What is Quality Management and Why Does it Matter?
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**INTRODUCTION**

When people use the word “Quality,” it’s usually as a synonym for “good.” Many brands tout their products as “high quality” or “superior quality” in just this way without really defining what the characteristics of “Quality” are, and we’re more likely to see it in marketing material than in integral business process or policy documents.

Our purpose here is to:

- explore the principles and the concept of Quality,
- define who is responsible for Quality, and
- examine the concept of the Cost of Quality and how it can impact any organization.

Readers who are just beginning to think about the idea of Quality and the way it can improve business processes will benefit from this introductory examination.

**WHAT IS QUALITY?**

Quality is about much more than describing a product or service as “good.” Quality Management professionals see Quality as the following:

1. Satisfying a set of explicitly or implicitly defined inherent characteristics.
2. Providing products or service features that customers need. These features lead to customer satisfaction and exceeding customer expectations, which, in turn, lead to increased revenue for the producer. Ensuring Quality by adding features that customers want while ensuring consistency and reliability with every iteration has a cost, but the cost of not embracing Quality is much higher, including lost market share, missed opportunities, brand damage, and recalls due to design and manufacturing flaws.
3. Designing features that are free from deficiencies and errors. Products or services that are deficient and don't work as they should require rework or, if they make it to the marketplace, lead to costly recalls and customer dissatisfaction, all of which costs an organization money, time, and brand integrity. Defects found at later stages of product development are far more costly than if they had been found earlier.
4. Ensuring ongoing continuous improvement (CI) to address the root causes of defects that are inherent in processes, tools, and designs and that have a significant impact. By addressing the root causes through CI rather than the symptoms, organizations can reduce the Cost of Quality, increase efficiency, sustain a Culture of Quality, minimize rework activities on the shop floor and in the back office, reduce scrap, and ultimately have fewer recall events. Revenue
and overall market share then increase as a result of improved product quality, higher levels of customer satisfaction, and increased market share. According to the Center for Economic and Business Research, every $1 invested in Quality produces $16 in cost reduction and a $3 increase in profit.ii

Those who work in Quality often refer to the Quality Management System (QMS). The QMS is not a machine or an application, but is the underlying Quality process architecture on which the organization sits. The term “QMS” includes all the people, processes, stakeholders, and technologies that are involved in an organization’s Culture of Quality, as well as the key business objectives that make up its goals.

Quality is both a perspective and an approach to increasing customer satisfaction, reducing cycle time and costs, and eliminating errors and rework using a set of defined tools such as Root Cause Analysis, Pareto Analysis, etc. The International Organization for Standardization (ISO) defines “Quality” as “the degree to which a set of inherent characteristics fulfills a requirement,” and “requirement” as “a need or expectation that is stated, generally implied or obligatory.” Examples of requirements include:

- Customer specifications such as reliability, availability, accuracy, and delivery dates.
- Value for goods and services purchased such as ROI and productivity gains.
- Various ISO standards relating to Quality including ISO 9001, IATF 16949, and ISO 13485.
- Statutory requirements such as the Food Safety Modernization Act, FDA code of federal regulations, Canadian Standards Association, Underwriters Laboratories, EU directives, and the Occupational Health & Safety Act.
- Various industry requirements.

Quality is not a program or a discipline. It doesn't end when you have achieved a particular goal. Quality needs to live in the organization as the Culture of Quality in which every person experiences and understands the need for dedication to its values. Quality is a continuous race to improvement with no finish line.

At a more general level, Quality is about doing the right thing for your customers, your employees, your stakeholders, your business, and the environment in which we all operate. From the level of the individual employee all the way up to the level of our planet, Quality is about maximizing productivity and delighting customers while protecting our people and our resources from the harm that results from shoddy processes and careless oversight. Quality is an approach that should be the goal of every organization from business and manufacturing to healthcare, government, and not-for-profits.

**CULTURE OF QUALITY**

Quality specialists use the term Total Quality Management (TQM) to describe the implementation of the fundamental principles of Quality at all levels of an organization. While TQM has traditionally suggested wide adoption of process tools and analytical methods, the definition has expanded to consider the wider cultural principles of the entire organization. Culture of Quality is the extension of TQM to include both explicit efforts by people to improve Quality and the underlying beliefs, philosophies, and behaviors on which those efforts rest. A successful Culture of Quality is one in which the core Quality values of the organization, such as a focus on responding to the needs of the customer and on the need for data-based decision-making, and the basic assumptions of workers regarding the nature of human relationships and their place in the world, such as the value of collaborative
relationships among people with common goals and the importance of developing long-term personal connections, are closely integrated with one another. Commitments to core values are relatively easy to measure, since they are overtly expressed and understood at all levels of the organization. Basic assumptions often resist explicit analysis, even to the people who hold them, which can make engagement at this level difficult.

