Quality Management

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Contents

1 Introduction

This study guide is designed to provide an overview of the key elements, important historical context and current debates in the field of Quality Management. It aims to give a coherent view of the underlying principles of quality management, and how these relate to practical application in a range of organizations. The tools and techniques which support the principles are not covered in detail in this guide, More information on these can be found in the companion guide: "Six Sigma: Principles and Practices" also available at Bookboon.com.

The guide starts with a development of the theory in each area and then provides a contextualisation which considers what the theory might mean for organizational practice. Due to the complexity of many of the issues addressed, it is possible to write much more on any single topic, but I have tried to cover most of the key points in order to provide a foundation, and further literature linked from the text allows the reader to investigate any topic in more depth if they wish. Finally, at the end of each chapter there are a number of questions for you to develop your thinking in the area.

2 Background and History

2.1 Definition of Quality

Before we study the subject of Quality in any depth, we must be clear on what we mean by the term "*Quality*". When talking to others about Quality we must be sure that we have the same understanding of the term. Consider the following definitions:

- *A degree of excellence* - The Concise Oxford Dictionary
- *Fitness for purpose* – Defoe and Juran (2010)
- *The totality of features and characteristics that bear on the ability of a product or service to satisfy a given need* - British Standard 4778 (British Standards Institution; 1991)
- *The total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service will meet the expectations of the customer* – Feigenbaum (1961)
- *Conformance to requirements* - Crosby (1979)
- *Quality is a dynamic state associated with products, services, people, processes, and environments that meets or exceeds expectations and helps produce superior value* - Goetsch and Davis (2010)

The dictionary definition of quality is interesting, but does not really help in studying the area as it is too vague. This perhaps fits with the general perception of quality which often confuses quality with specification. According to this definition we might be tempted to believe that a high specification car (say, for example, a Rolls Royce) is, inherently of higher quality than a lower specification vehicle (such as a Volkswagen Beetle). Juran's simple definition of quality, on the other hand, suggests that if both vehicles satisfy the purpose for which they were purchased, they can both be quality products, and a differentiation in quality cannot be assessed merely in terms of features that one product enjoys over the other.

Feigenbaum's definition of quality is interesting because it brings into consideration departments other than manufacturing which contribute to the quality of product and *service* provided by the company to meet the *expectations* of the customer. It is perhaps worth contemplating whether meeting the *expectations* of the customer is a higher level of achievement than providing a product or service that is fit for purpose. Customers expectations would reasonably include a product or service meeting any declared '*purpose*'; however, as we shall see later, there may be things that the customer does not explicitly state, but that nevertheless form a legitimate part of their expectations. We might think here of the styling of the product or level of reliability.

Crosby's definition can be contrasted to the often-held belief that a product/service that meets specification can be regarded as a quality item. Conformance to specification implies that the specification, if achieved, will meet the requirements of the customer. It is clear that if market research is flawed or out of date, products/services derived from such information are unlikely to meet customers' requirements no matter how closely they have been produced to specification.

Our understanding of the word *quality* can and arguably should be associated with achieving or exceeding expectations, meeting requirements that the customer had not actually stipulated, but once offered become the expectation of everyone. Providing products/services that are only fit for purpose may mean that a company is placed in a position of declining market share if its competitors are exceeding the expectations of the market place.

The Goetsch and Davis definition is a reasonable attempt to draw together the themes of a number of definitions of quality and create a unifying definition. The most noteworthy addition to the previous discussion is the idea of dynamism. By this they mean that acceptable levels of quality are not fixed, but change with customers' experiences and view of the world. In summary:

- Quality is defined by the customer, and as such will change over time, often in unpredictable ways.
- Quality is associated with creating customer value.
- A quality good or service meets or exceeds the whole range of customer expectations, some of which may be unspoken.
- As a complex concept, quality can only be addressed by the whole organization working together.

2.2 Understanding Quality Management

If 'Quality' is the end point, then 'Quality Management' is the approach and process for getting there. Accordingly, we need also to develop an appropriate understanding of what this idea means. In this context there is no simple definition which encapsulates the area; instead we need to consider the key principles which are central to the topic.

If we are concerned with providing 'value' to customers we must consider how we can improve customer value. There are a number of principles which are central to the practice of Quality Management (all of which will be discussed further later in the book):

- ***Customer Focus***: If we wish to create value for our customers we need to become obsessive about understanding our customers and their requirements and expectations.
- ***Strategic Focus***: Quality Management must be a strategic undertaking. If companies survive and thrive through delivering value to their customers, then they must treat this as a key strategic objective, creating a strategic vision and deploying this throughout the company in associated goals and actions. This implies a long-term commitment and focus.
- ***Leadership Focus***: Nothing happens in any organization without commitment of leaders, their active driving of the strategy, and constant positive engagement with its application.
- ***Process Focus***: For too long organizations have been obsessed with outcomes. Outcomes are driven by the effective application of appropriate processes. Emphasis needs to move from assessment of outcome performance to the development and control of processes to deliver customer value. In particular it should be recognised that organizational processes flow across departmental boundaries and management focus on departmental outcomes will often have a detrimental effect on the overall business process.

- ***People Focus***: Quality Management is fundamentally about people. Processes are only effective in delivering customer value if they are associated with appropriate behaviours from the individuals involved. An excellent process can be let down by a demotivated or poorly trained member of staff. An important aspect of managing quality is the creation of a motivated and empowered workforce able to work with and on processes to maximise customer value.
- ***Scientific Focus***: Quality management is fundamentally based on the Scientific Method – Plan, Do, Study, Act. – where decisions are evaluated based on evidence and data, and these evaluations are, in turn, used to drive further iterations of action. This is supported by the appropriate use of analytical tools to derive maximum information from the data available.
- ***Continual Improvement, Innovation and Learning***: At the heart of Quality Management is dissatisfaction with the status quo. Process improvement in such an organization is not simply about responding to problems (although this is necessary) it is about proactively seeking to learn about customers, processes and behaviours; and to improve upon existing practices, or to innovate in developing new markets, processes and practices.
- ***Systems Thinking***: Senge (1999) had 'Systems Thinking' as his 'Fifth Discipline' because of its integrative qualities. By integrating the key concepts and seeing the organization in a holistic way we can create synergies between the elements of the thinking and deliver a whole which is much greater than the sum of the parts.

2.3 Development of Quality Thinking

Figure 2.1 indicates the new ideas which arrived in quality at various point in history. The advent of a new era does not necessarily mean that the practices and principles espoused by earlier eras died out; in fact many examples of craftsmanship or quality assurance can be found today. Nor is the beginning of each era meant to represent the first articulation of theories or approaches, but where they became mainstream. The bands indicate, broadly, times when those ideas were pre-eminent in the quality domain.

Figure 2.1. A Quality Timeline

2.3.1 The Craftsmanship Era (Up to 1900)

Before the Industrial Revolution it was usual that people who made things also sold them directly to their customers who were generally from the same vicinity. Services also were less sophisticated and the person providing the service dealt directly with the customer. If a craftsman were particularly good at his work, he would sometimes attract custom from other localities through word of mouth advertising. Quality - meeting the needs of the customer - was very personal in those days and because of a lack of far-reaching distribution systems, it was particularly important to achieve and retain a local reputation for good work at a fair price. The development of Guilds of craftsman developed this thinking further with established 'masters' assessing candidates for membership.

2.3.2 Standardisation, Mass Production and Quality Assurance (1900 - 1930)

With the formation of factories and increasing automation, work became progressively de-skilled and more repetitive. The supplier/end-user relationship was lost and with it the pride in workmanship associated with the skilled craftsman. This became a self-sustaining cycle; the less factory jobs required the skills of traditional craftsmen, the more they attracted unskilled people. In America in the early 20th century the concentration of semi and unskilled workers in the factories was compounded by the diversity of the spoken language of immigrant workers. The solution to communication problems and only paying piecework rates for good product was to employ inspectors who could differentiate between conforming and non-conforming items. Figure 2.1 shows the general situation in which inspectors check the output of an operation and decide whether the product is good, consigned to scrap or returned to the manufacturing operation for rework.

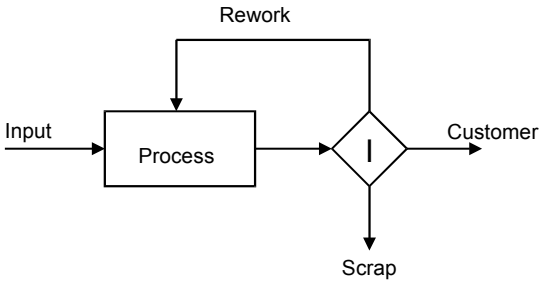


Figure 2.2. The introduction of inspection to the business process.

The effect of the introduction of inspection was to prove dramatic. This system tells the individual worker that if they are not sure whether or not their work is conforming, it does not really matter because the inspectors' job is to make that decision. Thus, responsibility for the quality of work is removed from the individual and placed with the Quality Department that employs the inspectors. The worker is being paid for the *amount* of product produced and, therefore, the primary aim of the production process is to manufacture the volume of product required by management. The inspector becomes the barrier between the production operation and the customer - the part of the operation that ensures that the customer receives a quality product. The last vestiges of worker self-respect are removed when management discuss production problems with supervisors and inspectors, but not the workers who are part of the process under discussion.

It was the work of Frederick Winslow Taylor in the early 1900s that legitimised the use of inspectors to ensure adequate quality of finished product. He was to become known as the father of the so-called *Scientific Management*; his emphasis was on work output, labour efficiency and the introduction of work-study. With the accent purely on output, labour efficiency and the introduction of Work Study and Work Measurement, quality was treated as an afterthought. In his book, Taylor describes the answer to poor quality of output as the rigorous application of more and more inspectors, who in themselves were now seen as specialists. He was hugely successful at what he did and, it could be argued that he met the needs of his time. This is, of course, not to suggest that 'Quality Assurance' has died out. The Make-Test-Deliver process is still with us and is, arguably, the dominant approach to delivering quality products in the world.

2.3.3 Quality Control Era (1930 - 1950)

A number of thinkers began to see that Scientific Management and associated approaches de-humanised the work place; workers were not paid to think, but to carry out to the letter the work instructions of supervision and management. After a while the workers gave up any attempt to correct things that were wrong in the production operation and began to disassociate themselves from the success of the organisation. Apart from the human aspects of the inspection-based organisation, routine 100% inspection quite simply does not work. It is inevitable that an inspection process will lead to products that should have been scrapped or returned for rework being despatched to the customer, and good products will be scrapped or returned for rework. Each of the adverse outcomes of inspection is serious; customers quite rightly do not like to receive sub-standard products and if sufficiently upset will take their business elsewhere. Rework lines receiving good or scrap product believe that the hapless inspectors deserve the poor reputation that they have on the shop floor. The key issue is that inspection is an activity that takes place after a defective product is made. At best the defective product is not despatched to the customer. However, ***quality cannot be inspected into a product - quality has to be built into each process.***

By as early as the 1920s, Walter A Shewhart, an American statistician who worked for the Bell Telephone Company, became involved in the manufacture of millions of telephone relays, and he realised that inspection after the event was not a good way of ensuring quality. He studied how the manufacturing process could be monitored in such a way as to prevent non-conforming items being produced and in 1924 he invented the control chart. In 1931 he published the world's first book on quality control "Economic Control of Quality of Manufactured Product" (Shewhart, 1980) and his work forms the basis of all teaching on Statistical Process Control today.

Dr William Edwards Deming had been a student of Walter Shewhart and he spent his early years as a Government employee, mainly in the Department of Agriculture and the Bureau of Census. Following the Second World War the US Government played a significant role in rebuilding Japanese industry, and Deming was invited to apply his statistical knowledge to the Japanese situation. He taught them to apply the statistical method and team approach to quality improvement that has transformed Japan into market leaders of virtually every form of manufactured goods. He has been referred to as the father of the Third Industrial Revolution.

The principal focus of the quality control era was to replace inspection with more informative process control systems which aimed to reduce variation in outputs (be they product or service) and deliver more consistency by focusing on inputs. Its modern day incarnation is Six Sigma.

2.3.4 The Total Quality Management (TQM) Era (1950 - 1970)

In addition to his work with SPC, Deming was strongly convinced of the need to build the human element into quality. His 14 points are an attempt to define the transformation of Western style of management to accomplish the necessary change.

Also in the early 1950s, Dr Joseph M Juran participated in the quality movement in Japan and, like Deming, has been bestowed with Imperial honours in recognition of his contribution to Japan's industrial success. Juran believed in the management of Quality and thus concentrated his efforts on executive and senior management who he believed to be responsible for the majority of quality problems. In 1951 he published the first edition of *The Quality Control Handbook*; it is now in its 6th edition (Defoe and Juran, 2010) and it still is regarded as the practitioners Quality Bible, being full of management and planning techniques as well as the technical aspects of quality.

Another well respected American quality specialist, Dr Armand V Feigenbaum, first published in 1961 a book entitled *Total Quality Control* which was the first to express the view that quality was not just about manufacturing, but could be applied to departments such as Engineering, Development, Sales and Service. "Quality is from the cradle to the grave, from the womb to the tomb!" He also developed the technique of measuring the cost of quality, showing that by adopting preventive techniques an improvement in Quality Costs can be achieved.

More recently, and also from America, came to prominence Philip Crosby, ex Vice President for Quality with ITT who founded a Quality College in Florida and later one in Europe. He is thought to be the world's leading consultant on quality improvement; his view is that quality is free and he promotes the concept of "Right first Time" as a way to change the management culture of an organisation. His four Absolutes of Quality Management are seen as a good starting point for any company embarking on quality improvement action.

The enduring strength of the humanist approach to quality sees it now enshrined in most companies' vision and mission statements ("people are our most important asset"), and much that was originally heretical- involvement, empowerment, trust and respect are now seen as the norm; in theory if not always in practice.

2.3.5 Standards and Awards (1970 - 1990)

The strength of TQM was in the principles it laid down for how to transform an organization. Its weakness was the need for interpretation and the wide range of approaches from the good to the bad, and even the ugly which it spawned. The variability of results seen by customers attested to this.

Over the years a need for standardisation was felt; to homogenise not the approach, but at least the principles. BS5750 and ISO 9000 Quality Systems Standards have been the most successful elements of this approach. They are externally audited and accredited standards which have been joined in more recent years by Quality or Excellence Awards which are recognitions of company approaches and performance relying more on self-assessment.

2.3.6 Initiatives (1990 - present)

The final trend has been the appearance of mega-initiatives, of which Lean and Six Sigma are probably the most prevalent. These have both been around since before the 1990s but have come to prominence from that period due to aggressive marketing from consultancies. The merits of these systems will be discussed later, but the susceptibility of senior management teams in a wide variety of sectors and sizes of organizations to hard selling of 'silver-bullet' approaches is, perhaps the most worrying trend of all.

2.4 Summary

This section has clarified our understanding of the rather abstract concepts of both "Quality" and "Quality Management". Perhaps the most important point to note is the integrated nature of the elements of Quality Management; all of the ideas are useful individually, but it is only when they are integrated into a holistic approach that their transformative power is fully harnessed.

Review & Discussion Questions:

1. *Customer value is a key theme of the definitions of 'Quality' in this chapter. What would you believe to be the key drivers of customer value for a lifestyle brand such as Apple?*
2. *Answer question 1 for a 'commodity' manufacturer producing cheap clothing. How do the drivers differ?*
3. *What would be the implications for the focus of Quality management approaches for the two organizations? Which aspects would be consistent, and which would vary?*

3 Why Quality Management?

3.1 Introduction

Before we look at what constitutes a Quality Management initiative, and how we might implement it, we need to understand the rationale for doing so, because the amount of effort involved in such change is very significant. The rationale presented by the proponents of Quality Management tends, as with most arguments for change to fall into two categories:

- A critique of existing practices to demonstrate why the status quo is not a viable option
- A list of benefits to be derived from the change.

3.2 What is Wrong with Traditional Approaches?

3.2.1 Lack of Leadership

Leadership is not management. Management is concerned with producing order and consistency through actions such as planning, budgeting, organizing and controlling, while leadership is concerned with producing change and movement by vision building, motivating, aligning people and communicating (Kotter, 1990). This is not to imply that leadership is 'good' and management 'bad' but to recognise that they serve different purposes and require different skills. Management serves us well in static situations (one might think of the situation of Ford in the early 20th Century) however, more dynamic situations require leadership.

Traditional organizations have tended to emphasise control and organization (management) over vision and motivation (leadership). This results in static organizations good at doing what they have always done, and focused on ensuring management instructions are carried out, but poor at responding to changing environments and developing situations which are increasingly the norm in the modern business environment.

