Do Your Quality Objectives Deliver Real Results?

Welcome

Thank you for downloading our 'Quality Objectives' white paper which will help you understand their importance to your business model.

Quality objectives are not static and need to be updated to meet business conditions. There is clearly a link between revising the quality policy and objectives and the organisation's commitment to continual improvement, especially when continual improvement is best measured in monetary terms.

The importance of poor-quality cost was recognized by the US Department of Defense when a requirement for PQC systems was included in Military Standard MIL-Q-9858A. ISO 10014 is an existing ISO Standard on the Economics of Quality.

I feel it is only a matter of time before ISO 9000 also includes PQCs (poor-quality cost) as a key driver of continual improvement. In fact, I'm willing to bet that PQC will feature in the next revision to ISO 9000, whenever it's published.

Follow this link to the ISO 9001 Audit Practices Group and learn more about modern audit techniques. The leading UK Certification Bodies NQA and Lloyds Register Quality Assurance both provide free, and useful information on 21st Century quality thinking.

To your success!

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Introduction

I believe that all managers are committed to quality - ask them, and they will tell you it is true, however, it is sometimes difficult to ascertain to what, specifically, they are committed and this point is at the heart of the problems associated with implementing ISO 9001:2008

- Top management did not define 'quality' in relation to the business (quality policy)
- Top management did not act to ensure that quality is achieved (quality objectives)

Your Quality Policy – the only true definition of Quality

The reason you need to define 'quality' is this: if you don't know what it is, you'll never know whether you've achieved it.

Not knowing where you want to get to makes it impossible to communicate to other people what is to be achieved and why, let alone motivate them to act.

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There are many formal definitions of quality - for all practical purposes you can ignore all of them. The only definition of quality that counts is the one on which you and your colleagues agree.

The agreed quality policy should be the driving force of the system and commits the organisation to both meeting requirements and improvement. It is one of the key documents against which the performance of the quality system is audited.

You are required to ensure that you continually improve the

- degree to which your products and services meet customer requirements
- effectiveness of your processes (i.e. improved results)
- perceptions of your customers as to how well their requirements have been met

Continual improvement is not some special form of improvement. The continual improvement principle implies that you:

- adopt the attitude that improvement is always possible
- develop the skills (such as looking for causes of problems) and the tools (like simple charts and graphs) to be able to improve systematically
- always know what must improve next and how you will measure the improvement

Provided you take into account the few important items ISO 9001 asks for, you can define and measure quality any way you choose. And once you have a set of objectives that suits you and your customers, you can drop the vague word 'quality' and focus your energies and your system on achieving your objectives.

Quality Objectives

The translation of the quality policy into practice is made by defining supporting objectives but ISO 9001 does not specify how quality objectives are documented: they may be documented in business plans, management review output, annual budgets, etc.

Quality objectives are now a clear requirement in their own right as opposed to being just a part of quality policy. They must be established, support the policy, be measurable and focus on both meeting product requirements and achieving continual improvement.

When your quality objectives are defined they must reflect the quality policy, be coherent, and align with the overall business objectives, including customer expectations. In short, ISO 9001 quality objectives must deliver a meaningful result and therefore Quality objectives equal Business objectives.

Surely the objective of any organisation (either commercial or not-for-profit) is to use their money wisely?

Quality Objectives and the Cost of Poor Quality

ISO 9004:2000 Para. 6.8 Financial Resources recommends that: Management should plan, make available and control the financial resources necessary to achieve the organization's objectives and encourage improvement of the organization's performance.

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Improving the effectiveness and efficiency of the quality management system can influence positively the financial results of the organization, for example

a) Internally, by reducing process and product failures, or waste in material and time, or
b) Externally, by reducing product failures, costs of compensation under guarantees and warranties, and costs of lost customers and markets.

Reporting of such matters can also provide a means of determining ineffective or inefficient activities, and initiating suitable improvement actions.

The History of Quality Costing

The original quality-cost concept was developed by Armand V. Feigenbaum while working at General Electric in the 1940s. He called his new reporting system "cost of quality" Basically; it tallied the costs related to developing a quality system and inspecting products, as well as the cost incurred when a product failed to meet requirements. This was the first time that money and quality were put together in a measurable way.

The term "quality cost" reflected the 1950's assumption that quality products were more costly to produce.

Later, IBM coined the more accurate term "poor-quality cost" (PQC).

In 1951, Feigenbaum published his groundbreaking book on the subject, *Total Quality Control* which introduced these cost categories:

- Prevention costs: training, planning, plant maintenance, reviewing customer requirements, etc.
- Appraisal costs: quality control checks, supplier appraisal, etc.
- Failure costs: rejects, rework, warranty claims, customer complaints, etc.

