Quality Management - Defining the Terms

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Introduction
Quality management has never been as popular in Australia as it is today. The practice of quality assurance and quality improvement is becoming widespread across Australian organizations.

In the last ten years, quality management has spread from its traditional base in manufacturing industries to all sorts of service industries. Hospitality, health care, education, transport, communications and banking are major service areas now committing to quality management.

Not only has quality management spread across industries but it has also spread down from large to small companies. Many businesses with fewer than ten employees are now practicing quality assurance and quality improvement.

Along with all this interest and activity, some new approaches to quality management have been developed, for which new terms have been invented and old terms modified. It is appropriate, therefore, to begin with an explanation of the more important terms used.

Unfortunately, agreement on the meaning of many terms associated with quality management is by no means universal. International Standard ISO 8402 and Australian Standard AS 1057 provide formal definitions for quality terms. In this paper, the aim is to bring out the essential meaning of the more important terms and concepts and relate them to the two major influences on quality practice today, namely, the ISO 9000 quality system standards and Total Quality Management.

Quality Management
Quality management, or managing for quality, consists of two processes—controlling quality and improving quality.

Control aims to prevent adverse changes and maintain standards. Improvement, on the other hand, aims to create beneficial changes and improve standards. Figure 1 illustrates how control and improvement interact to bring about and sustain performance improvements.

Progress on quality takes place through a series of big or small step improvements. At each new level of performance, new standards are set and effective controls established to hold the gains made.

Progress requires that control and improvement go on at the same time, although each is separate and requires a different sequence of activities. Control without improvement leads to stagnation. Improvement without control is like a castle built on quicksand; any progress made just slips away.

Knowing control and improvement to be the basic processes of quality management helps in understanding a phenomenon which has occurred in the last decade, namely, the polarisation of the quality movement into two camps, one emphasizing control through standardized ISO 9000 quality systems; the other, emphasizing improvement through Total Quality Management.

ISO 9000 Quality Systems
The International Standard ISO 9000 series and Australian Standard AS 3900 series are identical standards describing model systems for quality assurance. The standards specify three levels of quality assurance. The lower level requires control only at final inspection and test; whereas the highest level requires control at all stages from design and development through production and installation to after-sales servicing. Key terms related to these standards are quality control, quality assurance and quality system.

Quality control forms the basis of a quality system. It is the process by which the quality of products and services is maintained to required standards. It is operated through a feedback loop whereby a characteristic is measured, the result compared to a standard and corrective action taken on any difference.

For example, on a bottling line the fill volume in each bottle must be within certain limits. Filled bottles are sampled at regular intervals and the volume of contents measured. The measured volume is compared to the standard limits. If the volume is within the limits no action is needed, if outside the limits an adjustment is made to the filler.

The feedback loop can be applied to any characteristic that has to be controlled.

Quality assurance adds to quality control the activities needed to establish evidence that control is effective. Typical quality assurance activities such as audit, review and the keeping of records, provide the proof needed to establish confidence that requirements are being met.

When management organizes, assigns responsibilities, provides resources and establishes the processes and procedures for control and assurance, the whole thing becomes a quality system. If the system meets the requirements of an ISO 9000/AS 3900 standard, it may be formally certified after assessment by an authorized body such as Standards Australia.

ISO 9000 quality system standards are an excellent basis for the control side of managing for quality. When implemented properly they also create improvements; however, they do not provide a mechanism for continual improvement.

Total Quality Management, on the other hand, offers a set of principles and practices dedicated to the continual improvement of quality.

Total Quality Management
Total Quality Management cannot be precisely defined. It has been changing and evolving over the years and there are as many definitions as there are practitioners.
many versions as there are companies using it.