3.2.2 Short Term Focus

"For 60 years we have been the victims of Keynesian economics. Everything has to have a payback in the next quarter or the next year, or it cannot be justified." Goetsch and Davis (2010)

They note that Most organizations are unable to take a long term view. This is often driven by the stock market where companies are expected to declare a profit for the year, half-year, or even quarter. With share prices, liquidity and senior-management bonuses dependent on these results it is inevitable that short-term priorities win out. An investment which pays off dramatically in 3 years will be overlooked in favour of one which delivers much more modest results but within the current financial year. This can also lead to 'cost-cutting' measures which save money in the short term at the expense of higher costs in the future. For example, an organization may choose not to shut down for maintenance of key assets in a particular year, saving on lost production, and labour or material costs associated with the maintenance. However, the decision may lead to catastrophic machine breakdown, with much higher costs in terms of lost productivity or labour and material costs to fix the problem.

3.2.3 Lack of Customer Focus

Shiba, et al. (1993) note the difference between the traditional 'Product-Out' concept, where the company works to a set of standards and a 'good' product is one which conforms to the company standards, and the 'Market-In' concept where the focus is on satisfying the customer. As long as the standards are aligned with the customer requirements, it may be argued, there is no conflict in these two approaches. However, the difference lies in the behavioural implications. A 'Product-Out' mentality will lead to adherence to standard despite unhappy customers – "It meets our standard so it must be OK". This approach will be compromised with an unexpected change to customer expectations, and has lead to the demise of many organizations when a better alternative hits the market causing customers to suddenly expect more of the product.

An example might be the advent of smart phones and the problems Nokia have experienced (search the web for the Nokia "burning platforms" memo) in their market share since Apple launched the iPhone, and radically changed the market. Playing catch-up when the market changes suddenly is very difficult and expensive, as Nokia has discovered. A 'Market-In' approach encourages the active engagement with customers which makes it less likely that companies will stick to outmoded specifications, or miss coming trends for too long.

There is also a degree of arrogance which can set in with the 'Product-Out' mentality. An assumption (often expressed by designers) that the customer does not know what they want. Whether this is true or not is largely a moot point. A quote attributed to Ford is often used to illustrate this idea:

> *"If I had asked my customers what they wanted, they would have said a faster horse."*

Of course this merely misunderstands the idea of customer focus. What customers can (and should) be asked for is what they need, or what they would value –in this case faster movement from A to B- rather than how we should deliver the requirement – the horse versus internal combustion engine. This is not to say that at times an innovation cannot create a hitherto non-existent need, simply to say that this happens fewer times than is perhaps suggested. Did Apple truly create a new set of customer needs, or simply respond innovatively to emerging trends of mobile computing?

3.2.4 Cost/Quality Trade-off

It has long been assumed in traditional organizations that better quality costs more money. This myth has been effectively debunked by a number of eminent thinkers (Crosby, 1979; Deming, 1990; Imai, 1986) but has retained a disconcerting currency. The material below on 'Cost of Quality' addresses this issue further.

3.2.5 Lack of Systems Thinking

Deming developed a simple, but effective view of an organization as a system which is shown in figure 3.1.

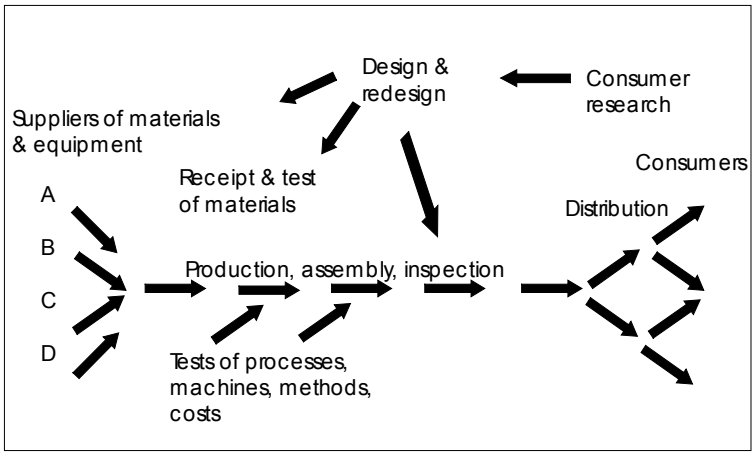


Figure 3.1. Production as a System (Deming, 1990)

This shows the interdependence of all the various elements of a manufacturing organization (although a similar model could be drawn for a service organization). It includes both 'line' and 'support' functions and it can be seen that the success of the system relies upon the effective integration of its parts. As a chain, it is unlikely to deliver customer satisfaction if any aspect does not work. However, the system is usually broken into departments or areas of influence which have their own metrics and chain of command to be satisfied, often with negative consequences for other parts of the system.

If designers, for example, choose not to consult with production on how their designs might be made easier to manufacture they may well improve their timeliness and cost of delivering the design, but in the process impose significant costs on production in delivering an acceptable product to the customer. A manufacturer of military vehicles had a significant issue in the late 1990's when it began to build its newest tank. The designers had forgotten to take into account the constraints of the manufacturing facility and, as the turret was about to be mounted on the first vehicle on the production line, it became apparent that the crane did not have sufficient height to allow the stem to clear the vehicle body. This required a major refit of the line and for the months taken to achieve this, vehicles were driven outside the building to have turrets fitted by a crane specially hired for the task.

3.2.6 'Human Resources' Mentality

There is no doubt that traditional attitudes have led to a serious underestimation of the potential and contribution of employees across the organization, particularly in blue-collar positions. This is a direct result of industrialization; in years gone by the craftsman (or woman) was a respected figure, but the work of Taylor and Ford amongst others reduced them to labourers completing simple repetitive tasks as quickly as possible. Accordingly, respect diminished until most employees of an organization were expected to use their hands but not their brains. The best known quote on this phenomenon (which will be discussed much more in later chapters) is from Konosuke Matsushita (Gomes, 1996).

"We are going to win and the Industrial west is going to lose out; there's not much you can do about it because the reasons for your failure are within yourselves.

Your firms are built on the Taylor model. Even worse, so are your heads. With your bosses doing the thinking while the workers wield the screwdrivers, you are convinced deep down that this is the right way to run a business. For you, the essence of management is getting the ideas out of the heads of the bosses and into the hands of the labour.

We (in Japan) are beyond the Taylor model. Business, we know, is now so complex and difficult, the survival of firms so hazardous in an environment increasingly unpredictable, competitive and fraught with danger, that their continued existence depends on the day-to-day mobilization of every ounce of intelligence."

This quote is from 1979 and, despite a significant number of western companies recognising the same issues, and taking action it is still true of an alarming amount of our businesses. As long as we regard the vast majority of our people as 'resources' we will struggle to compete.

Taken together, these issues suggest a need for change, but it is important to provide positive reasons for change as well as reasons why the status quo is no longer acceptable.

3.3 Tangible Benefits

Tangible benefits refer to items which have a direct financial value or are 'monetisable' in some sense. So the loss, due to quality issues, of a customer currently spending $50,000 a month would be a loss of $600,000 per annum to the company concerned. If improvement in performance brought the customer back then the tangible benefit would be $600,000 per annum.

The basic idea is that improved quality brings improved financial performance. This simple idea may be best illustrated by Deming's Chain Reaction as shown in figure 3.2.

Figure 3.2. Deming's Chain Reaction (adapted from Deming, 1990)

3.3.1 Cost of Poor Quality

Perhaps the most obvious tangible benefit of quality improvement is the reduction of costs associated with non-quality. If we have to throw a product away because we have made an error in its manufacture, it is clear that there is an immediate financial impact as all the costs sunk into the product are lost. Similarly, doing an incorrect operation over again absorbs cost (operator time, power, additional materials, etc.).

Cost Area	**Cost of Control (Cost of Conformance)**		**Cost of Failure of Control (Cost of Non-Conformance)**	
Sub-Category	Prevention Costs	Appraisal Costs	Internal Failure Costs	External Failure Costs
Description	Arise from efforts to keep defects from occurring at all	Arise from detecting defects via test, audit, inspection	Arise from defects caught internally and dealt with by discarding or repairing the affected items	Arise from defects that actually reach the final customer.
Examples	Quality planning Statistical Process Control Quality training and workforce development Product design verification Market research	Test and inspection of purchased materials Inspection Testing Quality audit	Scrap Rework costs Management of rework systems Rejection paperwork	Warranty costs Out of warranty complaints Product recall Product liability claims Loss of customer goodwill

Table 3.1. Cost of Quality types and examples (adapted from Feigenbaum, 1991)

Although anyone who works in an organization will be familiar with many examples of both of these issues, business accounting systems are not set up to capture these costs. Traditional accounting approaches are designed to track the inflow and outflow of money in an organization (and, by extension, to product lines or departments). There is little emphasis on whether the money in the department is spent effectively. For example, budget reporting will recognise that overtime cost £100,000 this month, but will not differentiate between time used to respond to short lead-time customer demand and time spent correcting errors. Even when it does highlight a cost of poor quality, perhaps in an over-budget condition in material spend, it will give no clear indication of where exactly the over-spend occurred.

The lack of clarity of the cost of poor quality in organizations led to a lack of focus on improvement for many years. It was only with the advent of the "Cost of Quality" approach in the 1950's (Defoe and Juran, 2010; Feigenbaum, 1961) that organizations had a financial tool to assess the costs associated with quality failures and thus focus on the most important areas for improvement.

It centred on the categorization of quality costs and the management systems that were needed to support them. The categories ranged from Feigenbaum's Prevention-Appraisal-Failure (P-A-F) model (table 3.1) to the Price of Conformance vs. Price of Non-Conformance model championed by Crosby (1979).

These categories appear simple enough at first glance. However, there are, in fact, large grey areas and much debate is to be had about activities such as first off inspection (prevention or appraisal?), dealer Pre-Delivery Inspection (PDI) checks (failure or appraisal?) etc. Whilst there may not be a 'correct' answer it is very important that these issues are addressed at an early stage and a **consistent** approach adopted.

Crosby's (1979) Price of Conformance (POC) and Price of Non-Conformance (PONC) categories are perhaps more intuitive in that he attributes appraisal and failure costs together in the PONC category as cost incurred because we are not certain tasks have been performed 'right the first time', while POC is analogous to the (more positive) prevention category. He also introduces a category of 'Normal Business' for activities which do not fit into either category.

For either categorisation approach the logic is that a relatively small increase in spending on prevention activities will deliver a more than compensating reduction in appraisal and failure costs. Hence Crosby's assertion and book title 'Quality is Free'. This is illustrated by the graph in figure 3.3:

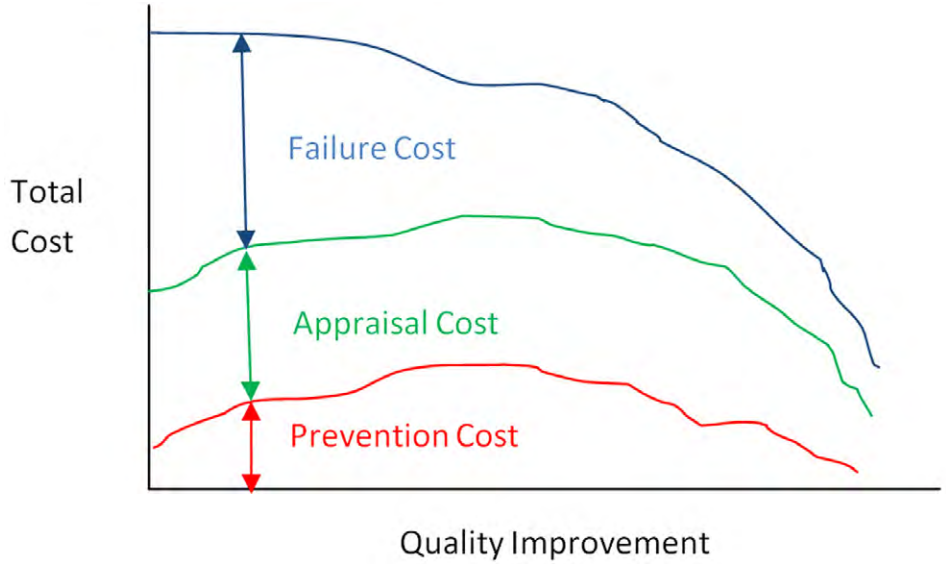


Figure 3.3. Quality costs during improvement (adapted from Businessballs.com, 2011)

The principal benefits of the Cost of Quality system are:

1. By translating quality issues into financial measures it facilitates senior management commitment to improvement activities and, if sufficiently detailed, suggests priority areas for improvement.
2. It provides a clear indication of the scale of the opportunity presented by current poor quality performance and a guide as to the level of resources which can be committed.
3. Provides an effective measure of improvement if re-calculated after the improvement has been made.

There are, however, issues with the use of quality costs:

1. The costs are not likely to be accurate to the last penny. They may, for example, include the time spent reworking an item, or meeting with unhappy customers. These will always be estimates, especially in the case of white collar work where the balance of time spent on prevention, appraisal and failure activities will be open to interpretation. How would you know, for example, what proportion of a customer support engineer's time is spent fixing problems (failure cost), and what simply keeping customers happy by regular visits (normal business)? It is, of course, not the purpose of quality costing to be absolutely accurate, they need only to indicate scale and priority fairly, but this needs to be understood by all players before developing the system.

2. Cost of Quality systems require trust to be effective. If departments or individuals are criticised for high quality costs they may subsequently under-report, whereas if an improvement project team is incentivised on the amount of money they save it may be tempting to be generous in their assumptions.
3. To be effective in supporting improvement it is important that the outcomes of cost analysis are seen to be beneficial. In many cases part of the identified cost opportunity will be the cost of employing people to do activities associated with failure. For example, you only need an inspector if you are uncertain of the quality of the items you produce, and rework activities (along with the people who conduct them) are only necessary if the product is not 'right the first time'. However, if you were to make people redundant as a result of Cost of Quality reduction activities then it may well make others suspicious and less likely to flag up waste. Of course, if the wages are not saved then you cannot claim the cost benefit, but people can be re-deployed to more positive tasks, or numbers lost over time through natural wastage (where people leave the company through retirement or resign to pursue other opportunities). This way the benefits may be realised over a longer term, but the disincentive to become involved in improvement through fear of the consequences is reduced.
4. When re-calculating you need to make sure the comparison is fair and consistent. For example, if the initial Cost of Quality in an area was $50,000 per annum on a turnover of $500,000, but by the end of the project annual turnover had doubled to $1,000,000 a new level of Cost of Quality of $60,000 would be good news as, if things had remained unchanged it would be reasonable to expect that if turnover doubled so would the Cost of Quality.
5. It is also worth noting that some costs are recurring; these would include salaries of those involved in embedded rework activities or calibration of inspection equipment, for example. Others, however, will be one-off; a major product recall for a design fault would not be expected to occur every year. It is necessary to treat these costs differently but it is not always made apparent by the quality cost system.
6. Finally, as Deming (1990) suggested, many of the important elements of the cost of poor quality are 'unknown and unknowable'. Although we may seek to take into account things like customer satisfaction the financial impact of poor reputation (for example) is practically impossible to quantify and as a result it is usually ignored. It may well, however, be the biggest financial impact in many cases. By focusing on easily quantifiable costs we may distract ourselves from more significant, but more difficult to quantify issues.

Another aspect of the debate centres on the system requirements for Cost of Quality to be implemented in organisations. Initial introductions focused on large-scale organisation-wide systems, which monitored the levels of quality costs monthly at departmental levels. These quickly became ungainly and difficult to run creating an unacceptable overhead for the organisation. Decentralised costing approaches have proved little better where the integrity of the system quickly became undermined by local interests and the resources required to maintain the system spiralled even further. The logical conclusion of these debates was that it was too costly to run quality cost systems as part of the monthly accountancy practices of an organisation.

The principles of quality costing are however still valid. It is still necessary to link quality performance to financial performance and to drive improvement priorities based on the potential business benefit. New approaches have emerged which are essentially project driven, where potential and actual savings are identified using quality costing principles and the business aggregates up these savings to derive a business level figure. Six Sigma is one approach that applies this type of system. This approach gives a much clearer linkage between individual improvement projects and business performance, providing stronger rationale for such projects and thus a driver for organizational improvement. Issues raised above are still relevant, of course.

3.3.2 Waste

Cost of Quality models are certainly helpful in generating momentum in the quality improvement movement, however, they are, at best, a partial view of the economic benefits. The focus on failure neglects aspects of waste which relate to flow and efficiency as opposed to accuracy. For example, an operator having to wait for products from a previous process would not register on the P-A-F model, but would clearly have an impact on the costs of the organization.

The concept of waste is fairly generic in nature and has been around for a long time. Many organisations refer to 'non-value added activities' and 'process waste'. However, these are rather broad terms and, whilst it is easy to agree that waste is bad and should be eradicated (or at least reduced) it does not much help in the process of improvement. The Seven Wastes were identified by Ohno as part of the Toyota Production System (Ohno, 1988) and have since been widely applied to process improvement, becoming particularly associated with the principles of lean manufacturing.

