

Making World Class Product Through Quality Process Management

Dr. H. Nagaprasad,¹ B. Yogesha²

I INTRODUCTION

Abstract – Every activity, whether in manufacturing or the service sector has just three stages. They are the inputs, the process and the outputs. The inputs include money, materials, manpower, machine and energy. The outputs include perfect products or services, with supporting activities like marketing and inventory management. Total Quality Management (TQM) improves the Quality of a product by improving the process. It also reduces costs by minimizing the waste because if management doesn't make mistakes, it all saves a lot of time and money. Having worked out what its processes are, the company can analyze (or 'map') them in more detail. There are two benefits from mapping the processes. Mapping helps to understand how the business works and also helps to improve the existing process. Standard pictograms can be used to show what happens in a process. Using symbols gives a more professional approach,

Process Management helps the Companies to decide how much detail to show in the flow chart (or map). Excess detail will make the process difficult to understand. Too little detail has a risk of missing out problem areas. Many processes are never measured, especially in service industries and in support roles. Being able to quantify how much throughput is achieved per man-hour will give the company more information on which to base decisions. Sometimes, processes no longer need to be carried out. For example fewer inspectors will be needed if the TQM programme reduces the number of faulty goods produced. Process management plays a significant role in accepting the responsibility of carrying out mapping. If the quality drops, improvements will never be made. It will be a Cinderella process, ignored and unloved. Process Management also helps improving the functions of management and clerical processes too, as the cost of manufacturing is often less than half the cost of getting a product to the consumer.

Process Management uses powerful tools like Continuous improvement programme, Zero Defect, and Re-engineering. Continuous improvement recognizes that, even when no errors occur, there are opportunities to improve the design of the process or product. All the time, the competitors are seeking to gain an advantage by making their products better. If the companies don't seek to improve, it will get left behind. Company should expect to receive no complaints from customers. This goes beyond the idea of keeping complaints to a minimum. It indicates that the company should adopt a new approach, perhaps checking that each customer is satisfied with his purchase. All the time, the competitors are seeking to gain an advantage by making their products better. Zero Defects is suitable for a manufacturing plant where errors continually occur. Re-engineering Business process re-engineering (BPR) is a powerful tool. It is often used on its own; it grew out of TQM thinking, and will help to achieve the TQM goals. Therefore it is possible to make world class product reach the market every passing year not only through technology, better design, but most through better Process Management.

Index Terms – Continuous improvement programme, Process Management, Total Quality Management, Re-engineering and Zero Defect.

Every activity, whether in manufacturing or the service sector has just three stages. They are the inputs, the process and the outputs. The inputs include money, materials, manpower, machine and energy. The outputs include perfect products or services, with supporting activities like marketing and inventory management. Total Quality Management (TQM) improves the Quality of a product by improving the process. It also reduces costs by minimizing the waste because if management doesn't make mistakes, it all saves a lot of time and money. Figure shows a biscuit-making process. The inputs include raw materials, water and energy. The outputs include perfect biscuits and broken biscuits. The process itself is shown as a blank shape, because we don't want to look at the detail.

This is not the only activity that takes place at the biscuit factory. Staffs also have to pack the biscuits, and send them by lorry to customers. There are also support activities like advertising and buying raw materials.

TQM improves the taste of the biscuits by improving the process. It also reduces costs by minimizing the waste (the amount of broken or burnt biscuits). Because staffs don't make mistakes, the company no longer has to buy extra flour and sugar. It all saves a lot of time and money. each of them is explained below in Fig 1

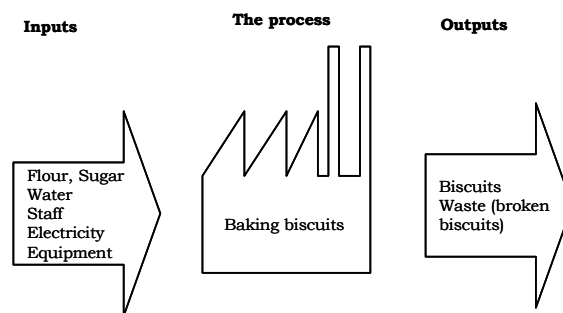


Fig 1: Biscuit-making process

Having worked out what its processes are, the company can analyze (or 'map') them in more detail. There are two benefits from mapping the processes. Mapping helps to understand how the business works and also helps to improve the existing process. Standard pictograms can be used to show what happens in a process. Using symbols gives a more professional approach.

Mapping helps to understand how the business works. When produced as a diagram, a process may be revealed as tortuous. Often paperwork crosses the same person's desk unnecessarily several times. Sometimes the process works quite differently from the way it was originally intended.