The 1-10-100 Rule provides a rough guide for comparing the relative costs of the three categories.

- A company may spend £/$/€ 1.00 on preventing a quality problem,
- They'll probably spend 10 times as much to find the mistake after it occurs.
- If the failure reaches the customer, the cost of rectifying the failure will probably be 100 times the cost that would have been incurred to prevent it from happening in the first place.

During the late 1950s, Philip Crosby, another quality-costs pioneer, attended a seminar based on research done by GE. As a result, he began to apply the concepts to his own activities. His book, *Cutting the Cost of Quality* showed how measurements could justify prevention as a means of achieving improvement. Crosby says that "it is always cheaper to do the job right the first time" - everyone can see the logic in that.

Poor Quality Costs Money, Good Quality Saves Money

So why don't managers insist on the same financial controls over poor-quality cost that they exercise over the purchase of materials, payroll, etc?

I think the answer is that the costs of rework, workarounds, correction, delays, apologies, multiple handling, transportation etc., are below the radar. They happen every day, at an almost

subconscious level. The tragedy in this is that no-one questions or even notices. It's as if poor quality is a normal cost of doing business. I routinely find that top management is completely unaware of the real costs of poor quality and often unaware of the concept itself.

Perhaps another part of the reason is that materials, payroll etc are "hard" costs - you need to pay real, visible money for them. Rework etc are "soft" costs - the people are already there, and unless there's a penalty clause, delays don't usually directly cause you to lay out money.

Various Quality Gurus continually report the same lack of knowledge and some shocking statistics:

- Crosby *(Quality is Free)* reports the cost of poor quality to be 15 to 20 percent of revenue.
- Juran *(Juran on Planning)* finds the costs of poor quality to be from 20 to 40 percent of sales.
- W. Edwards Deming *(Out of the Crisis)* quotes Feigenbaum's estimate of 15 to 40 percent.
- The BBC video *Quality in Practice* estimate the costs of quality in the typical manufacturing company to be around 20% of sales, while those of the typical service company are around 30%.

Given the new focus of ISO 9001 on external customers and business processes, it's vital that we consider how PQC affects our business.

Notice that these PQC estimates vary. This is because Crosby, Juran, Feigenbaum, etc. each developed slightly different methods of calculation. It does not matter exactly whose method you choose to use.

What is important is that you measure PQC in some way.

Most of these estimates date back to the 1950's and relate to large, inefficient, companies using pre-war or even Victorian era, technology. New technology, new materials and the move to a service based economy have had an impact.

Using the simplest method (Feigenbaum's) I find that in a very well run business, today's figure is around 5%. For a small business with an annual turnover of £/$/€ 5,000,000 - 5% means that poor quality costs them £/$/€ 250,000 per year.

This equates to a staggering loss of £/$/€ 1,000 EVERY working day!

Do a Quick Study and Identify some Targets

Data can be hard to obtain as quality costs cut across normal accounting boundaries. You will have to piece together as much hard evidence as possible and use sensible estimates to fill in the blanks.

You might want to use the Quick Study PQC Work Sheet appended to this white paper to get you going.

Be sure to avoid excessive detail in estimates or wasting time searching for the perfect estimate, but it is essential that estimates are used consistently

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Data-gathering tips:

- Consider ease of collection and start with the easiest
- Use data produced or endorsed by finance department
- Use standard data (e.g. your pricing structure) wherever possible
- Get a second opinion on any data or estimates which are doubtful
- Refine large costs rather than attempt to quantify small unknown costs
- Attribute costs by department and classify: prevention, appraisal and internal and external failure
- Identify responsibility for costs
- Rank targets by size and importance
- Target failure costs
- Aim to cut your biggest failure cost in half

This tactical approach will prove the benefit of the more strategic, long-term system to a sceptical company. Aim to integrate the collection, analysis and reporting of quality related costs into the accounting system and optimise quality costs.

Don't aim for Zero Defects

Crosby's Zero Defects concept implies that quality costs could be reduced to zero but experience suggests that this is simply not so. There is an optimum level of quality costs and this can by identified by estimating the amount which might economically be gained by an improvement programme. In other words - be aware of the Law of Diminishing Return on Investment.

This optimised model underlies ISO 10014:1998, an ISO Standard on the Economics of Quality.

The proper balance is to establish improvement efforts at the level necessary to effectively reduce the PQCs, and then, adjust it to where quality costs are at the lowest attainable level.