- **Waiting:** A typical example of this form of waste is found when dealing with components or paperwork in batches. The first item in a batch has to wait for the remainder of the batch to complete that operation before the whole batch can move on to successive operations. This has a significant effect on increasing lead times.
- **Correction:** Put simply, this is the waste resulting from a failure to achieve a 'right-first time' way of working. Having to rework or scrap components or paperwork, adds additional processing cost as well as introducing delays that affect lead-time.
- **Over-production:** This is where more than is required is produced, usually under the misapprehension that the company is 'saving' set-up time. It fails to appreciate the extra costs involved in working capital, storage space and the delays affecting following jobs by doing more than is required.
- **Processing:** Over-engineering, a good example of this form of waste, is where additional operations are performed that do not add any value for the customer.
- **Conveyance:** This is the movement of materials, components or paperwork around a business; in order that the various value adding operations can be performed.
- **Inventory:** This not only ties up working capital, but adds storage costs and reduces the businesses flexibility in being able to bring in new products.
- **Motion:**This is an ergonomic factor where employees are forced to undertake unnecessary movement in order to perform their tasks. Examples include ill-considered positioning of equipment and material in relation to the workplace.

It can readily be seen that some of the costs associated with these activities would fit neatly into the Cost Of Quality models discussed in the previous section, but that some would be transparent to that system. Table 3.2 indicates the kind of financial impacts that might be caused by the types of waste. Those which would not be picked up by a Cost of Quality measurement system are in bold italics.

Type of Waste	Potential Associated Costs
Waiting	***Labour cost associated with idle time.*** ***Value of lost production (if units are lost) or cost of overtime if this has to be worked to catch up.*** Cost of late delivery if overall process time affected.
Correction	Rework cost (direct and overhead if applicable). Cost of delays (as above). Inspection costs. Disposal costs if correction is not possible. Paperwork system costs.
Over-Production	***Storage costs (inc. handling costs & capital tied up).*** ***Extra material costs if excess cannot be sold.*** Deterioration/depreciation costs (if appropriate). Cost of delays (as above).
Processing	Additional processing costs (direct and overhead if applicable). Transportation costs.
Conveyance	***Additional cost of unnecessary conveyance system.*** ***Cost of late delivery if overall process time affected.*** Deterioration/damage costs.
Inventory	***Storage costs (inc. handling costs & capital tied up).*** ***Deterioration/depreciation costs (if appropriate).*** ***Obsolescence costs (if appropriate).***
Motion	***Additional labour costs (including absenteeism).***

Table 3.2. Types of waste and associated costs

This type of approach allows for a clear identification of potential cost savings, whilst also allowing for the improvement and 'what to do differently' elements of the waste based approach.

Approaches like Six Sigma seek to quantify the cost of waste, but note that organizations like Toyota do not feel the need to quantify the cost of waste, as the war on waste is well embedded within their culture and behaviours. The costing element is primarily necessary in the early stages of application when management may need persuading that the resources deployed are providing 'good value'.

3.4 Intangible Benefits

Many benefits are difficult to quantify in purely financial terms but are nevertheless relevant to organizational competitiveness. These will be introduced here, but will be treated in much more detail later.

3.4.1 Increased Customer Satisfaction

Fewer defects, more reliable products, reduced lead times and products better matched to customer requirements should all be the natural consequences of an effective Quality Management system. This should, in turn, lead to more satisfied customers (York and Miree, 2004; Ahire and Dreyfuss, 2000). Satisfied customers are more likely to buy from the organization again, to pay more for the products they buy and to recommend the organization to others. The converse is true of dis-satisfied customers, only more so! It is, for example, estimated that unhappy customers will tell 10 people, whereas happy customers will tell only two.

3.4.2 Increased Workforce Satisfaction and Motivation

Deming (1990) suggests that 'all people want is the chance to do a good job, and to know when they have done it'. The ability to take pride in the work you do is increasingly seen as a motivating factor for workers, and clearly quality improvement efforts contribute to this. Motivated workers are seen as much more effective in delivering good quality and customer satisfaction. Richard Branson is quoted as saying:

> *"If you look after your internal customers you don't have to worry about your external customers."*

Additional benefits from a happier workforce will include better teamwork, lower absenteeism rates and more flexibility in difficult times.

3.4.3 Improved Environmental Impact

Reducing waste will allow organizations to reduce the environmental footprint of the organization. This will help to generate a positive corporate image in addition to cost avoidance associated with lower material and energy usage and a reduced burden in respect of costs of environmental impact such as 'polluter pays' initiatives and carbon taxes.

3.5 Summary and Impact

This section has clarified the business case for Quality Management based on a critique of traditional approaches and description of mechanisms whereby increased competitiveness can be generated. But the theory has to be bolstered by practice. So what is the evidence that this impact actually accrues?

Much empirical work has been carried out which supports the practical impact of Quality Management on business performance. Corredor and Goni (2010) conducted a study in Spain which showed higher mean performance (in terms of profitability) for leaders in TQM implementation than a control group. Bendell and Boulter (2008) found that two years after winning a national quality award the award winners outperformed comparison companies by 24 percent for share value.

It is also interesting to note that 'Quality' remains at the top of the agenda for many organizations. Burcher et al (2010) conducted a study in Australia and Britain noted that 'Quality Lives On' as a business challenge in both countries and that a high proportion of firms surveyed were implementing new quality initiatives.

As Deming says:

"In the future there will be two kinds of companies – those who have implemented Total Quality Management and those that have gone out of business; you do not have to do this – survival is not compulsory." Quoted in Gill (2009).

Review & Discussion Questions:

1. *What is the relationship between the concept of 'waste' and 'Cost of (poor) Quality'? What would be the relative strengths and weaknesses in driving change by using the CoQ approach?*
2. *Consider an organization with which you are familiar (perhaps your University, or a company which you have worked for) and describe evidence of 'Traditional Approaches' being pursued.*
3. *What arguments would you use to persuade the organization in question 2 to adopt Quality Management?*

4 The Contribution of Dr. W. Edwards Deming

4.1 Introduction

There are a number of 'gurus', including Juran, Crosby, Ishikawa and Taguchi, who offered important insights and gave impetus to the movement. Their contributions will be referred to in the relevant sections and credit given, where it is due. There is, however, one individual whose contribution is difficult to overstate. W. Edwards Deming was a pioneer, and arguably the founder of the quality movement. The reason his work is perhaps worthy of greater consideration than the other pioneers is that his was by far the most transformational vision. Juran suggested a more systematic approach to quality, and clarification of the impact of poor quality and Crosby urged a mindset of 'zero defects'; their contributions were essentially about re-focusing management attention. Deming, on the other hand, saw the need for a total transformation of management practice - a far more challenging analysis. He famously saw management as the root cause of 80% of an organization's problems and his principles were radical in the extreme (although many, but not all, are more mainstream now). It is for the visionary and revolutionary nature of Deming's principles that it is deemed appropriate to single out his work for more discussion.

Deming's rise to prominence began with his invitation to Japan shortly after World War II to help regenerate the shattered economy. Following his quality prescription led to Japanese companies dominating the manufacturing sector for decades, with high quality and low cost; something Deming (1990) described as the "*Chain Reaction*" (see Chapter 2). In recognition of his influence The Deming Prize was instituted in Japan to recognise individuals and organizations which have demonstrated excellent quality improvement practices and results.

Deming has made 3 main contributions to the field:

- The Fourteen Points for transformation of an organization.
- The Deadly Diseases of organizations.
- The System of Profound Knowledge.

These will be briefly discussed in turn, but really need to be seen as a whole.

4.2 The 14 Points

Deming's management philosophy is summarised by 14 principles required for the transformation of traditional management of any type of organisation, be it large or small, manufacturing or service based:

Create Constancy of Purpose: Toward improvement of product and service. Often concentration on the problems of today precludes sufficient effort directed at the problems of the future. Is the Company dedicated to quick profits or constancy of purpose? The next dividend to shareholders is not as important as working for the prosperity of the Company in 10, 20 and 30 years time.

Adopt the New Philosophy: Japan has created a new economic situation. Our tolerance of the mistakes that occur in all aspects of industry must be reversed. We can no longer accept without question mistakes, defects, poor materials or materials not suitable for purpose, ill-trained workforce who is too afraid to ask what its job is, poor supervision, career-seeking management who do not stay in a position long enough to consolidate the current status let alone improve it.

Cease Dependence on Mass Inspection: The use of inspection to improve quality is costly and ineffective and unreliable. You cannot inspect quality into a product and therefore, it is too late. Preventive measures should replace mass inspection in most circumstances, thereby reducing the hidden factories producing scrap and rework that employ ever-increasing numbers of inspectors.

Cease Award of Business on Price Tag Alone: The lowest purchase price does not ensure the minimum total cost. The acquisition price is one aspect of the total cost of an item throughout its life cycle. If purchase decisions are made with no measure of the quality of the product being assessed, the whole system will drift to one of low price, poor quality and high subsequent costs. If purchasers constantly force their suppliers to reduce the price of their products and change suppliers based on price from one project to another, the suppliers will be forced to cut corners. How much better is it to develop a long-term relationship with suppliers so that they can innovate and develop economies of scale?

Improve Constantly and Forever The System of Production and Service: Preoccupation with achievement of specification is not sufficient. We must start to improve all aspects of the product or service life cycle from concept to disposal. Sources of variation must be identified and reduced. By so doing the distribution of the key quality characteristics of the product or service will become narrow and accordingly costs will reduce.

Institute Training: Everyone involved in a product or service must understand the customers' requirements and be trained so that he understands the standard of work required and how he may achieve that standard. Of vital importance is the need to appreciate the sources and nature of variation.

Adopt and Institute Leadership: Management should lead not supervise. Focus on the outcome must be abolished in favour of leadership. The role of the leader is to motivate and remove the barriers that prevent the people who work for him achieving pride in their work.

Drive Out Fear: Frequently the best interests of a Company are subordinated to the need to satisfy particular performance measures - especially production quotas. If people make mistakes they frequently hide them for fear of the consequences of disclosure. Fear of the effect on annual performance assessment can lead people to mediocre performance - if you don't make a decision you cannot be wrong and held to blame for a poor decision.

Break Down Barriers Between Departments: Most companies are organised in functional departments each of which may be busy optimising its processes without understanding the function or problems of the others. Each department is the customer of and supplier to other departments in the company. Many problems are contained within the confines of a single department so why not break down the barriers and start functioning as a team.

Eliminate Slogans Exhortations and Targets: Slogans, exhortations and targets aimed at the workforce urging an increase in productivity by working harder or by making no mistakes is a waste of time and is counter-productive. Such campaigns imply that the workforce, or supplier, is deliberately producing poor work and thereby further alienates what is already probably a strained relationship. The management must support the workforce by providing better training and supervision and improving the quality of goods inwards by supplier development.

Eliminate Numerical Quotas for the Workforce and Numerical Goals for Management: Numerical quotas and goals are demotivating and confusing in most applications. Production quotas will create tension between workers who can easily exceed the rate and those who cannot achieve it – pressure to 'not make us look bad' will be put on the more effective workers, while others will find the constant battle to achieve target stressful. There is no incentive to share expertise or learn from experience. Numerical goals such as budgets distort behaviours; No-one wants to be under budget in case it is cut the following year, but equally exceeding budget (even for a good reason) will cause disapproval. This leads to penny-pinching if the budget is in jeopardy and unnecessary largesse if things are going well. Neither of these things serve the organization well.

Remove Barriers That Deny People Pride of Workmanship: There are many barriers which prevent the workforce from achieving pride in their work; poor quality of incoming materials, inadequate work instructions so that people do not understand the standard of work required, ill-maintained machines from which is demanded maximum output regardless of quality achieved, supervisors who do not understand the work and who are unable to assist the workforce, defect reports and suggestion schemes which are ignored by management etc. Pointers to industries suffering from barriers to pride of workmanship are high absentee rates, high job turnover, high accident rates and high proportions of defective items. Only leadership will overcome these barriers. If people are made to feel that they and their work are important they will want to come to work. If management understands the problems which beset the workforce and takes corrective action, the workforce will respond as they are enabled to achieve good work.

Institute a Vigorous Programme of Education and Self-Improvement: There is no shortage of good people in industry, but that in itself is not sufficient. The strength of a company is very much dependent on its knowledge base and, therefore, an industry needs good people who are improving with continued education. This may be regarded as the strategic capability of education as compared to the tactical use of training to meet a specific need at a particular point in time.

Take Action to Accomplish The Transformation: Management must take action to understand the preceding 13 points and decide on the direction to take the company for the future. Management must have the courage to forego traditional styles of management and adopt the new philosophy. It will be necessary to explain by various means that the process of continuous improvement involves everybody, and that this is not just a passing initiative like those which have gone before. Each activity in a company is part of a process and all of the processes combine to provide the product or service to the final customer. Each constituent process can and should be the subject of continuous improvement working in harmony with the next stage and preceding stage to achieve a quality of output that will delight the ultimate customer.

Deming's 14 principles outlined above constitute what he considers to be good management practice, the adoption of which would transform the company or industry concerned. The next stage in the development of his management theory involves an understanding of what he terms the *Deadly Diseases* that prevent the transformation from taking place.

4.3 The Deadly Diseases

Alongside his 14 points to guide transformation, Deming set out some 'Deadly Diseases' which would hamstring any organization's attempts to become world class.

Lack of Constancy of Purpose: To plan a product or service that will have a market and keep the company in business and create more jobs. It is far better to adopt continuous improvement of all processes to produce a result that will bring customers back time after time than to work for the next dividend to shareholders.

Emphasis on Short-Term Profits: Is fed by corporate fear of unfriendly take-overs and pressure from lending institutions and shareholders for a quick payback. Most Western companies are driven by the need to make money; the truly successful companies in the world have adopted a rather different approach -become world class in what it does and subsequently enjoy the long term improvement in market share and profitability that follows.

Evaluation of Performance – Annual Review: Pushes people toward self-interest because the assessment focuses on the end result not on leadership applied to help people improve their processes. A merit rating system rewards people who do well within the system and, therefore, it discourages people to improve the system. "Don't make waves" or "Don't rock the boat" are typical sayings that mean that if the individual values his "career" he will not do anything that jeopardises his annual rating. Both the organisation and the individual is the loser - neither has realised their full potential. Managers spend much of their time managing or combating crisis - this is highly visible work which merits a good annual rating. On the other hand, the manager who quietly plans and achieves the requirements through a right first time approach is invisible - he just does his job. Although it sounds cynical, the manager who does not get it right first time but does an excellent job of fire-fighting is frequently better thought of because of the very visibility that crisis management provides.

Mobility of Management: It has become common practice for management to move from one position to another in different companies because this is good experience and hence good for the career of the individual. This may be the case, but for the organisation it is disastrous. How can a company have constancy of purpose when its management are forever changing?

Running the Company on Visible Figures Alone: A company cannot be successful on visible figures alone and whilst visible figures are important for practical reasons of everyday finance, the most important figures are either not easy or impossible to quantify. For example, a happy customer will buy again and advertise his delight with the product; conversely, a dissatisfied customer will make known the problems that he has suffered and dissuade others people from buying the same product. Better morale resulting from quality improvement and increased 'pride in work' will result in more effort and attention to detail, improving both quality and productivity.

In his book "Out of the Crisis", Deming (1982) describes two further diseases *Excessive Medical Costs* and *Excessive Costs of Liability* which will not be considered further here since, unlike the other diseases, they are more indicative of the medical and litigation processes in America.

4.4 The System of Profound Knowledge (SoPK)

Deming has described his thinking on the management of organizations in the System of Profound Knowledge. This is, perhaps, the least well known of his contributions, but (as the name implies) the most profound. The approach (an adapted model of which is shown in figure 4.1) combines systems thinking with an understanding of statistical analysis, a people focus and a learning approach based on the knowledge generated from the other elements.

Systems Thinking: This is the art of seeing the world in a joined up way. It involves seeing your organization as a system, rather than taking a reductive approach to considering only the individual parts. It is important that everyone in the system understand the system aims and understands the process through which outcomes are obtained. Changes need to consider consequential and indirect impacts.

Variation: All processes vary, but is the variation predictable? Is the variation acceptable to customers? Do people understand how to react appropriately to different kinds of variation?

Psychology: People are a very important part of the system. How will they react to changes? How do they feel about their work? Do variation or other parts of the system cause stress or lead to inappropriate behaviours? How will the decisions managers make impact on the people in terms of motivation, pride etc? How open is it possible to be in the company environment?

Theory of Knowledge: Plan-Do-Study-Act is known as 'The Deming Cycle'. It is the scientific method in practice. We must seek to learn from our experiences, in particular considering the other 3 elements of the System of Profound Knowledge. We must seek to understand the effects of decisions and changes, look for evidence and judge only on this.

