets and the weighting between the two legs of your TCoQ.

(At this stage, you've probably only evaluated the most obvious processes, but that's ok. It's more important to get a sense of whether you're investing in good quality or paying the price of poor quality.)

Is the poor-quality leg draining time, money and attention away from investments in good quality? Or do the prevention bucket and the good-quality leg dominate?

To confirm that what looks like a healthy culture of quality—with significant investments in prevention and appraisal—is the real thing, take a closer look at your appraisal costs. Are the costs weighted towards product inspections ("lagging indicators" that flag problems after the fact) or process appraisals ("leading indicators" that enable you to predict and prevent deviations)?

Product inspections increase your appraisal costs—and may give the impression of investments in good quality. The reality could be very different.

Intensive product inspections can mask poor quality. They may also signal an inability to appraise and control the relevant processes effectively.

Sharing TCoQ findings with your quality team

Here's where you go granular and focus on TCoQ savings per process and bucket.

- **Per process improvements**
  Consider your CoQ per process and consider the reasons for incidents and events in the poor quality and good quality legs. This will give you a feel for whether there are preventable deviations.

  Most deviations are preventable. But bear in mind that if you're operating without appropriate statistical process control tools, you're probably overdoing your appraisals.

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- **Per bucket improvements**
  Use this in your program planning and go for quick wins per bucket. This will also help you create marketable results. For example, a significant reduction in external failure costs could be used to gain company-wide awareness of the relevance of a Big Q culture.

Both these approaches are about prevention. As quality guru Philip Crosby put it, prevention beats the cure of product inspections and rework:
What we want to do is vaccinate the company with the quality philosophy of prevention. So instead of setting up the world's largest smallpox hospital, we vaccinate people and then we don't need a smallpox hospital.[1]

Communicating TCoQ savings to top management

Demonstrating what the company stands to gain financially speaks directly to top management's concerns. As revenue is a key metric, frame your TCoQ savings as a percentage of annual revenue.

In our experience, savings can range from 6% to 14% of TCoQ. We rarely see a company that can't save at least 10% per process, with the right QMS.

If your processes are so well designed and executed that you can't reduce costs by 10%, you're in an exceptional position.

1. https://www.industryweek.com/operations/quality/article/21964139/philip-crosby-quality-is-still-free

Assuming an average annual TCoQ spend of 5% of revenue, a company stands to save at least 0.5% of its annual revenue. Once a QMS has paid for itself (typically, well within 12 months), these savings go straight to the company's profits.

Anticipating and responding to pushback: Big Q meets Little q

While your projected savings will be significant, these gains are—as yet—only projections. Top management will, naturally, have concerns about whether they can be realized.

Some of their pushback will reflect long-standing misconceptions about quality. Others will surface practical concerns about organizational readiness and capability.

In what follows, we respond to both types of questions—switching back and forth between top management's (likely) Little q perspective and your commitment to a Big Q culture in which quality drives company-wide transformation.

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Little q
Quality has no ROI—it's a cost of doing business.

Big Q
Bad quality certainly has a cost, and it's a cost we can control and drive down with investments in prevention.

The ROI that manufacturers can expect from a QMS ranges from 200% to well over 500%. The bigger the problem, the bigger the value add.

Simply accepting quality as a sunk cost of doing business means accepting being out of control—and that, surely, is unacceptable.

We might, perhaps, decide to accept a certain level of failure, but this needs to be a conscious, data-backed decision. It shouldn't be one we're forced to make because we lack the understanding and insight that an effective QMS—that's constantly tracking our costs—would give us.

Little q
Quality is just about compliance.

Big Q
Quality transforms our competitiveness.

In a recent survey by LNS Research, manufacturers named quality as their second-most-important strategic differentiator. (Unique manufacturing processes and technological innovation topped the list.)[2]

A culture of quality is a powerful competitive advantage—one that inspires confidence in customers and investors.

- **Customers look for evidence of a culture of quality**

Customers need to see that we have the training, processes and tools to deliver quality products.

Imagine how reassuring it would be for a prospective customer to see us pulling up traceability reports of raw materials and charts of quality trends—instantly.

Customers know that if our processes are well-managed and predictable, their products will—almost invariably—be compliant.

- **Investors are reassured by intelligent quality management**

Quality management is about risk management and mitigation. Our ability to do this effectively benefits all our stakeholders—including investors and shareholders.

A company with a proven track record in quality management poses fewer financial risks. (It's no secret that quality concerns and scandals can have a devastating effect on share prices and market valuations.)

2. https://www.linkedin.com/feed/update/urn:li:activity:7198664773612224512/

As a rule of thumb, any company that's making over $20 million a year has complicated operations and complex quality processes. These processes require the support of an effective QMS.

Little q
We're not ready for a Big Q culture.

Big Q
We'll never be ready if we don't start!

There's more to a Big Q culture than technology.

That said, the right technology is foundational. It enables the three pillars of a culture of quality: awareness (of how each of us affects quality), involvement (through the sharing of ideas and information) and ownership (of quality performance).

If we're serious about embedding a Big Q culture in our organizational DNA, we need tools that are fit for purpose.

Owning your TCoQ for Big Q outcomes

Average savings and ROI estimates based on the experience of others only take you so far.

Before engaging with top management, you need figures you can defend: numbers that are grounded in your reality and that speak to your situation.

You need to own your TCoQ.

If you could do with some help in arriving at solid estimates of your TCoQ and what you could save with a QMS, drop us a line for a personal—zero-commitment—ROI workshop.

You want a Big Q quality culture. Top management wants big bucks. We're here to help you demonstrate that Big Q equals big bucks.

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Your guide to getting
quality a seat at the table

Reach us at sales@alisqi.com or www.alisqi.com