Total Quality Management can best be described as a set of core concepts to be applied company-wide for the management of quality. These agreed concepts are as follows:

- satisfy customers
- improve continually
- involve employees
- plan and deploy
- use data and measurement

Satisfy the customer
The customer judges quality. What the customer perceives as good quality is what a supplier must strive to achieve. Total Quality Management, therefore, focuses improvement efforts on those things that will satisfy customers.

The customer-focused organization works to get close to its customers in order to understand their current needs and anticipate their future needs; it strives to provide new and better products and services to meet those needs; it measures how well it satisfies customers and continually improves those measures; and it works to improve relationships with customers, building trust, confidence and loyalty.

Improve continually
In order to gain and retain customers, the quality of products and services provided must continually improve. The pace of change these days makes ongoing improvement necessary for a company to remain competitive. For improvement to be continual, a company needs to acquire what leading quality specialist J. Juran termed ‘the habit of improvement’.

Continual improvement is usually a blend of many small step improvements and relatively few innovative breakthroughs. There is never a shortage of projects to work on, in any area of a business. Every process, every product, and every service in an organization can be a candidate for improvement. Types of improvement may be:

- developing better products or services;
- reducing defects or errors;
- reducing response times;
- improving productivity and efficiency.

Involve everyone
Total Quality Management unifies all employees in the common purpose of improving the way things are done to satisfy customers. It encourages and enables employees to use their abilities and knowledge to improve company performance.

Most people work best and achieve most when they can make and influence decisions, when they have the opportunity for personal development and when they receive praise and recognition for their work. A work environment that provides people with these opportunities gives a quality improvement program greater chance of success.

Ways of involving and encouraging employees include project teams, self-directed work groups, suggestion schemes, multi-skilling, education and training, open communication, and recognition and reward.

Plan and deploy
The experience of companies who have succeeded with total quality management demonstrates that commitment has to be long term and planning has to be ongoing. The improvement process will be without direction and ineffective unless it is focused on the right things to do and carefully planned.

The total quality approach is for upper management to set broad objectives for the long term. These are then broken down at each organizational level into more specific targets and the actions needed to achieve them. The lower the level, the more specific the targets and actions become. This process of deploying the plan involves communication down and up organization levels and ensures everyone understands the objectives and their role in achieving them.

Inputs to the planning process may come from customers, suppliers and from competitive comparisons and benchmarks.

Use data and measurement
Total Quality Management is management by fact. Measurement and the collection and analysis of data are the basis for assessment and improvement of quality. At all levels in an organization data is collected on processes, products and services and analysed to predict and prevent problems and identify opportunities for improvement.

In order to set targets and follow progress, performance must be measured. The selection of key performance measures is one of the first and most essential steps in a quality improvement program. Competitive comparisons and benchmarking of measures can be undertaken, where appropriate, to support planning for improvement.

Wine industry applications
The diversity and complexity of operations involved in making good wine, from growing grapes to despatching bottles, would seem to present many challenges and therefore many opportunities for the application of quality management techniques.

Wine quality
The quality of wine has preoccupied mankind since early times. Around 1400 BC a Pharaoh’s cellar included a jar of wine inscribed ‘wine of good quality’. Although the word quality is used a lot to describe wine, it seems that wine quality cannot be defined precisely nor measured accurately.

Lacking a precise measure of final quality and being subject to the vagaries of the weather, the winemaker faces a difficult and challenging task. As science progresses to support the art of the winemaker, greater control of the winemaking processes should be possible.

Meanwhile, the prevention of faults in wine and the maintenance of purity and consistency to type would seem to offer ample scope for the application of quality management techniques.

Packaging
Controlling and improving packaging quality on bottles, casks, flagons, corks, caps, and labels could involve the use of ISO 9000 purchasing systems and the Total Quality Management approach of involving packaging suppliers in mutual improvement projects. Scope also exists to control and improve filling practice with projects aimed at preventing defects, reducing waste and improving efficiency.

Transport and distribution
Delivery in full, on time and free of defects is important for any company involved in the dispatch and delivery of products. For the wine industry, with widespread market destinations in Australia and overseas, transport and distribution assume particular importance.