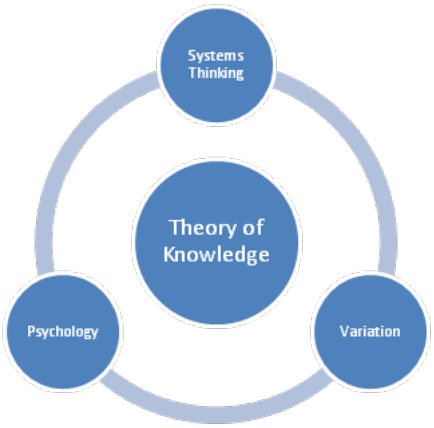


Figure 4.1. The System of Profound Knowledge (adapted from Deming, 1990)

It is the integrative nature of the model that is most important to consider at this stage. Deming's point was that piecemeal consideration of these issues would be likely to lead to sub-optimal outcomes and an undue focus in one area.

Deming on Performance Appraisal: SoPK

Statistics: The illogical use of rankings; the inability between common and special causes of performance.

Psychology: The negative pressures on individuals to 'play the system'; pressure from peer group not to over-perform and make life difficult for them; demotivation due to the apparently arbitrary ratings given to colleagues.

System: The negative effects on the overall system of people optimising their own goals and the disintegrating effect of this on the enterprise.

Knowledge and learning: Inhibited due to the tendency to disguise, or wrongly attribute, failure and lack of motivation to understand the causes of both success and failure.

The integration of these viewpoints clarifies why he objects so much

4.5 Summary

The three related elements of Deming's thinking present a profound challenge to 'business as usual' for many organizations, even today. There are no trite sayings or easy answers for leaders; they need to think differently if they wish to move their organization forward. The impact of this work will be felt in every aspect of this book.

Review & Discussion Questions:

1. *Consider the 2007 financial crash. How might a consideration of the issues from an SoPK perspective help to avoid a recurrence?*
2. *How does SoPK link to the 14 points?*
3. *Consider a decision made by an organization you know reasonably well (perhaps your University or employer) and apply SoPK thinking to it? How might this have improved the outcome?*

5 Standards and Models

5.1 Why Do we Need Standards and Models?

Quality management is a contested area, and with the plethora of differing views on what to do, and how to do it, authoritative and impartial guidance is required to help the majority of organizations make sense of the area. It should, of course, be noted that these standards and models are for guidance purposes, rather than comprehensive and complete 'how to' manuals.

5.2 ISO 9000 Series Standards

5.2.1 History

The ISO 9000 series of standards is the international standard for quality management. The objective of this series of standards is to aid supplier quality assurance and to provide a common, authoritative and widely accepted standard by which to evaluate and compare the potential of firms to meet acceptable levels of quality and reliability. The word potential is vital here, since it looks at the system and not the product.

Post 1945	**NATO AQAP**
1960's	**Defence Standards 05-21 et seq**
1972	**BS 4891 Guide to Quality Assurance**

1973	**73/851 DC (issued by SMMT, based on 05-21)**
1975	**BS 5179 pt 1-3: (non-mandatory)**
1979-81	**BS 5750 pt 1-6: mandatory equivalent**
1987	**ISO 9000 Series**
2000	**ISO 9000 Series updated**
2008	**ISO 9000 Series updated**

Table 5.1. Time chart of the development of quality standards

The evolution of the ISO 9000 series of standards is tied up with the development of defence standards and the British Standard BS 5750. Post 1945 it was clear to the departments of government concerned with the procurement of armaments that the quality from different suppliers was very variable. They instituted the concept of auditing suppliers to ensure that the way they did things was satisfactory, thus giving a far better chance that the quality of their final product was satisfactory. This idea was taken up over time by a variety of organisations, most notably in the automotive sector. Many suppliers found themselves being audited by several different customers all with slightly varying requirements of their quality system. This situation became more and more chaotic with many organisations having to perform procedural summersaults to meet the needs of diverse customers. Since the aims of all these audit requirements were the same, it seemed that there was a need for some form of standardised format, perhaps independently assessed, which could be seen as satisfying all parties. From this developed the BS 5179 series of standards (based on the earlier defence standards 05-21 et seq). These were non-mandatory and developed later into their mandatory equivalents in the BS 5750 series. The ISO 9000 series were harmonised with BS5750 in 1987 and have been revised twice since to their current state.

5.2.2 Why Adopt ISO 9000?

ISO 9000 usage has more than doubled from 457,834 in December 2000 to 1,064,785 in December 2009 (ISO 9000 survey). It is clearly popular, and there are a variety of possible reasons for individual organizations to adopt the standard:

1. There are a significant number of organizations around the world which require their suppliers to hold ISO 9000 certification. This has forced some companies to adopt the standard.
2. For some companies ISO 9000 provides access to markets which would otherwise be closed to them by giving potential customers confidence to buy from them. This is particularly relevant to companies from developing countries. It is also likely that simply being seen as 'taking quality seriously' by achieving certification gives a marketing benefit.
3. More enlightened organizations see ISO9000 as a genuine opportunity to improve the way they do business.
4. In particular ISO 9000 has been seen as a stepping stone to Total Quality Management. This has been a key argument for many consultants, but the necessity of having ISO900 in order to become an excellent organization has no strong evidence base.

There is, however, research evidence to suggest that ISO 9000 certification is correlated with business improvement. Sharma (2005), Heras et al (2002) and Naveh and Marcus (2007) amongst others, have shown improvements in business performance and, in some cases been able to link this to improved profitability. A survey by the British assessment Bureau (BAB 2011) also showed that 44% of their certified clients had won new business.

5.2.3 ISO 9000 (2008) Principles and Content

The underlying principle of all these standards is that quality systems are based on formality since this permits objectivity. The standards attempt to formalise and standardise the general approach towards Quality (without standardising unnecessarily the detailed activities that underpin this approach) by:

- A documented quality policy representing the management's approach to delivering customer requirements is set out and committed to by senior management.
- The policy is deployed throughout the organization with more detailed descriptions of processes developed for implementation at lower levels in the business.
- The organization internally audits adherence to the policies and procedures, keeping records of audits and quality performance.
- The records are used as the basis for corrective and improvement actions.
- The quality system is audited by third party certification bodies to ensure compliance, and the organization works to improve the system in line with the external audit.

Process management is the approach which permeates the more modern version of the standard:

Senior management have a responsibility to ensure customer requirements are clearly identified. They deploy appropriate resources to address the requirements. The product realisation (note this can also apply to a service) process takes the detailed customer requirements as an input and transforms the resources provided into a product (or service) output. The customer receives the output and the organization seeks feedback. The organization measures the product realisation process (cost, efficiency, etc.) and analyses this in conjunction with the customer feedback to assess the operation of the system and drive improvement where required. This is fed back to senior management as an input to further strategic planning. Measurement and analysis of the performance of the overall quality system is also used to drive improvement at that level.

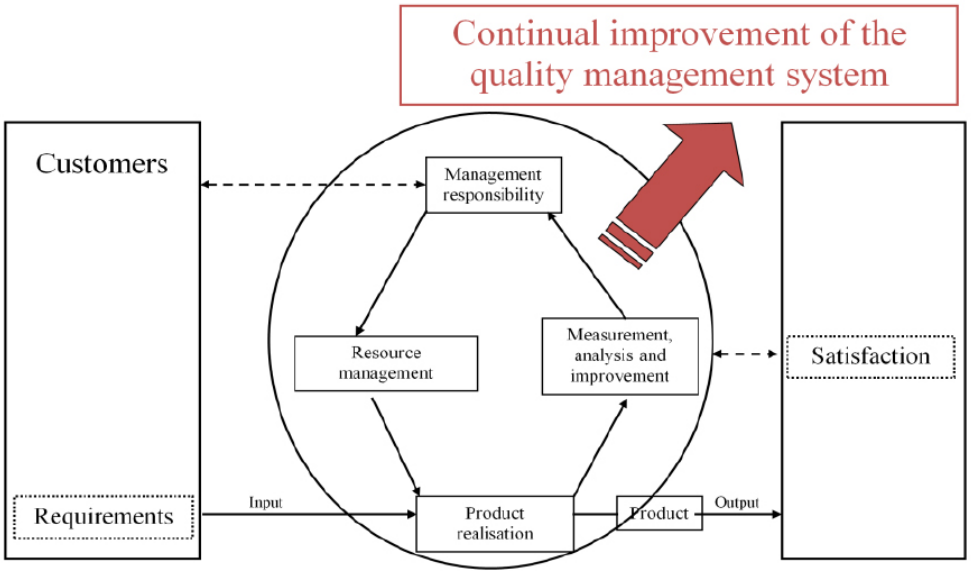


Figure 5.1. The ISO 9000 process approach to quality

The detailed clauses of the standard provide greater depth on the requirements for each element of the system. This detail will not be provided here, but can be obtained by perusing the standard or one of the many books on the topic.

5.2.4 Certification Process

ISO does not itself certify companies to ISO 9000. Instead each member country has an accreditation body which accredits certification bodies who deal with certification of companies. Agreements between national bodies allow for international recognition of certificates issued by Accredited Certification Bodies (ACB). Companies select an ACB and the ACB will then conduct extensive audits of the organization and deliver a report. The focus of the report is 'Non-Compliances' where the company has failed to fully meet certification criteria. Should there be no major Non-Compliances, or on acceptance of an action plan to remove such issues, a certificate will be issued. The certificate will be subject to renewal (by full audit) every three years and to 'surveillance' audits of lower intensity on an annual basis.

5.2.5 ISO 9000 Critique

As noted above, there is evidence that implementation of ISO 9000 has a positive business impact. The principles employed in the 2000 and 2008 versions are certainly sound, encompassing as they do the principles of management responsibility, process focus and customer satisfaction. However, ISO 9000 remains controversial. Critics of the approach cite a number of key issues:

- The value of the good practices associated with the TQM ethos which ISO 9000 is supposed to mimic are lost when they are being completed for the purposes of compliance with a standard.
- A corollary of this is that many organizations are actually adopting ISO 9000 as an end in itself, either due to misunderstanding of its purpose, or due to pressure from existing or prospective customers. These organizations are far less likely to see real benefits as, once certification is attained, they tend to drift back to 'business as usual' until the next audit is due.
- It is sometimes argued that ISO 9000 perpetuates the myth of quality as an adjunct to normal business, rather than something which is integrated with the greater whole of the business. This mentality is linked to the first two failings, and is highly damaging to the chances of improved organizational performance.
- ISO 9000 is often criticised for the cost of accreditation and associated paperwork. This is certainly a problem, but if real gains in quality and process efficiency are made then this is not an issue.
- Related to this is the fact that, in order to prove that you are doing a good job it may be necessary to create rather more paperwork than is necessary to do it. This brings the risk of over-procedurisation which will make it more complicated to change the process once approved, this may stifle improvement actions due to increased bureaucracy of change. Seddon (2000), amongst others, suggests it promotes compliance over understanding and improvement.
- Customers in particular often complain that ISO 9000 certification does not guarantee good products. This seems counter intuitive, but is true, nonetheless.
- Finally, ISO 9000 is seen by many as a partial system; it talks of people involvement and leadership but fails to engage with them on any meaningful level. These are two of the most important issues in Quality Management. Peters and Waterman (2004) note that quality can fail through 'passion without system or system without passion'. ISO 9000 gives little or no attention to the passion which is required to deliver excellence.
- The competitive nature of the accreditation business has led to questions regarding the relationships between ACB and client, calling into question the impartiality of the assessment and raising concerns over the potential to sell consultancy services on the back of a failed accreditation audit.

5.2.6 Summary of ISO 9000

The idea of a standard for quality management is a seductive one. It is, however, fraught with difficulty in application; particularly when the pressure to achieve accreditation from senior management or customer can be extremely high. This can lead to game-playing, a compliance mentality and other unintended negative consequences. Undoubtedly, the standard can be a useful first step on the road to excellence, but it must be recognised as just that, and even then, only when undertaken in the right spirit. ISO 9000 is not 'Quality' – more needs to be done, particularly in respect of leadership, people and customers. It may also inhibit exactly those things by being, to a degree, bureaucratic and top-down in nature.

5.3 Self- Assessment Models of Quality

In addition to standards there are a number of widely recognised models of quality, where the focus is not on achievement of a certificate, but on recognition through self-assessment and associated awards.

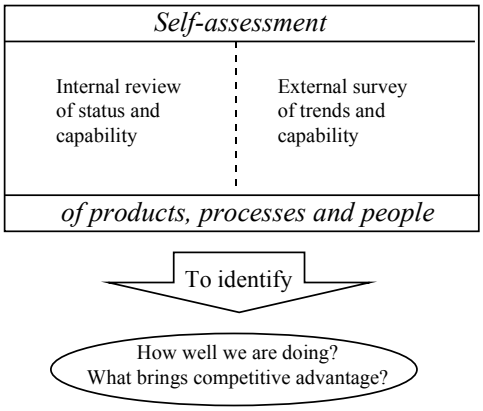


Figure 5.2. An overview of self-assessment

Self-assessment is the process of evaluating your own organization against a model for continuous improvement. By doing this, it is possible to understand both achievements and improvement opportunities.

The **objective of self-assessment** is to identify and act on the areas of the improvement process that require additional effort, while recognising and maintaining that which is already going well (see Figure 5.2).

Self-assessment has advantages over a certification system in that it does not carry the same pressure to pass, so there is less incentive for game playing, cheating, etc.

There are 3 generally recognised awards and associated models:

5.3.1 The Deming Prize

The Deming Prize was named after Dr W Edwards Deming and established in 1951. It is administrated by the Japanese Union of Scientists and Engineers (JUSE) and follows the requirements of the PDCA (Plan, Do, Check, Act) cycle.

Assessment criteria are company policy and planning, organisation, quality control education, quality information handling, analysis, standardisation, control, quality assurance, effects and future plans of the organisation. Recent winners include Tata Steel (India), Niigata Diamond Electric Company Ltd. (Japan) (Deming.org, 2011).

5.3.2 The Malcolm Baldrige National Quality Award

The Baldrige Award was named after Malcolm Baldrige, a US Secretary of Commerce and Industry who was a champion for the quality cause, and established in 1987. It is administrated by the US Department of Commerce and Industry and closely follows the Deming Prize but with more emphasis on customer satisfaction. Assessment criteria are: leadership; strategic planning; customer focus; measurement, analysis and knowledge management; operations focus; workforce focus; results. Recent winners include Nestle Purina Petcare Co. and Advocate Good Samaritan Hospital (nist.gov, 2011).

5.3.3 The European Foundation for Quality Excellence Award (EQA)

This will be the main focus of this chapter. The EQA was established by a consortium of 14 European multi-national organisations in 1991. It is administrated by the European Foundation for Quality Management (EFQM) and closely follows the Baldrige Model, with the means to facilitate comparisons both internally and externally. It has a number of guiding principles:

Figure 5.3. Fundamental concepts of EFQM (EFQM.org, 2011)

According to the EFQM model, an excellent organization should be ***Achieving a Balanced Set of Results*** and progress towards their vision by meeting or exceeding the expectations of stakeholders in both the short and long term. A particular focus within this is ***Adding Value for Customers*** through active engagement with their requirements and innovation. Excellenet organizations have leaders who ***Lead with Vision, Inspiration and Integrity*** acting as role models for values and ethics and ***Succeeding Through People*** by valueing and empowering staff and seeking a balance between organizational and personal goals. An excellent organization will also actively and systematically ***Nurture Creativity and Innovation*** to deliver increased value and ***Build Partnerships*** for mutual success based on trust with stakeholders including customers, suppliers and wider society. Ethical organizations embed an ethical mindset within their operations and ***Take Responsibility for a Sustainable Future*** from an economic, social and ecological standpoint.

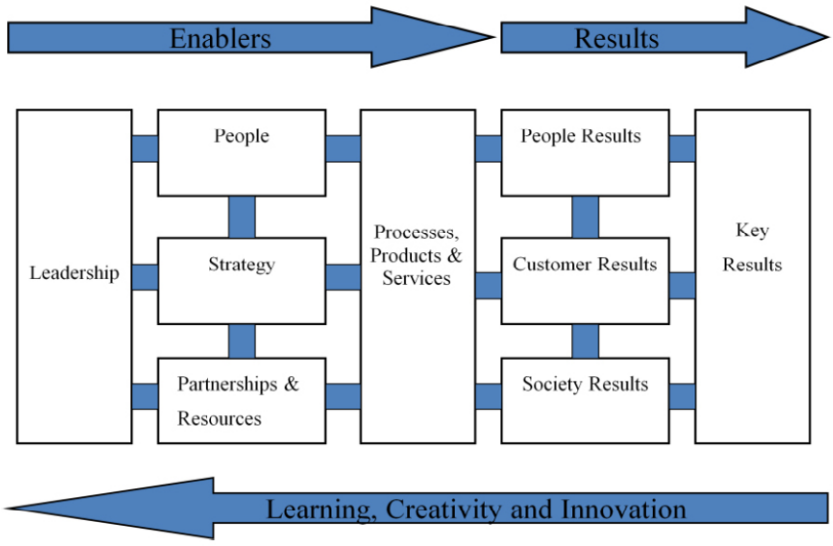


Figure 5.4. The EFQM Quality Model (EFQM.org, 2011)

Based upon these fundamental concepts the EFQM Excellence Model is designed to provide an holistic view of an organization with respect to its journey towards excellence. It provides an over-arching framework within which other approaches, tools and techniques can be applied. Crucially, the Model considers both the achievements of an organization, and the mechanisms by which these achievements are delivered. Without sustained results, actions have been ineffective, and results without clarity on how they are achieved will not be sustainable. The *enablers* are those processes, systems, and behaviours that need to be in place and managed to deliver excellence.