At one plant, a worker drew a process map which was so convoluted that the paper covered an entire table. After" looking at the spaghetti-like lines, the team was able to suggest a simplified process.

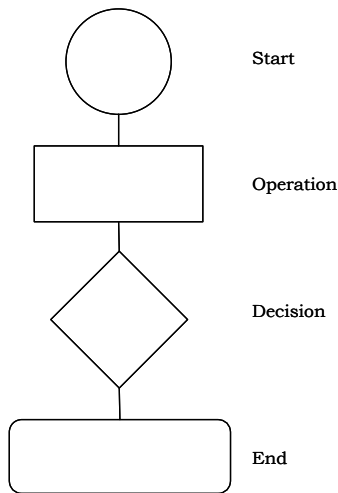


Fig 2: Mapping Process

II METHODOLOGY

Mapping helps to improve the process. Maybe staff, when telephoned by customers, has to go to another office to check some figures. The staff could be given a computer terminal so that no delay would occur. A casting company says that it has stopped 'component tourism -letting partly made products travel around the plant to undergo different processes. Standard pictograms are used to show what happens in a process. Four basic ones are shown in Fig 2. Using symbols gives a more professional approach, but many companies simply use lines and boxes.

Decide how much detail to show in the flow chart (or map). Excess detail will make the process difficult to understand. Too little detail, risk of missing out problem areas.

It sometimes helps to draw separate, more detailed flow charts which show parts of a process. For example, you might have a box labeled 'test product for faults'. The details of this testing procedure could be shown on another chart.

One can draw the process using the lines and boxes shown above. Or one can write down the process as a procedure.

Analyze the process - Once it is known who receives, the process, customers may be asked whether he is satisfied or not. What changes might he want? You can also ask, 'Who is the supplier?' Sometimes seemingly unimportant people provide a crucial service, and may know how to improve it. Hill Samuel Life Assurance found that 53 per cent of all internal mail was badly addressed and cost four times as much to sort as correctly addressed mail. It also increased the time it took to process work. How reliable are the materials used in the process? How much waste is produced, and how can this be reduced?

Log-jams may occur. Maybe the operators have to cut corners or take risks to meet demand. Maybe the process fails

at a specific point. Can the process be simplified? Some companies video the process, to help them see ways to improve it.

A few processes have little or no impact on customers (in which case they are probably unnecessary). But when most processes fail they irritate the customer, or they hold up other processes. Many processes are never measured, especially in service industries and in support roles. Being able to quantify how much throughput is achieved per man-hour will give the company more information on which to base decisions.

Sometimes processes, such as printing or computing, are better subcontracted to an outside supplier. Sometimes, processes no longer need to be carried out. For example fewer inspectors will be needed if the TQM program reduces the number of faulty goods produced.

Who 'owns' the process?

If no one takes responsibility for it, the quality will drop. Improvements will never be made. It will be a Cinderella process, ignored and unloved. Allocating ownership to someone means that he will begin to take an interest in it, and start to think about it.

Case study 1:

World class means not accepting second-best

A production manager who worked at a company was irked by the noisy gear change. And claimed That gears of the competitors seem so much quieter.

The R&D people disagreed and concluded that their gearboxes are the toughest, and the finest in the world/ they said. The production manager was insistent, so the engineers stripped down the competitor's gearbox.

What a surprise they found. When they looked closely at the cogs, they found that the competitor had lightly chamfered each edge, so that the cogs fitted together more smoothly and quietly. This was attention to detail.

Case study 2:

Improving a school

A School in Liverpool had poor results until a new head teacher arrived. He changed the school's name, got the pupils to design a bright new uniform, and put music in the foyer.

Then he set about changing the attitudes of teachers and children. The teachers thought their role was to contain the unruly children, while the children had negative views of their future.

As a result of changes, the school was singled out by the Schools' Inspectors for its improved results. One pupil said, 'Now we actually enjoy coming to school.'

This case history has a lesson for most organizations. For 'teachers and pupils', you could substitute the words 'managers and workers'.

Zero defects

Some gurus emphasize the importance of 'zero defects' (ZD). They point out that many firms make allowances in their budgets for quality failures. These allowances are an

encouragement to fail. World-class companies do away with them.

You should expect to receive no complaints from customers. This goes beyond the idea of keeping complaints to a minimum. It indicates that the company should adopt a new approach, perhaps checking that each customer is satisfied with his purchase.

All the time, your competitors are seeking to gain an advantage by making their products better. This is the theory

ZD is different from continuous improvement ZD is suitable for a manufacturing plant where errors continually occur. Continuous improvement recognizes that, even when no errors occur, there are opportunities to improve the design of the process or product.

