

Quality Assurance - Do or Die

By Jim McConchie

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A MAJOR CHALLENGE for New Zealand industries in the New Millennium is to gain a reputation for producing quality goods and services at a competitive price on the international market.

Even now local industries are being left out of lucrative international contracts or are being told they can no longer supply their goods or services

because they cannot fulfil the quality assurance requirements which are becoming an integral part of international trade.

As well, the economy has become keener and with deregulation allowing cheaper imports to flood the country, local manufacturers need to rapidly change their attitude from:

"She'll be right, the customer will sort out the rejects and send them back for a credit, we always over supply so they end up with enough good ones", to working closely with the customers to establish their exact requirements and introduce a programme of quality improvement.

The companies which accept the challenge to change their attitude will survive, whilst those companies that do not change, will fail Or struggle against wastage and inefficiencies

A product or process that is functional and meets the customer's re requirements can indeed be called a quality product.

The management system used to ensure that the process continues to produce a quality product at the agreed cost, by the agreed time and at the agreed level of quality is called quality assurance.

Local vehicle assembly plants and whiteware industries have been applying quality assurance programmes for a number of years because of demands from their customers for a quality product.

To enhance their programmes they have made a stand by demanding that their suppliers practice a recognised method of quality assurance to remain as a supplier.

One of the tools used to reduce stock inventory is the "Just in Time" method of stock control, with the goods going straight to the assembly line from the supplier. But if the goods are not up to the required quality, major interruptions to the assembly line occur.

Once the supplier has established a history of quality assurance, further savings can be gained by reducing the need for inwards goods inspection.

The concept of quality assurance does not only relate to manufacturing; it is also applicable to the service industries. In fact it is more important in the service sector as there is a higher level of contact with the end consumer. The efficiency of the service, and customer satisfaction, can be gauged and the results analysed to highlight problem areas for improvement.

For any quality improvement to be effective, the commitment has got to come from the top. The chief executives need to be totally committed to the idea and must be the first to be educated in the techniques and tools of quality improvement. They will very quickly become aware of the tremendous savings and improvements in efficiency and utilisation of plant by applying a quality improvement programme. For manufacturers these savings and improvements arise very easily from less scrap, and reduced rework labour by making the product right the first time. Without this support, forget about trying to implement any form of quality improvement, you are doomed to failure. See [Cost of Quality](#)

The first attempt at quality control by most companies a couple of years back was to introduce quality circles where groups of workers who are involved in the process meet regularly to discuss the process and how it can be improved.

Most of these circles failed because management would not implement the suggestions either through lack of commitment or insufficient finance.

Quality circles can still play an important role in assisting with quality improvement but they need total support from management. Once top management has made the commitment, the barriers between the workers and management have to be broken down by effective communication and joint training schemes.

In all types of industries the workers are the prime source of income to keep the management in a job. As the worker is totally involved in the process, he/she usually knows more ways to make it easier, cleaner and more efficient than anyone else. Tap this source of quality improvement by communicating and discussing the process and possible improvements with the worker or group of workers. Be prepared to do something about it, or if the suggestion is not feasible, explain why to the workers. If it is a lack of finance, be honest and tell them the facts. Workers are already skilled at making their incomes stretch to the fullest and a group discussion may well come up with a cheaper alternative.

If workers make suggestions either see them implemented or agree to their postponement. This will give them greater job satisfaction and productivity and general morale will increase tremendously.

The concept of quality assurance is not new, in fact most successful companies have been practising a form of quality control called common sense which has evolved from years of problems and the need to find solutions. However, the solution has not always been documented correctly and a permanent solution installed so the problem re-occurs and wastage continues.

Introduce training sessions so that your staff understands why perfection is impossible to obtain. It is important that everyone recognises this fact and strives to control the amount of variation in each process. Whether it's the number of typing errors in a letter or the physical change in size of a plastic moulding caused by a change in mould temperature variations are always going to be there. For years quality control procedures have been measuring variations recording the facts and displaying the results on control charts and histograms. Based on these results an intelligent decision can be made on how to improve the process.

Unfortunately the majority of our local industries perform the quality inspection at the completion of the process or by batch sampling during production. Both methods involve a time delay between production and inspection. To be effective quality assurance must be performed real-time so that the process can be stopped as soon as the error is found and scrap is kept to a minimum. This also means that no inferior product can be sent out to the customer.

Now with computerisation and easy to use software linked via a multiplexer to electronic measuring, the task of collecting the data can be performed by the people actually performing or running the process on a real-time basis and the calculations carried out immediately. The operators can study the results or display control charts and histograms plus numerous other tools on the screen at the work site. The necessary adjustments can be made or the process left to run efficiently until it drifts towards pre-set control limits at which time it is reset. The data collected is stored in the computer and can be recalled at any time to create reports which can be sent with the goods as proof of quality assurance. See [Data Collection and Evaluation](#)

This method of data collection is not restricted to direct measurement, such as with micrometers or vernier callipers. Any electronic equipment with a digital or analog output can be interfaced. Weigh scales, Process Logical Controllers (PLCs), chemical analysis equipment or a thermocouple for measuring temperature are other examples.

The specifications for the product have to be reasonable, if they are set too high for the process, a quality product will never be produced. The data collected can be used to establish if the equipment is capable of producing the product. If found to be incapable, with slight changes to the specification or by upgrading the equipment, the process can become capable of continuously producing a quality product. See [Design for Quality](#)

The secret of quality improvement is still common sense, and some people have more than others, so share new ideas and methods and get involved in quality related activities such as the New Zealand Organisation for Quality Assurance, which is a group of volunteers with a common goal of unified quality improvement for the good of New Zealand.

The ultimate challenge is to become a total quality company by applying quality assurance throughout the company as a tool that integrates administration, personnel, design, production and marketing into an effective team.