Criterion	**Requirements**
Leadership: This criterion considers how managers and employees in team leadership roles inspire and drive continuous improvement. Self-assessment should demonstrate:	Visible involvement in leading the drive for excellence. Communication of a clear vision, mission, values and structure. Timely recognition and appreciation of the efforts and successes of individuals and teams. Empowerment of individuals within the organization. Provision of appropriated resources and assistance. Involvement with customers and suppliers. Active promotion of excellence outside the organisation.
Strategy: This criterion considers how senior management incorporate the values and concepts of quality in the determination, communication, review and improvement of the policy and strategy of the organisation.	Self-assessment should demonstrate how policy and strategy are: Formulated on the concept of excellence. Based on information that is relevant and comprehensive. Implemented throughout the organisation. Communicated internally and externally. Regularly updated and improved.
People: This criterion considers how the full potential of people is released. Self-assessment should demonstrate how:	People resources are planned and improved. People are rewarded, recognised and cared for. The knowledge and competencies of the people are preserved and developed through recruitment, training and career progression. The involvement of everyone in continuous improvement is promoted and people are empowered to take appropriate action. Effective top-down, bottom-up and lateral communication is achieved.

Partnerships & Resources: This criterion considers how the organisation improves its management, utilisation and preservation of its resources including financial information, materials and technological resources. Self-assessment should demonstrate how business/ service improvements are achieved continuously by the management of:	Financial resources. Information resources. Suppliers, materials, buildings and equipment. The application of technology.
Processes, Products & Services: This criterion considers how the organisation identifies, reviews and, if necessary, revises all key and support processes to ensure continuous improvement. Self-assessment should demonstrate how:	Processes critical to the success of the organisation are identified The organisation systematically manages its processes. The processes are reviewed and targets set for improvement. The organisation stimulates innovation and creativity in process improvement. The organisation implements process changes and evaluates the benefits.

Table 5.2. Enabler criteria and requirements

The *results* provide the measure of actual achievement of improvement. The Model is currently used by over 30,000 organizations across Europe and the wider world (EFQM.org, 2011), and recent winners include Robert Bosch Fahrzeugelektrik Eisenach, Siemens, Congleton (EFQM.org, 2011).

People Results: This criterion considers the perception and feelings of people in the organisation. What are the successes in satisfying their needs and expectations? Self-assessment should demonstrate the organisation's success in satisfying the needs and expectations of its people by measuring:

- The people's perception of the organisation, using factors relating to motivation and satisfaction.
- Additional measures relating to people satisfaction .

Customer Results: This criterion considers the perception of customers of the organisation and its services. What is the success in satisfying needs and expectations? Self-assessment should demonstrate the organisation's success in satisfying the needs and expectations of its external customers by measuring the customer's perception of the organisation's products, services and customer relationships and additional measures relating to satisfaction.

Impact on Society: This criterion considers the perception of the organisation in the community, including the approach to quality of life, the environment and preservation of global resources. Self-assessment should demonstrate the organisation's success in satisfying the needs and expectations of the community at large by measuring the perception of the community at large of the organisation's impact on society and additional measures relating to the organisation's impact on society.

Key Results: This criterion considers the organisation's achievements in relation to its planned performance and the results of all key internal processes. Self-assessment should demonstrate financial measures of the organisation's success (sales, gross margins, net profit, cash flow, borrowing, assets, credit ratings, ROI, long-term share holder value) and non-financial measures of the organisation's success (market share, supplier performance, variability and capability, waste and non-value adding activities, cycle times).

5.3.3 Self Assessment Process

The approach to self assessment employed by the EFQM Excellence Model is the Results, Approaches, Deploy, Assess and Refine (RADAR) system (figure 5.5).

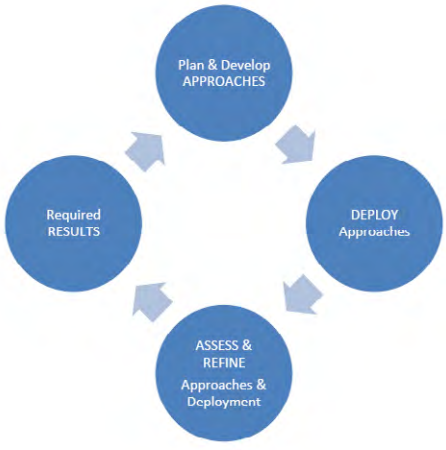


Figure 5.5. RADAR self-assessment system.

The senior management team must consider the strategic results they are looking for from the application of the model, and agree appropriate measurement instruments to assess how well they are delivered. They may, if they choose, benchmark current performance at this point for future reference. The next step is to develop a robust and integrated set of actions which are necessary and sufficient to deliver the results. These will need to be agreed with the individuals involved in delivering the actions, and deployed to appropriate levels in the organization. As the actions are carried out, regular assessment of both the approaches and deployment should be undertaken and refinements made as required.

The application for the award is a natural extension of the approach, and can be undertaken whenever the company feels ready. This will give an external calibration of progress and, if successful, kudos in the marketplace.

5.3.4 Benefits of the Self Assessment Process

Well planned and executed self-assessment, including follow-up action, can deliver significant benefits, including:

- Gaining consensus on what has been achieved and what still needs to be done, thus enabling managers to prioritise action based on facts and identified needs.
- Providing data to compare with, and learn from, 'world class' organisations in addition to learning from each other.
- Providing a practical tool to driving continuous improvement and data on improvements over time for an objective review of progress.
- Providing a common approach to use in all departments and on all sites and minimising the effort needed to develop assessment methods at different sites.
- Enabling everyone to contribute to the assessment process, thereby bringing ownership of the results and proposed actions. Enabling staff to see the impact of their improvement efforts.
- Enabling senior managers to drive the improvement process and to empower their staff to exercise initiative at their own level.
- Demonstrating the long-term commitment and consistency of purpose. Integrating improvement activity into everyday life by focusing on business results.

5.3.4 Summary

It is very useful for organizations pursuing Quality (or Excellence) to have some form of roadmap. This needs to be an enabling model, which sets out broad principles and the direction of travel without imposing unnecessary constraints on how exactly to move forward. Such constraints would reduce the effectiveness of any approach by reducing the opportunity for innovation and sensible customisation based on the unique situation of the organization.

The ISO 9000 standard is mandated in many cases by customers or market norms. It has the benefit of wide recognition and a general market advantage, but suffers from the problems of pressure to achieve the standard and a scope (especially in application) which lacks significant focus on leadership, people and results.

The broader self-assessment models are focused more on improvement than attainment of a standard or award, and thus perhaps represent a sounder approach which allows for more honesty and integrity in assessing opportunities and progress. The basis tends to be wider, considering both results and the sustainability of those results through the approaches which delivered them.

Review & Discussion Questions:

1. *Select one of the EFQM Model enablers and consider the impact that excellence in that enabler might have on each of the results categories. Remember to think about the mechanism by which the impact will happen.*
2. *Think about Deming's 14 points. How effectively does ISO 9000 address them? Are there any which are not adequately addressed? Do the same for the EFQM model.*
3. *How would an organization get the best out of an ISO 9000 Standard application?*

6 Customers

6.1 Introduction

The jargon of 'customer satisfaction' is now very prevalent in most organizations, which is clearly a good thing. However, there is significant evidence that the practice of customer focus lags behind the rhetoric. In particular there are pervasive myths which inhibit good practice.

6.2 Customers and Quality: The Myths

Many of the assumptions we make about how customers view quality are rooted in a simplistic and outdated view.

6.2.1 Myth 1: We Know What Customers Want Better Than They Do

We often consider ourselves 'expert' in our customers' requirements. We, after all, have been in this business for a long time; we have much more experience than the typical customer, who may have only bought a few of our products. We are technically much more au fait with the product, and with those of our competitors.

It is easy to see how this logic leads us to take a rather patronising attitude to customers who either don't really know what they want, or don't understand the complexities of the product. Anyone who has been on the end of a customer service discussion where they have been told that they must have been misusing the product, or that it was not designed for the circumstances described, will recognise this mentality.

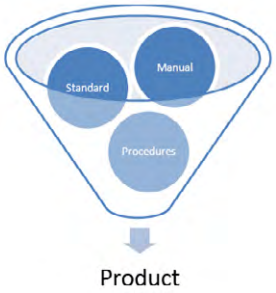


Figure 6.1. Product Out Concept

This is known as the 'Product Out' concept (Shiba, Graham and Walden, 1993) where the focus is on working to specification or instruction and the product is 'pushed' from the company to the customer. The problem with a product out focus is that it is slow to respond to changing markets and customer requirements (an ever more significant aspect of the world today). The 'Market-In' approach (Shiba, Graham and Walden, 1993) allows for a much more responsive system and places a requirement on the organization to go and find out the customer requirements.

Customers may not be expert in the technicalities of the product, but they do know what the need the product to do for them.

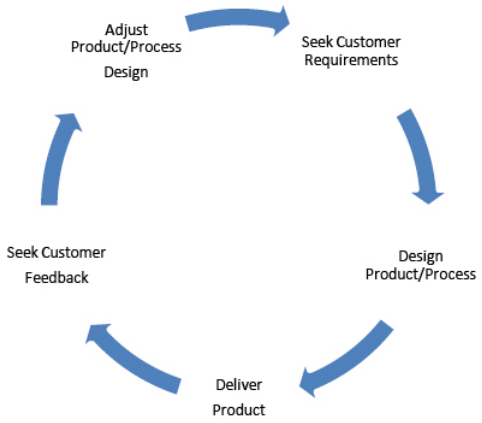


Figure 6.2. Market In Concept

6.2.2 Myth 2: Responding to Complaints Improves Satisfaction

Customer complaints clearly need to be dealt with effectively. An unhappy customer is a negative advocate in respect of your organization; they will be sharing their experiences and dissatisfaction. However, too many companies rely solely on feedback from customers to drive their improvement processes. There are two basic assumptions in this approach, both of which are flawed:

- ***Assumption 1: Customers always complain.*** Studies over the years have shown that the majority of customers will often simply go elsewhere if they are not satisfied, rather than complain. If we respond effectively to complaints we can generate a positive experience for those involved, but they are always a minority of those who had the experience in the first place.
- ***Assumption 2: Lack of dissatisfaction is the same as satisfaction.*** Removing a cause of dissatisfaction only returns the customer to a neutral state; it does not actively satisfy them (notwithstanding the comment made above). If our response systems simply remove the causes of dissatisfaction we do nothing to address creating a positive experience for customers.

It is not suggested that we do not respond to complaints, just that such responses are only part of the answer. It is important to use data from previous products or services, and from risk analysis to establish potential failure modes and take pro-active measures to avoid failures. Use panels of 'lead customers' to prove products/services before launch; the software industry does this extensively, selecting individuals who will push products way beyond what 'normal' customers expect.

6.2.3 Myths 3 & 4: Customer Satisfaction and Customer Loyalty

Customer satisfaction is a cherished notion, but it is rather reductive in its conception. Goetsch and Davis (2010) point out that if Customer value (as per the theory of service relativity) conforms to the equation below, when the results equal the expectation, and then the customer value is zero.

RESULTS – EXPECTATIONS = VALUE

This implies that satisfaction is the absolute minimum that should be expected, and that its achievement does little or nothing to enhance company performance in terms of retention of customers, or profitability. Exceeding expectations (and thus generating positive value) needs to be the goal.

Only when the customer sees value in our product will they actively choose it over others. Similarly, the concept of customer loyalty is not helpful. This is because customers are not loyal in any meaningful sense. They will stick with a brand as long as they perceive value there, but desert it as soon as they see more value elsewhere. This is most obvious in fashion-driven markets where this year's hot designer is next year's nobody, but is true of all markets. Our goal needs to be to create (and maintain) customer preference for our offering. The implication of this is that we need to constantly refresh that offering in the light of new market data, with the aim of staying ahead of the results minus expectation equation, given the fact that better results will automatically drive up future expectations.

6.2.5 Myth 6: Customer Satisfaction has a Linear Relationship with Performance

The Kano model of quality (see Figure 6.3) indicates that the simplistic view of customers having requirements which improve satisfaction in a linear fashion depending upon the degree to which they are met does not fully reflect the complex nature of the process of satisfying customers.

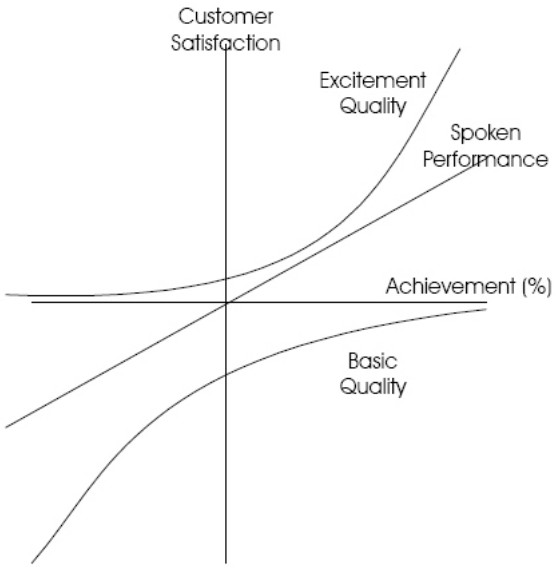


Figure 6.3. The Kano model of quality (Adapted from Kano, 1984)

Spoken performance issues will be of the form "I would like the product/service to achieve this level of performance". If the performance meets or exceeds this level the customer will be satisfied on that issue. If it does not then the customer will be dissatisfied on this issue. There will be a roughly linear relationship between performance against the specified criteria and customer satisfaction in that area. However, this does not cover all eventualities. Basic quality is related to items that a customer will not specify performance levels for since he assumes these levels will be met as a matter of course. In effect, these are the assumptions that he/she makes about your product or service and if you achieve all these you will not greatly impress them. The big but, though is that if you fail to fully satisfy one of these criteria you will have a very dissatisfied customer on your hands. Excitement quality refers to giving the customer something he didn't know he wanted (witness the leap-frogging of each generation of smart phone with functions which most people couldn't have asked for but which they can now not do without). Clearly, no customer can be dissatisfied because you didn't give them something they didn't know they wanted but if you do then you have a chance of obtaining extraordinary customer satisfaction.

From the above we can see that, although spoken performance issues are important, the real areas where you may lose (basic quality) or win (excitement quality) large amounts of customers are in areas where the customer will not generally volunteer the requirements but where there is a need to get inside his/her head to understand in more detail how they view the product or service.

In marketing terms you might think of 'Basic Quality' as 'Order Qualifiers' – without them you are not even in the game. 'Spoken Performance' would be more like 'Order Winners', where you compete with the competition for best customer value. 'Excitement Quality' features are a competitive advantage; they are game-changers, such as the first smart phone, or the first electric window on a car. Your customers will think you know what they want before they do (Apple are arguably the most consistent users of 'Excitement Quality' features at present) and competitors will come under pressure to follow your lead. And the beauty is that, even if they create better versions of these features you are still in the customers mind as the innovators.

This has important implications for how we obtain the data as simple market research tends to focus more on spoken performance criteria.

6.3 Internal and External Customers

It is worth recognising at this point that, although the foregoing has been focused on external customers, this is only part of the story. Quality thinking encourages us to think about whoever receives our work as a customer, internal or external.

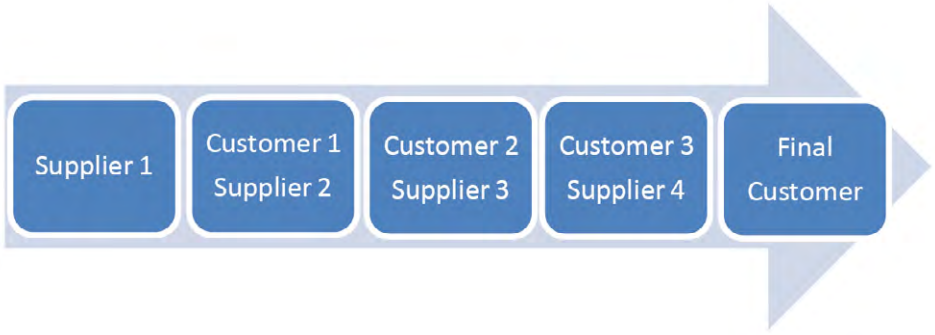


Figure 6.4. Internal Customer Chain

Of course, the mentality of seeing the whole organization as serving the needs of the final customer needs to be paramount. It is not appropriate to make internal customers happy at the expense of external ones. For example, assembly workers may wish all components to be made to bottom tolerance to make assembly easier, but this may make the final product perform in a sub-optimal way in the hands of the customer. However, if we recognise the focus of the system as satisfying the final customer, then we should do our best to support our internal customers where this does not compromise this objective.