When an organization adopts a Culture of Quality, the success of its implementation can depend on whether core principles and underlying assumptions already reflect Quality or can be effectively modified to embrace Quality through dedicated change management. The further away an organization's culture is from adhering to the principles of a Culture of Quality, the more difficult and failure-prone the implementation is likely to be, particularly if a commitment to core values clashes with underlying assumptions.

What are the typical attributes of an organization with an integrated Culture of Quality? In exemplary cultures, leadership demonstrates its commitment to Quality by providing the necessary support to Quality initiatives and communicating about Quality values in clear and unambiguous language. Employees encourage sharing ideas and cross-functional work, while feeling that leadership trusts them to be pro-active and to apply their Quality and problem-solving skills according to their best judgement. A Culture of Quality is therefore only possible when leadership and workers share an aligned and comprehensive understanding of not only the core values and processes they use and espouse, but their fundamentally basic assumptions of the nature of work and human relationships on which those core values rest.

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THE PEOPLE RESPONSIBLE FOR QUALITY

W. Edwards Deming, one of the founders of the Quality movement in the United States, said that “Quality is everyone's responsibility.” Most people have interpreted this as meaning that Quality is something that should be ubiquitous in an organization. In other words, Quality should be sewn into the very fabric of an organization's identity, not simply the responsibility of an isolated and siloed “Quality Department.” Yet we should consider what author and Quality expert Rafael Aguayo tells us was Deming’s in-person conclusion to his famous injunction:

“Quality is everyone’s responsibility, but top management have more leverage in their decisions than anyone else.”
The initiative for Quality must come from the top. While responsibility for implementation and execution will lie with a Quality leader in a dedicated Quality department with support from their counterparts in operations, engineering, sales, marketing, and IT, the desire to implement Quality standards throughout an organization must come from the leadership team. They must walk the talk for a Quality program to be successful. While there is certainly value in instilling the concept of Quality in every member of an organization, without direct and explicit initiative and methods for implementing those ideas, another way of saying “Quality is everyone’s responsibility” is “Quality is no one’s responsibility in particular.” Everyone should strive for Quality, but defining how to do that in very specific terms is something that can come only from the initiative of organizational leadership and be entrusted to specific cross-functional stakeholders for implementation. This is further reinforced in the latest ISO 9001:2015 standard, which shifts responsibility and accountability from a Quality “designate” back to the leadership team where it belongs.

**A SHORT HISTORY OF QUALITY**

The concept of Quality Management has its origins in the work of statistician Walter Shewhart, who was conducting research on the analysis of industrial processes while working at Bell Laboratories in the early 20th century. Shewhart realized manufacturing processes produced data that he could measure and analyze to determine their conformity to ideal standards of stability and control, and he could apply remedies that would bring any deviations back into line. This revolutionary approach highlighted the advantage of process-centered applications of Quality over older product-centered approaches. This concept is now referred to as statistical quality control (SQC) and is the backbone of the initial exploration of Quality in manufacturing.

In the 1940s, the Second World War prompted the American government to implement Quality standards based on SQC for military vendors. This improved Quality in the short term, but most civilian manufacturers failed to incorporate process improvement throughout their organizations. After the war, engineers W. Edwards Deming and Joseph M. Juran worked as consultants in Japan as Japanese industry worked to recover from the war and transform their economy to focus on civilian production of goods and services. Deming and Juran worked with Japanese manufacturers to create the concept of Total Quality, in which Quality extends beyond the manufacturing process to all organizational processes and instills the values of Quality in every worker. As a result of this Total Quality transformation, Japan became a manufacturing powerhouse, vastly increasing its market share at the expense of American manufacturers who had yet to recognize the value of Total Quality.

In the 1980s, American manufacturers and legislators began to recognize the crises of poor Quality in American manufacturing. The American response, built on Deming's and Juran's work in Japan, was Total Quality Management (TQM). The first ISO 9000 standard for Quality appeared in 1987, and it continues to be the globally recognized standard for Quality accreditation across many industries.

Since 2000, ISO 9000 has evolved to meet the needs of a changing marketplace. Globalization and emerging technologies have expanded both the scope of Quality and the tools used to meet Quality standards. New approaches, such as Six Sigma developed by Motorola, have achieved remarkable levels of productivity and variation reduction to produce goods and services that are free from defects. Quality is now seen as an approach that can be applied to any organization, including services, government, healthcare, education, and even nascent technology like Bitcoin and Blockchain.
Implementing Quality Management and investing in a QMS requires the initiative of executive sponsorship in any organization. Leadership typically doesn’t spend money without a strong business case that highlights either the costs of not investing (COPQ) or the market advantage that can be gained by investing. Given the reality that the benefits of Quality Management are difficult to quantify in direct terms and have longer payback periods, executives with no experience in Quality Management often do not see the value of investing in it compared to investments in sales and engineering, where the direct benefits are easier to calculate.