> **Failure costs** are at their optimum when the company is unable to identify profitable projects for reducing them.
>
> **Appraisal costs** are at their optimum when failure costs have been brought down to optimum. The company is unable to identify profitable projects for further reducing appraisal costs.
>
> **Prevention costs** are at their optimum when the bulk of prevention work is being directed to improvement projects; prevention work itself has been subject to analysis for improvement.

Plan, Do, Check and Act

Plan, Do, Check and Act is a useful model in developing and managing quality objectives. Logically, **PLAN**ning stems from ISO 9001 Data Analysis (8.4). This requires that performance is analysed; such things as supplier performance, customer satisfaction and internal performance. Where analysis shows poor performance, this data should be used to set quality objectives.

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Example quality objectives:

- Improve on-time delivery by X%
- Reduce scrap levels by Y%
- Increase pass-first-time levels Z%

Remember ISO 9001 Para. 5.4.1 requires **measurable** objectives. Having decided on the objective, you must then plan their implementation.

Key factors include:

- How should the processes now operate to deliver the desired result?
- How will objectives be communicated (6.2.2 and 5.5.3)?
- What resources will be required?
- What checks will be required to measure achievement?

DO implement the planned approach, provide the necessary resources, operate processes as planned and take appropriate measurements.

CHECK will analyse the various measurements to confirm, or not, that the plan has achieved the desired result.

- Was it implemented as specified?
- Were processes operated as planned?
- Were the resources adequate and the training effective?
- When operated as planned, was the process capable of delivering the required output?
- Is it delivering the planned level of product quality?
- Are objectives and targets being achieved?
- Look outside the organisation, how satisfied is the customer?

ACT on the information. The aim is to ensure the organisation is achieving what it set out to, and taking action to correct any deficiencies. You may have to correct something which was not implemented as planned, adjusting the plan because it did not deliver what was required or catering for changes in circumstances.

Even where everything has gone according to plan, the information may be used to bring about improvement. The Management review process falls within the act phase of the cycle. Inputs to management review include the objectives and targets of the original plan, along with data gathered at the check phase.

Management review should evaluate the effectiveness of the plan in enabling goals to be achieved.

- Did the organisation achieve what it set out to do?
- Is the performance level sustainable?
- Is the original evaluation of what the organisation wants to be still valid?

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- Are customers getting what they want?
- Do they want more?
- What will differentiate us from our competitors?

The output from the management review should be a new set of goals, and so the cycle starts again. Applying the lessons learned to other areas of the business can be interpreted as a preventive action.

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Quick Study PQC Work Sheet

1.1 Typical Prevention Costs

List the actions you take to stop problems starting

Sales & Marketing - market research, contract review, pre-contract meetings	Operations - process design, planning & scheduling, planned maintenance	QA - reporting, audit, improvement
Purchasing - supplier selection, technical meetings	Design - design review meetings, verification, modelling, prototyping	HR - training plan, training delivery

Last year our prevention costs were £/$/€_____

1.2 Typical Appraisal Costs

List the controls you use to find problems

Purchasing - supplier monitoring, goods receipt checks	Operations - stock control checks, productivity checks	QC - calibration, quality control checks
Sales & Marketing - monitor sales targets, business won vs. work quoted, monitor customer satisfaction	Design - design verification, use of alternate calculations, project completion sign-off	HR - training effectiveness assessment, personnel appraisal

Last year our appraisal costs were £/$/€_____

1.3 Typical Internal Failure Costs

List the problems that stop us performing

Purchasing - late deliveries to us, reject, rework, research replacement suppliers	HR - high staff turnover, retaining	Finance & Admin - late data, data errors
Operations - delays, scrap, rework, excessive stock, breakdown maintenance, unplanned overtime	Design - excessive redesign, abandon design, late design	IT downtime

Last year our internal failure costs were £/$/€_____

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1.4 Typical External Failure Costs

List the problems that hurt us when the customer is dissatisfied

Warranty claims, service engineer revisits, re-repairs	Customer complaints, lost accounts	Returns, product recalls and patches
Credit notes, discounted sales as compensation	Bad press, customer demerits, loss of potential revenue, litigation	Late or replacement deliveries to customer + transport costs, visits to placate customer

Last year our external failure costs were £/$/€_____

1.5 Overall Quality Costs

Last year our total quality costs were £/$/€ _____, or_____% of Sales

Last year the total cost of internal & external failure was £/$/€_____, or_____% of Sales

The 3 year trend of failure costs are - up/down/stable/acceptable (*delete as applicable*)

Can we live with these results? Yes/No (*delete as applicable*)