6.4 Requirements Gathering and Value Analysis

6.4.1 Customer Value

Before we consider how we might gather customer requirements it is important to understand the concept of value in a little more depth, as the requirements need to be considered in this context. Value is a complex measure which is shaped by a number of factors:

- Freedom from faults.
- Degree to which requirements/expectations are met.
- Emotional engagement with the product/service.
- Quality of contact with the supplier.
- Cost of the product or service.

Freedom from faults speaks for itself, the product or service must be delivered to the customer as specified. Failure to do this reduces value. Equally, it is apparent that the degree to which customer needs and expectations (basic quality, spoken performance and excitement quality aspects) are met is significant to the value the customer will place upon the product. More complicated is the emotional engagement with the product or service; this is a combination of things such as: ergonomics, perceived social and cultural cachet, brand perception, aesthetics, linkage to self image, etc. A product which looks beautiful (to the customer in question), fits their values (for example, eco-friendly), is seen as aspiration in the media and popular opinion, is easy (or ideally elegant) to use, and is associated with a brand which has high value for the customer will score highly on this element. Quality of contact with the supplier (whether web or direct) is also a major factor, customers often cite feeling important and cared for as a crucial factor in their decision to do business with a particular organization. Again, this is itself a complex issue with ease of interaction, perceived competence and degree of responsiveness of staff playing a part, among other things – this is dealt with in more detail in chapter 14. Finally, cost is important in assessing value; importantly, this does not just mean purchase price, customers are often sophisticated in assessing longer term costs (running, taxation and insurance costs for cars are a good example).

To add to the complexity the five factors interact in ways which are sometimes obvious, and sometimes not. For example, it is reasonably clear that if you buy a cheaper car, you may accept a few more faults, but how important is usability for a more aspirational product? For example, the Apple iPhone 4 saw no dip in popularity, despite issues with reception and signal strength when initially launched (PCWorld.com, 2010).

This complicated context means that it is crucial, if we are to understand what the customer values, that we take a relatively sophisticated approach to customer requirements data.

6.4.2 Requirements Gathering

Customer requirement gathering is often regarded as an unfortunate necessity. This may account for the half-hearted way in which many organizations approach the task. It will often be out-sourced to market research companies, for example. Listening to your customers is probably the single most important thing you can do as an organization, you should take the opportunity to get as many of your people as possible face to face with the customer. Especially people like designers. Often we take a very uninspired questionnaire based approach, where people are asked what they want from a product or service. This may well be fine for generating 'spoken performance' requirements, but is unlikely to provide insights into 'basic' or 'excitement' features. Be creative; engage with your customer in more direct ways. Send designers to where the customer is. If you design taxi cabs, send engineers to take rides in cabs and talk to drivers about what it's like to use your product, as LTi Carbodies did. Rubbermaid's 'Customer Encounters' programme put engineers in commercial and domestic kitchens to observe their products being used.

Be The Customer: The US Air force 'Blue Two' Visit (BTV) Programme

One 'out of the box' way of understanding customer value and requirements is to put your designers into the shoes of your customers as the US Air force BTV programme does.

"The BTV program, named for the two-stripe maintainer, is designed to give corporate people, particularly designers, and Air Force Program Management personnel a first hand look at the 'real world' of supporting and maintaining systems and equipment. The participants put the same hours in as the two-stripe maintainer and get to bust their knuckles trying to loosen a bolt in a tight place or thread a nut on a bolt with Chemical, Biological and Radiological (CBR) gear on. They experience the cold and heat of a flight line. Some corporate design engineers have seen their designs in use and wondered why they designed it that way when they have the opportunity to try and work on the equipment or system."

Skinner et al (1989)

There is no single answer to the best way of gathering customer requirements, this section, and the one preceding it are designed to give a couple of examples, but mostly to alert the reader to the need for careful consideration of this area.

6.4.3 Translating Requirements into Design Features

Sadly, the difficulty with customer requirements does not stop when you have accurately captured them all. It is a complicated matter to ensure that the final design of the product or service effectively addresses the revealed customer value. Historically, the approach was for the marketing department to hand over the requirements document to the designers, who would then develop a design for approval through the organization's New Product Development (NPD) process. This is fraught with difficulty as there is rarely a very strong check on the accuracy of the translation from the requirements to the final design. This has led to many products failing to meet market expectations. The fact that failure rates of new products has been stuck at around 30 percent for a long time (Schilling and Hill, 1989), and this does not speak well of the effectiveness of the translation.

Quality Function Deployment (QFD) is a rigorous, and highly necessary, technique which allows the whole of the NPD process to be driven by the customer requirements. The tool is treated in more detail in the companion e-book to this one; "Six Sigma: Principles and Practice". This essentially uses matrices to develop an understanding of which design features affect which customer requirements, and to what degree. From this (and an understanding of the relative importance of requirements to the customer) it is possible to assess where to put development effort for maximum customer benefit.

This approach is very practical; it does, however, require a customer-centric mentality in the company to allow it to work to best effect. The application of QFD can easily be derailed if individuals choose to ignore or creatively interpret the customer requirements for their own purposes. Unless the cliché that the customer is at the centre of all we do proves to be true, no process will compensate.

6.5 Summary

'Customer focus' is often a trite phrase used by organizations in order to fall in line with current thinking. Sadly, the superficial way in which it is treated means that it often rings hollow. Who amongst us, for example, have not been assured by an airline after a terrible service experience that 'we value your custom and realise you have a choice'?

It is important to understand the (complex) ways in which our products and services deliver value to the customer, and how we can manage the process of value creation in the NPD process.

Review & Discussion Questions:

1. *Consider a favourite product or service of yours. What is it you value, and what matters most? Can you develop clear requirements from this?*
2. *Categorise your requirements revealed through the value you perceive into 'Basic Quality', 'Spoken Performance' and 'Excitement Quality' features.*
3. *Taking your example from question 1 put yourself in the place of the supplier; how might you access customer requirements such as the ones you noted?*

7 Leadership in Quality Management

7.1 Introduction

Leadership is very important. Any text on Quality Management, or indeed any major initiative, will confirm this fact. However, leadership is a subject that is understood in many different ways. This section does not purport to be a definitive or comprehensive look at leadership; it is focused on leadership in the context of Quality Management. For the purposes of this book leadership will be defined thus:

> ***"Leadership is the creation of a vision and environment which inspire people to contribute to organizational goals and nurtures both their capability to do so and their well-being within their endeavours"***

Leadership is a term loaded with meaning for most individuals, much of which is subconscious and comes from our experience of leadership within the family, through the media and in our experiences at work. This has led to some persistent and damaging myths.

7.1.1 Leadership Myths

This list is not exhaustive, nor is each myth discussed in the depth it deserves, but the reader can investigate them further using the references provided. Much of this is built around the myth of the heroic leader. This myth is complex and culturally embedded for many of us. If you have watched a Hollywood action movie you have seen the heroic leader in action; Margaret Thatcher's iconic status as "The Iron Lady" is essentially about the leader as hero.

- ***The Leader Knows Best***: A heroic leader must have all the answers. You are there to answer the questions of your subordinates and make decisions for them, directing their actions and co-ordinating their efforts. In fact, the leader can rarely know better about the work of a subordinate; each individual is an expert in his/her own situation and job, if you have 10, 100, or 1000 people working for you, how can you possibly know best? And if you try to solve all their problems how will you have time to do your job? Or sleep?
- ***Leaders are Strong and Decisive***: In leaders we value decisiveness above everything, even being right! A leader must never admit to being unsure, and particularly not wrong. If you listen to politicians (who see themselves as leaders, no matter what we think) even when they change their minds they were not 'wrong', new evidence may have come to light, circumstances may have changed, but they were never wrong. Does this enhance the respect we have for them as leaders? Standing firm when the evidence is against you is folly, not leadership. Most leadership decisions are complex and there is probably no 'right' answer, leaders need flexibility.
- ***Leadership is a Function of Position***: Leaders are present (and in some cases absent) at all levels in an organization, there is no alchemy which transforms an ordinary mortal into a leader above a certain pay grade.
- ***Leaders are Born, not Made***: It is clear that some people are more natural leaders than others. There is, however, little evidence to suggest that any individual cannot become an effective leader with appropriate development.
- ***Leadership is About Control***: Many leaders feel that their purpose is to control the actions of those beneath them in the hierarchy. As they are accountable then they should be listened to, and they need to check to see if their instructions are being followed. The 'Controller-Cop' model of management is still very widespread.

These myths tend to create leaders who are overly controlling, afraid of admitting weakness or a lack of certainty on any subject and focussed on the minutiae of operations rather than more strategic matters.

7.2 Principles of Leadership for Quality

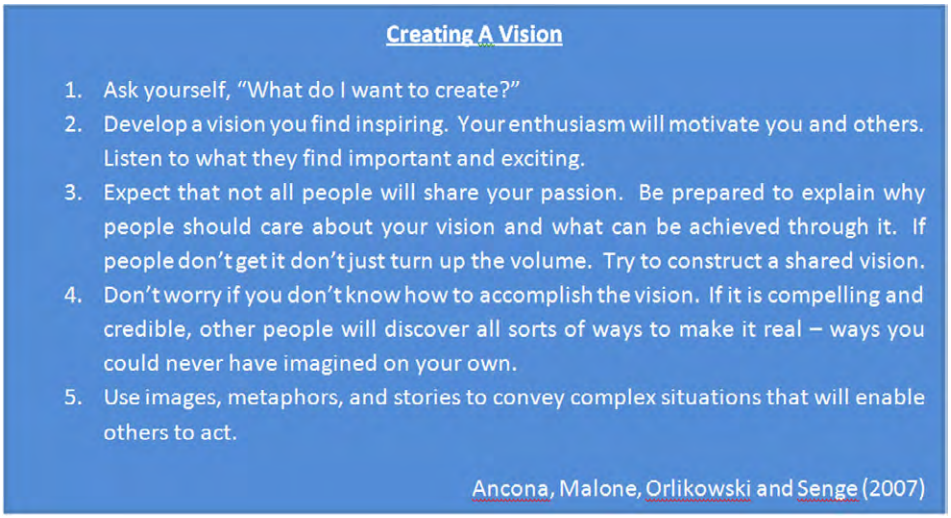
The Leadership paradigm for Quality Management is somewhat different from the myth of the hero-manager.

7.2.1 Embody the Values of Quality

It may seem an obvious statement, but leaders need to believe in the central tenets of Quality. The Leader must be invested in the principles of Quality; s/he must focus on customers and make clear their importance at every opportunity. They must embody the principles in all of their actions; staff will always take their cues as to the priorities of the organization from the way the boss behaves. In the same way that body language trumps spoken assertions in person to person communication, actions trump declarations and policies as far as leaders of the organization are concerned.

7.2.2 Create Unity of Purpose

One of the most important aspects of the role of a leader is to generate and articulate the vision and mission in a clear, accurate and compelling manner. The vast majority of employees need to believe in and commit to the attainment of the vision, 100% would be ideal, but practically this may not be achievable. As a leader you need to convey your passion for the vision but also to incorporate and co-opt the passion of others. As well as advocating, you will need to listen.



The communication and drive associated with these values must come unambiguously from the top; and will, of necessity, be a long-term commitment. Visions cannot be delivered quickly and require consistency of purpose, as Deming would say, in a temporal sense, as well as across the organization. See chapter 8 for more detailed discussion on vision, mission and values.

7.2.3 Focus on Process not Outcome

Historically leaders and managers have focused on the outcome measures: Did we meet quota? Are the quality levels acceptable? These are valid questions, but they neglect the important issue of how the results are obtained. If the mechanisms for delivering good (or bad) results are not understood then it will be impossible to understand why results change, or how to improve upon current levels.

A good leader will always look to understand the system which generates results and to drive improvement in the system. Both Deming and Juran believed that around 85% of problems relate not to the workers, but to the system. As Deming (1990) points out, responsibility for the system lies with leaders and managers. Workers work within the system, management work on the system. This makes it imperative that the mistakes of the past in terms of blaming people for mistakes or poor performance be avoided, leaders need to focus on the process and how to improve it (possibly to make mistakes harder to make, for example) rather than on the individuals concerned.

The Danger of Outcome Over Process

An object lesson in the risk of focussing on outcome over process is provided by the financial crisis in 2007. Traders and financial marketers had been awarded massive bonuses for performance over a number of years. The bonuses were calculated based on how much money was made for the company, with no consideration of how the money was made (all profit is good profit, isn't it?). The high stakes led employees to deliver highly leveraged products which delivered more profits. Of course, as it turned out, this was based on unsustainable levels of risk which, eventually, crashed the whole system causing massive losses and pain for all of society. If more attention had been paid to the process of generating the short term profits this could have been avoided.

7.2.4 Motivation of Individuals

All business processes involve people; the part that people play in the processes is vital. Yet, the principles of Scientific Management have been adhered to and non-management workers have been told over the decades that all that is required of them is that they report to work on time, work hard and above all do as they are told.

Industrial relations in the West have been based on Scientific Management and the belief by management that the *workers* were only at work to earn sufficient money for their leisure activities. The relationship has, therefore, been largely confrontational, and the Zero Defect Campaigns and similar exhortations to the workforce in the 1960s and early 1970s are symptoms of this attitude. The humanistic approach to management has long recognized the fallacy of the scientific approach and can best be summarised by the following diagram that is attributed to the work of Maslow (1987).

Most people in full and secure employment will not think about their physiological and safety needs because they have been fulfilled. Also, most people in an organisation achieve their basic social needs of being accepted by their peers. Maslow's point was that once a need is satisfied, it becomes unimportant and the next higher need becomes an important factor in a person's life. The vast majority of the workforce under scientific management achieve their social needs and go no higher in the hierarchy because of the management - worker relationship. Has the reader ever witnessed the situation in which management and supervision are discussing a particular problem on the shop floor, totally ignoring the operator who is at work on the problem process not 5m away? Wherever a situation like this exists the esteem needs of the workforce are not being fulfilled and such needs are likely to be met outside the company.

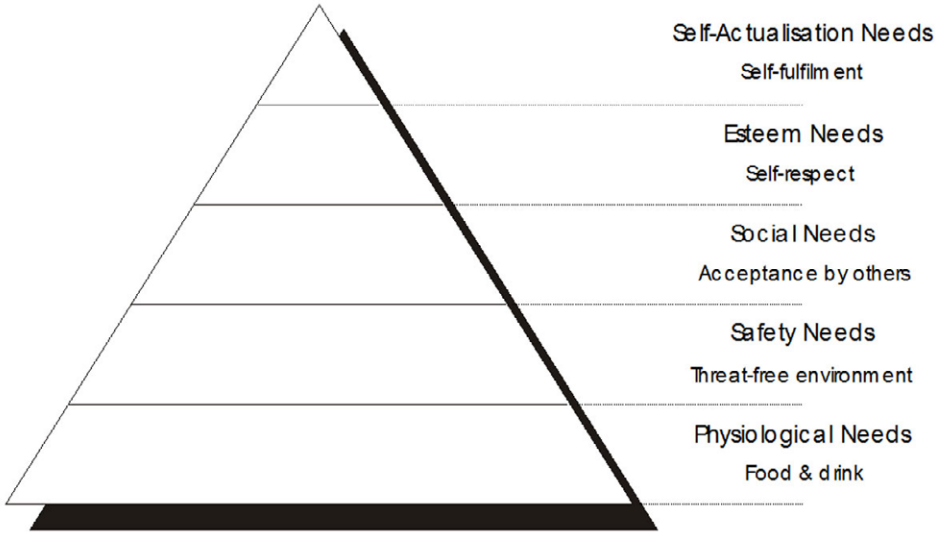


Figure 7.1. Maslow's hierarchy of needs (adapted from Maslow, 1987)

On several occasions in the past 10 years people for whom intellectual activity was not required for their work won the title of Mastermind of Great Britain. It would appear that their work provided so little challenge that they had to achieve their aspirations by other means. Less spectacular achievements are common place; people take part in amateur dramatics, athletics, football, mountaineering - the list is endless, and the author's view is that much of this activity is motivated by the need for self-respect and a sense of achievement which is not afforded them in the work place. Once a sense of esteem has been established, it no longer becomes an issue and the next need becomes important in a person's life. The need for self-fulfilment drives people to better themselves in their chosen area; they do this to satisfy their own inner needs and not specifically to impress those around them. The importance of recognizing this approach to human endeavour in the industrial situation is that *everyone* has these needs; how strongly they drive an individual will vary enormously from a vague wish to intense motivation. The successful manager and leader will understand what makes everyone with whom he has contact "tick", and by doing so will know how to inspire people to give of their best.

7.2.5 Control and Participation

In contrast to heroic leaders the leader in Quality Management recognises the incomplete nature of their knowledge and experience in any given situation and realise that others have both a different perspective and different (possibly more relevant) expertise. Participative leaders see themselves not as controllers and policers of behaviours and decisions, but as coaches with respect to helping subordinates make good decisions, and supporting them in taking the actions they deem necessary.