The reality is that the typical catalyst for garnering executive sponsorship for Quality is often a negative compelling event, such as a recall or significant loss of market share. While negative compelling events can indeed be powerful catalysts for change and help focus executive attention on Quality Management, it may also come at tremendous cost: lives may be lost, ecosystems may be destroyed, and the organization may suffer significant brand and financial damage as these external failures increase costs by an order of magnitude.

Gaining executive support starts with presenting a strong business case supported by qualitative and quantitative data that tell the story of positive compelling events and financial return such as reduced waste, increased efficiency, and increased customer satisfaction. By making a strong case for proactively investing in Quality, organizations can avoid situations in which they only see value in Quality by responding to negative events that have a destructive and irreversible impact on the organization, the marketplace, and the environment.

**Cost of Quality**

Cost of Quality (COQ) is a way of measuring the costs associated with ensuring that a Culture of Quality thrives in an organization, as well as the costs associated with Quality failures. There are four types of Quality-related costs:

1. **Prevention costs.** These planned costs are the result of designing and implementing a QMS and preventing Quality problems from arising. These costs include Quality planning, training, and Quality assurance.
2. **Appraisal costs.** These costs are the result of measuring the effectiveness of a Quality Management System and apply to both manufacturers and the supply chain. These costs include verification, Quality audits, and supplier assessment.
3. **Internal failure costs.** These costs arise when the manufacturer discovers Quality failures before products or services are delivered to customers. They include waste from poor processes, excessive scrap, rework to correct errors, and the activity required to diagnose the cause of Quality failures.
4. **External failure costs.** These are the most expensive costs and are usually apparent only after the products or services have reached the customer. These costs include repairs, warranty claims, returns, and dealing with customer complaints.

The Cost of Poor Quality (COPQ) and its consequences can be difficult for organizations to measure, and it can be a struggle to convince executive stakeholders that Quality improvement projects to mitigate COPQ have real value and are not simply cost centers. The primary consequences of COPQ are the most obvious. Costs associated with process failures inside the organization include:
• Excess scrap and waste material created by inefficient manufacturing processes,
• Rework on defective or damaged products before they ship to market, and,
• Retesting and analyzing processes and procedures to determine point of failure.

If poor Quality is not caught before products or services make their way to end customers, the external costs can include those associated with:

• Lawsuits,
• Recalls,
• Warranties,
• Complaints,
• Returns,
• Repairs, and,
• Field support.

The traditional Cost of Poor Quality has usually been assumed to be between 4 percent and 5 percent of an organization’s annual revenue. In other words, a business with $100 million in annual revenue is throwing away between $4 million and $5 million by failing to mitigate the impact of preventable process failures.

Yet, like an iceberg, the visible surface of the problem masks something far deeper. Hidden costs associated with COPQ can include:

• Decreased employee engagement,
• Higher employee turnover and attrition,
• Employees addressing Quality failures instead of focusing on Quality improvement through innovation,
• Overtime costs,
• Machine downtime,
• Long-term customer dissatisfaction,
• Brand damage,
• Poor inventory turnover, and,
• Decreased customer lifetime value.

When we account for these hidden and long-term costs, COPQ is more like 10 percent to 25 percent of an organization’s annual revenue. To put that into perspective again, that would mean a company with $10 million in annual revenue is throwing away $1 million to $2.5 million every year on failures that are predictable and preventable. These costs are often passed on to customers in the form of a higher price tag, which leads to additional customer dissatisfaction and brand damage. Investing in Quality is therefore the most effective way of reducing these staggering costs.
CONCLUSION

This brief introduction to Quality has provided some background into its history, principles, and value for all organizations. Of course, it’s not just an origin story, but also the groundwork for a plan of action to get leadership on board and address the startling figures relating to Cost of Quality. What is your next step? Start looking at your own processes with Quality principles in mind and think about all the ways Total Quality Management can bring positive change to your organization.

ABOUT INTELEX

Intelex Technologies is a Toronto, Canada-based provider of Environmental, Health & Safety, and Quality (EHSQ) Management and workflow software for organizations of all sizes. The company is a leader in software-as-a-service solutions and serves customers from across a wide range of industries, located around the world. The Intelex platform is a mobile solution and provides integrated tools for front-line EHSQ professionals. We can be found at www.intelex.com.

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