Re-engineering

Business process re-engineering (BPR) is a recently devised tool. It is often used on its own, but it grew out of TQM thinking, and will help you to achieve the TQM goals.

If you are still doing things the same way as you did ten years ago, it may be time for a change. Sometimes you can do things faster or better by adopting a different method of work.

Take the selling of shares and commodities. In merchant banks, dealers buy and sell shares in 'the front room'. The dealer may then pass the information on a slip of paper to 'the back room', where the information is recorded on a separate computer.

This happens because the systems were designed decades ago. When the companies computerized, they designed separate front room and back room systems, not realizing that the entire process should be integrated. In forward-thinking banks, the idea of the front and back room has been abolished. The dealer enters the transactions directly into his terminal. This sweeps away a whole layer of middle men.

To take a healthcare example, doctors used large hospitals where every service would be under one roof. Now they realize that these hospitals are very expensive. So doctors now try to keep patients out of hospital. Elderly people are encouraged to remain in their own homes. They are now treated at GPs' surgeries or in new, low-cost 'cottage' hospitals.

When undertaking a re-engineering exercise, one should ask himself two questions:

1. Where do we fail the customer?
2. How can we overcome those problems? How could we achieve a big advance in productivity?

Re-engineering benefits from techniques like brainstorming which often produces creative, low cost solutions.

Until recently, inspectors at the UK's Inland Revenue would work out how much each taxpayer owed. Now the taxpayer himself makes the assessment and posts a cheque to the Inland Revenue. This re-engineered process has greatly reduced the department's work, so that 12,000 fewer tax staff is needed.

Develop a closer relationship with suppliers

A typical manufacturer spends 60 per cent of its turnover on buying goods and services. This means that suppliers can cause 60 per cent of the company's defects.

There is also a trend to outsourcing all kinds of activities, and this increases the impact that suppliers have on the business.

You have to manage your suppliers actively. One of the best known examples is Marks and Spencer, which has for many years stipulated designs for its suppliers, set quality standards, and carried out audits.

Relationship with suppliers should provide benefits to both parties. 'Partnership sourcing' is a term used to describe a close working relationship with fewer suppliers. The corporate customer shares much more of its information with the supplier, and involves the supplier in the design process. The supplier becomes part of the company's team, and works with it to develop new and improved products.

This implies a long-term (even permanent) relationship between the two firms, rather than the work being put out to tender every year.

In many cases, the supplier's products are delivered straight to the production line. The company ceases to do incoming inspection of incoming goods, relying instead on the supplier's inspection. This reduces inventory, leads to Just in Time management, and reduces the cost of stock.

In turn, the company pays its supplier on time, which helps the supplier's cash flow. The company also notifies the supplier of planned changes in production levels, so that the supplier can act accordingly.

There is a growing trend towards reducing the number of suppliers, with many large companies seeking a decline of 75 per cent. This allows the company to develop a closer relationship with its remaining suppliers.

Self-assessment

This quiz helps to assess the scale and effectiveness of the measurements taken at the place of work.

Table 1: Self Assessment

	Yes	No	Don't Know
Do you regularly measure the quality of your products or service?			
Do production staffs use SPC techniques?			
Do you display the information for all concerned to see?			
Have you Benchmarked your business against others in the last 12 months?			
Have you measured the cost of quality in the last 12 months?			
Have you conducted brainstorming sessions in the last 12 months?			
Score			

- 4-6 The Company is in control of its quality
- 3-5 you make an effort to assess the quality of what you produce. But the programme is uneven and inconsistent.
- 0-2 Your organization does not understand how to manage the quality of its products and services your production is likely to be haphazard and unpredictable.

III CONCLUSION

With each passing year, better products reach the market. Some improvements result from technology, others from better design, or from better process management. All the time, your competitors are seeking to gain an advantage by making their products better. This is the theory of continuous improvement. If companies don't seek to improve, they get left behind. Small improvements are easier to make than giant ones, especially for people lower down the chain of command. Small improvements often produce surprisingly big advances. Remember to improve not just production processes, but also management and clerical processes, too. The cost of manufacturing is often less than half the cost of getting a product to the consumer.

REFERENCES

- [1] Management Sciences. Pandey & Singh, Standard publisher's distributors, January 1996. Page, 314-327.
- [2] Total Quality Management. Bester field, Pearson education. December 2005, Page, 57-85
- [3] Industrial engineering & Management. O.P.Kanna, Dhanpat Rai and Sons, July 1977, page 148-154
- [4] Total quality management. Shashidhar Bhat, Page 256-297. Himalaya publishing house, March. 2005, Page 256-297
- [5] Essentials of Management. Harold Koontz. McGraw Hill. May 2008. Page 38-56