The Quality leader recognises that the people in the company who actually add value for the customer are the operators. They are the ones who deliver products or services which generate income. All supervisory personnel are there essentially to support the front-line staff in the development of customer value. This necessitates an intellectual shift from the traditional hierarchy shown in figure 7.2 to the approach shown in 7.3.

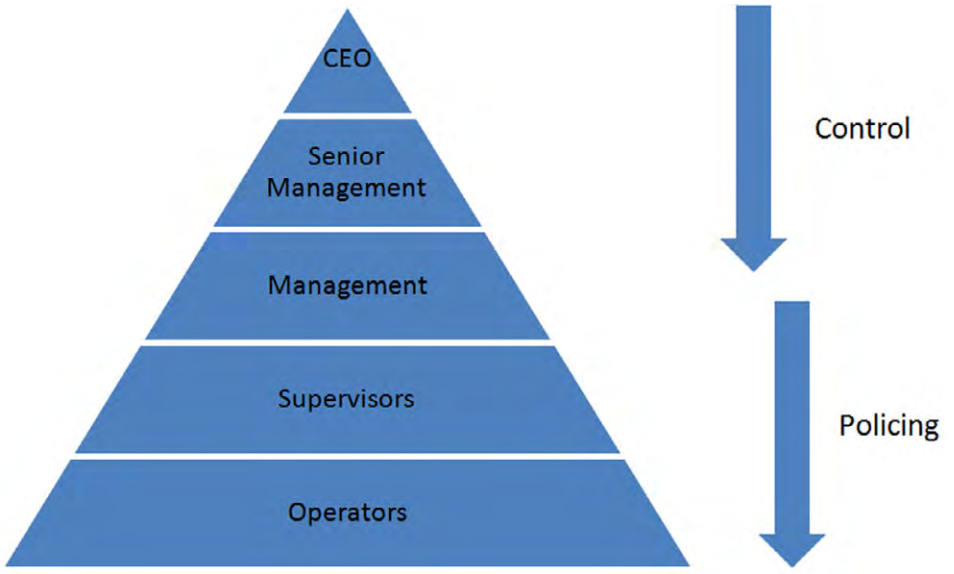


Figure 7.2. Traditional Control hierarchy

The new model is one of deference to expertise rather than to rank. Decisions are made as close to the operational level as possible, those who know the process best are in control. The role of the higher echelons of the company is to ensure that those making the decisions are aware of the wider context in which they are operating (the flow-down of vision and mission) and that they are operating appropriate decision mechanisms (the coaching element).

The move requires a degree of humility and of bravery on the part of leaders; they have been told that they are responsible, but they must hand over control to others. They need to let go of the heroic model and put themselves in the hands of their subordinates. In fact, they are treating the subordinates as customers in ensuring they have appropriate support in making good decisions.

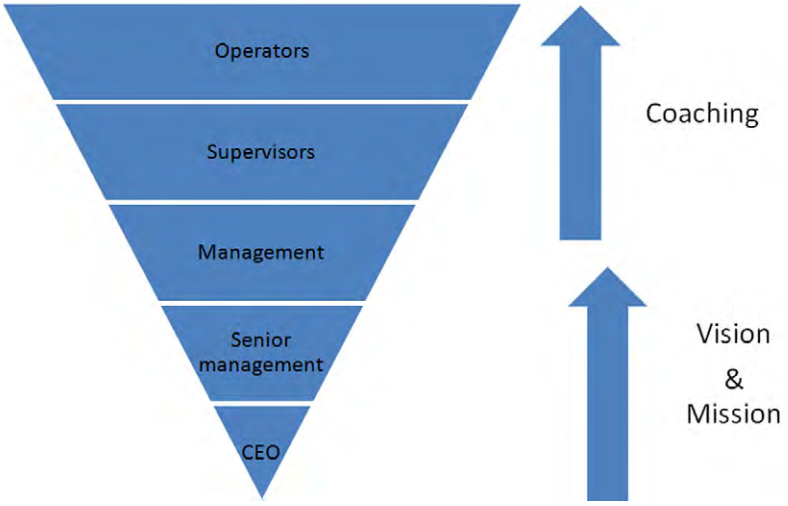


Figure 7.3. New coaching and empowerment hierarchy.

The new approach also requires some changes on the part of others in the organization. They are used to deferring to the 'expertise' of leaders and managers; they must now recognise that they are the experts in their area, and take responsibility for their actions in a way which has not been required before. It is scary and hard to take on what can appear to be even the simplest responsibility. An example from the author's experience is the introduction of a flexi-time system to a department where previously working hours were universally mandated as from 8.30am to 4.30 pm. The new system had core hours from 9.30am to 3.00pm with staff allowed to decide their own working patterns outside this as long as they fulfilled their weekly hours. A delegation of staff visited my office, to tell me that they were not happy with the system and wanted to work their old hours. They were, of course, perfectly free under the new system to do exactly that, but they found the fact that the decision was theirs and not mine rather disquieting.

Leaders need to utilise the knowledge and expertise available to them to develop a comprehensive understanding of a situation, and to do what Weick et al described as "sense-making", which he described as a similar skill to cartography. The leader draws upon the views of multiple informants to create a 'map' of the topic area. The map may not be the objective truth in a complex situation, but it represents the best combination of existing knowledge, and therefore the best basis for decision making. A leader making decisions (particularly in crisis situations) might consider the following model of communication:

"This is how I see the situation. Does anyone see something I've missed, or have a different view?"

"Based on the understanding I have outlined, these are the options I can see. Does anyone see any other options?"

"These are the criteria I think are relevant (and their relative importance) to make the decision, and this is why. Does anyone disagree with these criteria, or feel there are any to add?"

"So this is my conclusion on what to do. Does that make sense? What have I missed?"

Overstating Leader Expertise

Leaders often over-estimate their understanding of a situation. It is common to think that they understand everything when in fact their understanding is necessarily partial. In these cases it is incumbent upon better informed individuals to challenge the understanding and offer enhanced data. Weick and Sutcliffe give an example of a wild-fire which resulted from a controlled burn (where areas of forest are deliberately burned to limit the potential and scope of future fires) which went critical. One of the key players who led the effort to recover the situation was a legend in the fire-fighting business. As a consequence of this, the individuals working with him (although not him) overestimated his grasp of the situation. In particular not telling him that the fire was unusually volatile; they simply assumed that if they knew, then such an august figure must also have spotted it. Because he was not in the same location as them he had not, and this reduced the effectiveness of the operation and increased the impact of the fire.

Because of assumed knowledge on the part of his subordinates the leader was denied the information which would have allowed him to make better decisions

Based on Weick, and Sutcliffe (2001)

7.2.6 Learning, Education and Training

The previous point hints at the need for learning as a key part of leadership in a Quality Management context. There are several aspects to this:

- Leaders must see themselves as life-long learners; incomplete but building on their knowledge, experience and abilities day by day. They must not only be open to challenge, but must actively encourage the participation of others in decision making by framing their ideas and suggestions as postulations rather than fact. Invite questions and welcome all builds where a positive intent is evident. Even direct criticism is an opportunity to learn; the leader needs to try to understand what has prompted the criticism (while perhaps taking the personal elements out of the phrasing) and see how it might be incorporated.
- It is necessary to create a learning friendly environment. While this is dealt with in more detail in section 13 the leader's role is to openly support admissions of failure or error as an opportunity to learn. The alternative is to push people into hiding their errors for fear of the consequences and this is likely to lead to repetition of the same mistakes at a later time, either by the same people or by others. Leaders foster open debate and sense-making as opposed to blame and reward. Create opportunities for learning such as After Action Reviews and open debate forums (either physical or virtual).
- Training for skills is required if individuals are to be equipped to do their jobs effectively. However, education must be just as highly valued. Education is not about doing the job you have now better, but about increasing the capabilities of the workforce at all levels. It may be about creating links with the education sector, or about providing funding for employees to use on any educational pursuit regardless of direct and obvious company benefit (in the belief that any increase in employee capability will somehow feed through into company performance) or creating bespoke programmes in transferrable skills like problem solving –or leadership!

7.2.7 Honesty, Integrity and a Long-Term Perspective

A leader is nothing without followers, and people will not follow if they perceive they are being deceived or manipulated. The first time duplicity is noticed all credibility evaporates. The old adage: "fool me once, shame on you; fool me twice, shame on me" is well judged. Argyris (1994) amongst others suggests that a prime motivation at work is to avoid embarrassment; there is nothing more embarrassing than knowing you have been duped. And people will always find out; the scale of deception required to avoid being inconsistent if you are lying to a lot of people is too great for anyone to sustain.

Integrity is a step beyond mere honesty. Integrity means being consistent, as far as possible, in your decisions and actions. It is no good banging the drum for quality if, when deliveries are threatened, you decide that some borderline goods can be shipped. You need to take the short-term pain in order to stay true to the bigger vision. This is also really about thinking long term. It may be more profitable in the short term to ship the dubious quality goods, but in the long term it is likely to affect your reputation and probably the motivation of your staff, leading to a downward spiral of reducing orders and poor quality. Keep your vision in mind at all times. The litmus test for any decision or action is:

"Is this consistent with the vision, mission and values of the organization?"

Anything which fails this test should be avoided.

7.2.8 Embrace Change and Think Systemically

An oft-repeated truism is that the only constant in today's world is change. The old saw is true for all its triteness. Leadership is about change, complexity and uncertainty. Leaders need to be at home with the fact that they cannot know all the answers, and that, in fact, there may be no right answer to know. The strategic problems with which leaders wrestle are necessarily abstract and confusing, the butterfly effect is endemic with what appear to be small changes in one area impacting the rest of the system in unpredictable ways. They require the brainpower of the whole organization to make sense and act upon. Change is uncomfortable and difficult for everyone but getting used to it is vital. Try to find futures which are closer to satisfying the needs of all stakeholders, encourage win-win thinking and democratise the process of change wherever possible.

Small experiments to test understanding should be the norm. Expect that changes will have unexpected consequences, learn from this and make more effective changes in the future. Creating the ability to react to these unexpected effects will allow your organization to become much more sustainable.

7.3 Leadership Decision Making

7.3.1 Introduction

One of the most important functions of leaders (at all levels) is to make decisions. In particular, the decisions at the top of the organization set the tone for those taken further down. There are several key aspects of the decision making process in Quality Management:

- Accept complexity: Recognise that there are unlikely to be simple answers to strategic questions.
- Make decisions at the lowest organizational level practical, with deference to local expertise replacing deference to rank or perceived authority.
- Make decisions as participative as possible, both to increase engagement and allow for potential practical difficulties to be uncovered and avoided.
- Be aware of your biases (and those of others) in order to ensure decisions are as objective as possible.
- Use data effectively to illuminate problems and facilitate good decision making.

The first three bullet points have been addressed in earlier sub-sections within chapter 7. The last 2 will be addressed here.

7.3.2 Biases

All of us have our own set of biases, presuppositions and internal norms. These may be about the amount of risk we are prepared to tolerate, or rules we are happy to break; for example I always put a parking ticket on the car no matter how unlikely I perceive it to be that it will be checked, my wife almost never does. This is not a moral judgement, but one related to risk. We may be predisposed to action, or inaction; to high risk/reward or to secure but small benefits; to invest or spend etc. There is nothing inherently good or bad in any of these prejudices, but they inform all of our decisions and need to be recognised.

It is comforting, but inaccurate to assume that bias can be addressed by the use of objective numerical data. Many organizations, in fact, have as part of their mission statement or company values that they will make decisions based upon fact, or that they will be data driven. However, the implicit assumption that data is somehow inherently 'good' or 'true' and without potential for bias or inaccuracy is hopelessly naïve. Data is gathered, analysed and interpreted by humans, and so is open to all the issues of bias and opinion that afflict more obviously contested types of data (for example, narrative data).

The first issue is the spirit in which data is gathered, neatly encapsulated in the following quote:

"He uses statistics as a drunken man uses a lamp-post; for support rather than illumination"

Andrew Lang (www.englishclub.com, 2011)

This quote shines light on the tendency of people to be selective in terms of which data to believe, and which to regard as spurious or 'a blip' because they do not fit the expectations or wishes of the reader. Government statistics are a prime example of where this happens, as the following example shows:

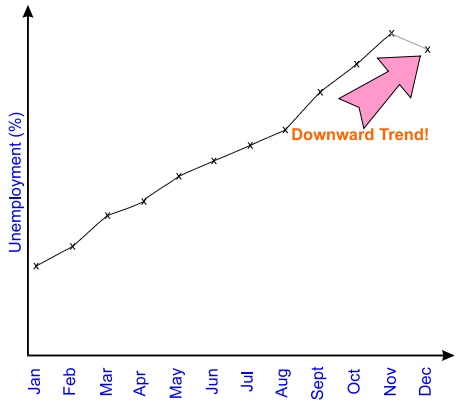


Figure 7.4. Unemployment figures

The government has announced a drop in the seasonally adjusted unemployment figures for December. Does this represent good news? The opposition describe it as a blip, who is correct?

The data is difficult to interpret, it may well be the start of a downward trend, but it might also be simply random fluctuation around a general upward trend. It suits the government to ignore the previous trend and concentrate on the last point compared to the one previous as this might indicate their policies are working. Clearly it is in the interests of the opposition to deflect attention from the current point as the rest of the data points to the ineffectual nature of government policies. In both cases they focus on what supports their position and ignore what does not. This phenomenon is not, however, confined to government, and similar 'debate' takes place in boardrooms across the country on a regular basis.

Positive Attribution Error

Positive Attribution Error is where we attribute positive effects to our own capabilities, and negative effects to malign external influences. So, if we meet or exceed targets we readily believe that we have managed the situation well; if we fall short, we can be easily persuaded that outside influences and poor luck caused the outcome.

We might consider the financial crisis in this light: All the gains before the crash were enthusiastically claimed by the traders (in respect of bonuses etc.) and the City in general, and the innovative practices lauded as key contributors; however, since the crash there have been extensive attempts to blame the problems on poor regulation, central banks and even an influx of 'mathematicians and physicists' (Paul Volcker, quoted in The Wall Street Journal, 2010). The one consensus in the world of finance is that they were to blame for market success, but not failure.

Bias is not always deliberate; of course, the selection of measures or data for comparisons can also have a biasing effect on the decisions made, even when this is not the intention. For example, consider the comparison between the risk of dying in a plane crash as compared to that in a car crash. The most obvious comparison might be:

Number of deaths in aircraft crashes ***versus*** *the number of deaths in car crashes in a calendar year*

However, the number of road journeys undertaken is much higher than the number of flights, so this may not be seen as fair. We could divide each by the number of journeys, but this may also not be fair due to the relative length of car and air journeys. Perhaps we could look at:

Number of deaths per kilometre travelled in a plane ***versus*** *the number of deaths per kilometre travelled in a car.*

Of course, planes carry far more people than an individual car, so perhaps we should account for that and consider:

*Number of deaths per passenger kilometre travelled in a plane **versus** the number of deaths per passenger kilometre travelled in a car.*

But, then, planes travel much faster than cars so maybe it would be more reasonable to consider exposure to the risk:

*Number of deaths per passenger hour travelled in a plane **versus** the number of deaths per passenger hour travelled in a car.*

But since the risk in a car is pretty evenly spread over the journey, but is concentrated in aircraft in the take-off and landing portions of the flight, perhaps this is not a fair comparison either.

The point of this is not to argue for any particular statistic in this case (one could make a case for all of the ones quoted (and several more besides) but to recognise there are a number of options available which are likely to give different results. In this case the first two comparisons would favour the airline, whilst the latter two work increasingly in favour of the car. The problem is that we may choose the statistic which tells us what we wish to hear, rather than the one which represents the situation most fairly.

There is much more discussion of the details of probability theory and the use and abuse of statistics in the companion book to this one: "Six Sigma: Principles and Practice".

7.3.2 The Effective Use of Management Data

As noted earlier, most organizations aspire to making unbiased and effective decisions based upon the data; but there are a number of approaches to the use of management data which are questionable in terms of validity and facilitating effective decisions. These will be illustrated through the use of a fictitious case study in the use of the monthly report which adapted from Wheeler (1993).

The monthly report is the most common mechanism for conveying the data that is required for management to make decisions as to the future strategies, policies and actions of the organisation. It is usual for different levels and versions of the report to be used at various levels and meetings within the organisation; however the essence of such reports is that they are configured to convey performance on certain key criteria at the relevant level for the meeting concerned.

A typical monthly report is shown below, whilst there is variation between companies and even departments the usual elements are:

- Columnar format for a number of different figures
- Current performance
- Previous performance for comparison (last period or equivalent period last year)
- Budget or target figure for comparison
- Difference (or percentage difference) to previous or target performance

There may also be a year to date figure which looks at the cumulative performance over the year so as to smooth out monthly fluctuations. It may be that bar charts of variance from budget or plan may be shown graphically, but this, as will be seen, does not improve matters.