A gain, opportunities exist for application of ISO systems and supplier involvement for transport and shipping subcontractors and for merchants and stockists, all of whom can influence the customer’s perception of quality.
Receiving inspection and testing
Those receiving the goods you have purchased will have information available to them regarding inspection and test requirements. Nonconforming goods will be clearly identified as such and will ultimately be examined and a decision made regarding disposition.

Process control
The specifications for the products you manufacture will be well controlled in order to ensure that no errors occur.
The sequence of operations will probably be clearly set out in quality plans and the control requirements for each process will be well defined. You will be particularly careful to determine the critical elements in the process and the various control limits.
Process workers will, of course, be suitably trained but will also have available to them the necessary working instructions and workmanship standards required to guide them in determining acceptable product quality.

Inspection and testing
At various stages in the manufacturing process you will need to verify that your product still conforms to specifications. This verification may take the form of inspections, tests and measurements using equipment that you have carefully selected to ensure it is capable of the accuracy required. If the measurement made with this equipment is likely to have an impact on product quality you will no doubt control it by means of a system of calibration.
A II product that has been verified will also have its status made clear so as not to mix untested items with tested items or nonconforming items.

Continuous improvement
One of the most noticeable differences within your company will be that quality has become dynamic and no longer static and unadaptable to changing requirements. The quality system will be instrumental in the process of continuous improvement.
The reason for this is that at least two of the clauses of ISO 9000, Management Review and Corrective Action, require that you carefully assess the root causes of the problems with the aim of preventing recurrence.
As busy individuals we are usually annoyed when quality problems occur because they take up our time and our human tendency is to try and fix the problem as quickly as possible so that we can get back to what we were doing before the problem made its appearance. We often call this the band-aid approach because it fixes the immediate problem but not the cause. Hence it is quite likely that the same problem will occur again and again. Ultimately we consume a great deal of time without achieving the desired result – the elimination of the problem.
ISO 9000 requires that we investigate significant nonconformances such as customer complaints, process deficiencies and quality system failures in order to seek out the fundamental cause and then to ensure that suggested corrective actions are effective in eliminating the problem.
This will result in a continuous improvement process that will result in productivity improvement, improved customer relationships and better profitability.

Conclusion
An organization that has successfully achieved certification to ISO 9000 may have found the process much more difficult than originally imagined – it is certainly not easy to put in place a system that will fully address the requirements of this standard and at the same time ensure that all employees are following it.
One of the first questions companies ask when contemplating quality certification is ‘How much will it cost me?’ Ultimately companies will without doubt save money through improved sales, better customer relations, fewer rejects and less rework. But in the long run it will not cost you but instead save you a great deal of money. But perhaps a more appropriate response to the question, ‘Can I afford it?’ should be ‘If you wish to remain competitive and profitable then you cannot afford not to have a quality management system’.

Marketing
Marketing plays a dominant role in maintaining customer focus in a total quality management organization. As the interface with the customer, the marketing function determines customers’ needs and customers’ satisfaction with the products and services supplied. Opportunities for improvement could include the processes for:
- determining customers’ needs and preferences
- measuring customer satisfaction
- making competitive evaluations and benchmarking
- creating impact and credibility in advertising.

Conclusion
Judging by an article which appeared in the Melbourne Age, 4 September 1993, the Australian wine industry has been competing very successfully on quality. In explaining why exports of Australian wine have grown by 1,000% in just six years the article identified the following causes:
- long term planning
- technological superiority
- development of export infrastructure and marketing initiatives, and
- production of better wine more cheaply.

Apparently, strong customer focus and careful strategic planning are two Total Quality Management concepts already at work in the wine industry. The results are evident in the quality and competitiveness of Australian wine.
The Australian wine industry has been remarkably successful up to now. Quality management could help make it even more successful in the future.