Item	Sept	Aug	% Diff vs. Aug	% Diff vs. 2010	% Diff vs. Plan	YTD	YTD Plan	% Diff vs. YTD Plan
% on time Deliveries	94.9	96.4	-1.5	-1.6	-3.1	96.4	98	-1.6
% First time pass	63.4	79.0	-15.6	-11.1	-26.6	73.0	90	-17.0
% Deliveries on weight	89.1	91.2	-2.1	-5.9	-2.9	93.1	92	1.1
Batch rejections	124	129	-4.0	0.0	N/A	132	129	2.3
Material variance to budget	0.05	0.08	-38.0	60.0	400	400	0.01	800
Order performance (% hits)	60.0	50.0	10.0	22.0	-30.0	-30	90	45

Table 7.1. The monthly report

Note that, in this case, if no Year to Date (YTD) plan exists then comparisons are made against the average monthly performance for the YTD.

The monthly report diagnoses the state of the company and provides information for action should any adverse performance be observed. This may be on individual measures or on combinations of measures, for example a 10% increase in labour hours worked might generate entirely different reactions depending upon whether production over the period had gone up by 20% or down by 20%.

We can thus derive a general principle:

The prime purpose of management data is to provide a sound basis for action to improve important business criteria

However, in order to take action the data will need first to be interpreted or analysed. It is only through analysis that we can turn data (i.e. facts) into useful information (which indicates a course of action or an area of focus). The appropriateness of the analysis applied will determine the relevance of the actions taken.

Appropriate analysis needs to be undertaken in order to derive relevant action sets from the data

Let us now examine the typical analyses used when viewing management reports, paying particular attention to their rationality and potential to generate appropriate actions.

The typical analytical approach to management data is to compare the data to the previous data point (either the last period or an equivalent period in the last year). If the current data point has moved in a desirable direction then things are deemed to have 'improved'. If it has moved in an undesirable direction then things have 'deteriorated' and action needs to be taken to improve. When considering a complete report, actions will naturally focus on the most significant deteriorations, either in absolute or percentage terms.

Looking at the example report generated earlier it is clear that the most significant negative deviation this month occurs in First Time Pass Rate. This value has dropped 15.6% on last month's figure and 11.1% against the same time last year, so it cannot be accounted for by seasonal adjustments. It is 9.6% below the YTD average and a whopping 26.6% short of the plan. Clearly there is something happening here according to all our usual comparisons.

Such paired comparisons are fundamentally flawed, however, in that they take very little of the available information (i.e. the historical performance on this measure) into account. The data points are taken out of context and incorrect conclusions can be drawn. For example, it may mean nothing that this month's figures are slightly below those for last month, it may be a random fluctuation. If this month's figure is significantly below that for last month, does that mean that this month is abnormally low or that last month was abnormally high? These questions can only properly be answered with respect to the context (history of the data).

The paired comparison approach tends to lead to a binary view of the world; we are either 'OK' or 'in trouble'. Clearly, the world does not operate in such a neat and simplistic fashion. If insight for improvement is required we need to get a much clearer picture of what is going on.

It is possible to derive from this the first principle of understanding data (Wheeler, 1993):

No data has meaning apart from its context; Trust no data without reference to its context

Never make paired comparisons, use graphs to present data in its proper historical context

What, in essence, we are looking for is a methodology for comparing the current plot-point to the history of the process. As Wheeler (1993) put it, 'we wish to separate the signals from the noise'. Signals are indications that something has changed in the process and noise is the random fluctuations that will occur even when there has been no significant change to your process. This constitutes the second principle of understanding data (Wheeler, 1993).

Every data set contains noise; some data sets also contain signals

Before you can detect a signal you need to filter out the noise. Filtering out the noise allows us to act upon statistically significant changes in the process and, just as importantly, not to act upon points that indicate no change has occurred. How can this be done? The logic of Walter Shewhart (1980) and the work of Deming (1982) can be extended in order to provide such a filtering mechanism; this is Statistical Process Control in the management context.

An alternative comparison type approach is to review the most recent figure in terms of how well it meets a target set for the period. This approach lacks robustness in exactly the same way as the previous example; the use of 2 data points clearly gives unconvincing results. This is compounded by the fact that one of the figures in the comparison relates to the performance of the process and one to a (more or less) arbitrary target.

If you place a target on a process then all talk will tend to focus on 'whether we are meeting the target'. This is answering the question 'are we doing as well as we thought we might do at this stage when we set the target?' There are several reasons why this might prove to be the wrong question and the answer may lead us in the wrong direction:

- ***Is the target 'right'?*** Is it likely that when we set the target we had enough data about what the future would look like to generate the perfect target? Consider the annual budgeting process, we decide how much money will be required for a department for the coming year and expect them to stick to it. Try to do the same for yourself, how much money will you need to live your life for the next year? How accurately do you think you can predict this in the light of unpredictable social opportunities, tax regime, personal circumstances, etc.? Bear in mind that your life is probably more predictable than the myriad factors (raw material supplier performance, currency fluctuations, demand sensitivities, competitor actions etc.) which will affect departmental performance.
- ***Heisenberg's uncertainty principle (Eisberg and Resnick, 1974)*** This states that the act of measuring something (anything) is likely to affect the result. For example the act of placing a flow meter in a pipeline will affect the flow (possibly minutely, possibly significantly). The logic can be extrapolated to encompass the act of setting a target. Even excluding active manipulation of figures against which a target has been set (and this is by no means rare) there is likely to be different responses to a variable, depending on where it is in relation to the target. Hence the parsimonious attitude of most budget holders at the start of an accounting period and the relative generosity at the end if a surplus exists.

- ***Optimise the process or the target?*** It can be argued that a target sets a limit of expectation. If the target is easily achieved do you surpass it by a long way and risk a much more difficult target next time? Or do you come in just on target, safe in the knowledge that this will mean things aren't made too difficult next time? This may not be delivering best business benefit but it will make the individual's life easier. For a target which is difficult to meet you often find people giving up at an early stage and concentrating on finding excuses or playing the game and manipulating figures to make it look like they achieved. In either case, the focus is the target and not the process. However, improved performance can only be delivered by an improved process.

Chapter 9 (processes) looks in detail at Statistical Process Control and the use of Shewhart charts in detail, but here, we will content ourselves with the recognition that we can define 'natural limits' for the measure based upon previous performance and use these limits to establish when a significant change has taken place. Thus, the limits effectively become a filter to remove the noise and expose signals within the data.

If we review the conclusions from the monthly report in section in the light of this approach we find some significant differences. The traditional conclusion was that First Time Pass Rate was of most concern due to its negative variance. The figure below shows the information on this measure presented as a control chart.

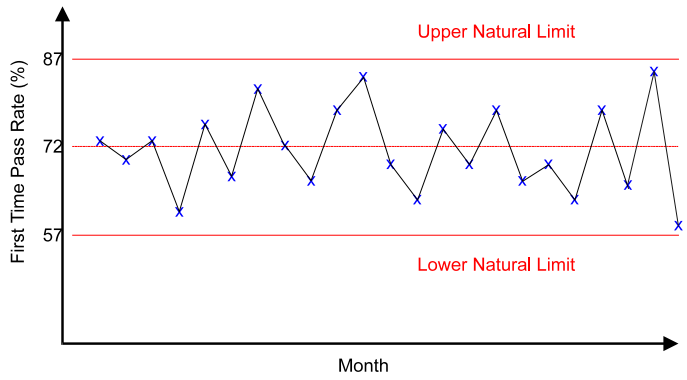


Figure 7.5. Control Chart for first time pass rate data

Clearly, although September performance is close to the natural limit of the process performance it is still within natural variability. This means that looking for a specific cause of this change in performance level is a waste of time. This result is simply a consequence of the high levels of variability within this figure, and it is this that should concern us. If we wish to make progress we need to take fundamental action on our process to ensure that we achieve greater consistency in First Time Pass rates. This might involve changes to process procedures, training operators, changes to raw materials characteristics etc.

Conversely, we could consider the chart for 'Deliveries on Weight'. This feature had what appeared to be a much less significant negative variance for that month and the Year to Date figure is slightly ahead of target. The control chart for this is shown below:

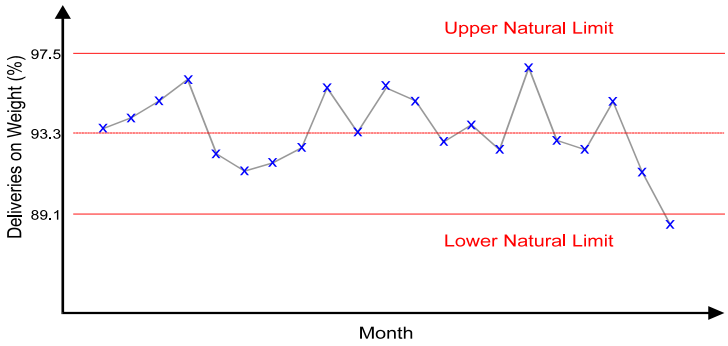


Figure 7.6. Control chart for deliveries on date

We can see that although the percentage variation between the current level of performance and the previous one is not particularly large, the latest reading exceeds the natural limit. That is to say that some special cause is responsible for this level of performance; something got worse! The fact that this measure is generally very consistent masks a real significant deterioration in performance when analysed in the traditional way.

It can be seen, therefore, that traditional analysis would trigger a problem solving response when it is not appropriate and foster inaction when a real problem exists. The control chart provides much more insight into the process.

A further issue is that without filtering out noise to expose real signals we can over-interpret data, placing too much emphasis on daily, weekly or monthly changes, particularly against targets. Consider the figure 7.7, it shows percentage of on-time deliveries for a specific product over a 15-month period. The company in question has set a performance target of 85% on-time deliveries. This is plotted on the chart to show how the business is matching up on this important criterion. What conclusions will management draw about performance?

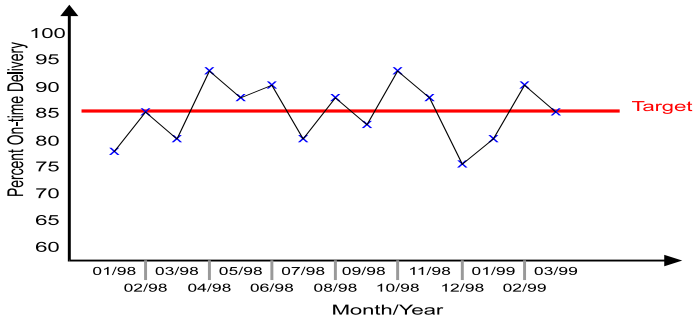


Figure 7.7. On time delivery data

The presumption is likely to be that we are capable of achieving the target ('we've done it before, so we can do it again'). This will tend to lead to satisfaction and messages of 'keep it up' when we surpass the target and complaints of poor effort and questions about what went wrong when we fail to meet it. There will have been comments about 'finally having cracked it' when the target was achieved for 3 months running. The following month was doubtless regarded as a blip and some 'corrective action' (often in the form of exhorting the workforce to do better, supported by either threats or promises) was taken. Relief would ensue as we met target again in August and the perpetrator of the corrective action would bask in his/her moment of glory before it all goes pear shaped once again. If we look at the chart below with natural limits included we see a different story.

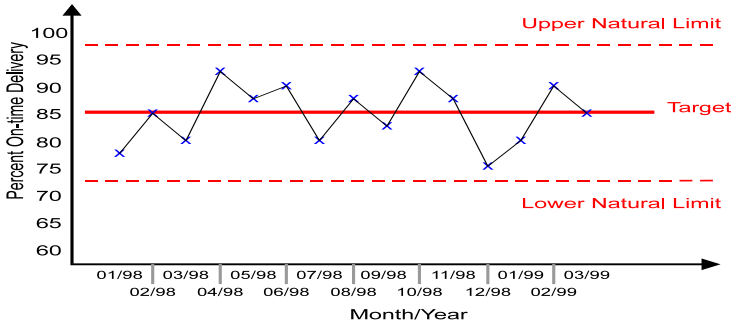


Figure 7.8. Control chart for on time delivery data

We can see a totally stable process. We can also see that, although on average we do achieve 85% on-time delivery we cannot guarantee that every month with the process we currently use. Since the process is stable, there is no point in looking at month to month variation. The monthly differences are due to embedded common causes and result from random chance. If we wish to achieve the target we must tackle something more fundamental in the process. We could alter the way we promise our deliveries (i.e. reflect the actual lead-time for the process). Alternatively, we could improve our process performance by appropriate action (e.g. increasing yield by improving process methodology, reducing downtime by improved maintenance or speeding up the order launch by restructuring the administrative procedures).

Regardless of which detailed action plan is appropriate, the response is fundamentally different from the knee-jerk reactions prompted by paired comparisons, or a focus on on-going comparisons with a target.

7.4 Summary and impact

This section looks at leadership in the context of Quality Management. There are many books dedicated solely to this topic so there is no claim here of a comprehensive treatment. However, the principles set out reflect a sound basis for the leadership approach to developing excellence. Leadership is complex and difficult. It involves the combination of integrity, people management skills, process understanding, effective use of data, a learning outlook and humility. But the rewards are extremely high on both a personal and an organizational level.

Review & Discussion Questions:

1. *Consider any leader you are aware of from study or the media. Do they conform to the myths set out in the text, or do they transcend that?*
2. *What is your personal leadership style? What benefits and problems does it generate for you and the organization?*
3. *How important is integrity to a leader in your opinion? Can you give examples to support your views?*

8 Strategic Quality Management

8.1 Introduction

In order to be effectively implemented, quality management needs to be treated as a strategic priority alongside marketing, finance and operations. This implies an effort to manage quality at a strategic level. To understand what this means we need to define some terms:

- ***Strategy***: Is a plan of action to achieve organizational goals, usually related to performance in the market place.
- ***Strategic Management***: is the development, deployment and execution of strategic plans. It involves the development of organizational mission, vision, values and goals; the development of policies and plans, their execution and evaluation.

8.2 Vision, Mission and Values

8.2.1 Vision

Corporate vision is essentially a tone setting idea, which is designed to align and inspire the stakeholders in an organization (principally and crucially those who work for it). It should be concise, easily understood and stirring. Vision statements vary in length and content. One of the best known was the vision statement for Fuji Film:

"Kill Kodak"

It can be seen to fulfil all the requirements above in two words. Vision statements which are this succinct are rare, but this should be the aspiration. Below are further interesting examples:

"Democratize the automobile" Ford Motor Company (1900s)

"To be the number one athletic company in the world" Nike

"To make people happy" Walt Disney Corporation

"Become the company most known for changing the worldwide poor quality image of Japanese products" Sony (1950s)

Again, they capture an inspiring vision for the organization at the time; of course, vision can change over time.

8.2.2 Mission

Mission statements add detail to the vision statement. It captures who the organization is and what it will do to achieve its vision. Examples are:

"Google's mission is to organize the world's information and make it universally accessible and useful" Google

"McDonald's vision is to be the world's best quick service restaurant experience. Being the best means providing outstanding quality, service, cleanliness, and value, so that we make every customer in every restaurant smile" McDonalds

"The Walt Disney Company's objective is to be one of the world's leading producers and providers of entertainment and information, using its portfolio of brands to differentiate its content, services and consumer products. The company's primary financial goals are to maximize earnings and cash flow, and to allocate capital profitability toward growth initiatives that will drive long-term shareholder value." Walt Disney Corporation

Leaving aside any personal views on the organizations concerned it can be seen that these develop the vision to suggest more practical aspects of strategy and set boundaries, be they industry sector, geographic, or temporal.

8.2.3 Values

Alongside vision and mission it is important to develop organizational values. These are the things in which the organization espouses belief. They are an indication of the way in which missions will be delivered. Values add nuance to vision and mission statements, but are actually more enduring than either; while external circumstances may affect the vision or mission of an organization the values should be unchanged in most circumstances.

Southwest Airlines: Values in Action

Southwest Airlines places relationships at the heart of its business values. Relationships with its people; with its customers; and with its shareholders (very definitely in that order). When faced with the post 9-11 world of vastly reduced passenger numbers and squeezed margins most airlines, understandably, tackled cost by laying off staff. This was an option open to Southwest Airlines, but they deemed it contrary to their values (even though they were similarly stated to those of many other airlines). They refused to lay off a single member of staff, instead engaging them in cost saving activities which resulted in improved fuel efficiencies amongst other things.

This counter-intuitive, but value based decision allowed them to make a profit every quarter while the rest of the industry lost $22 million over the next 3 years.

Based on Leavenworth, S. (2011)

Values need to be properly respected in an organization. If the espoused vales are not supported by the corporate behaviours they will be unconvincing to the staff of the organization, and they lose all relevance and value. In fact, they can become counter-productive, serving as a parody of the actual behaviours and a focus for staff resentment. For example, many organizations claim that 'people are our most important asset', but in companies where the actual experience falls short of this ideal such statements are viewed with bitter irony. On dishonest values statements, noted leadership author Patrick Lencioni points out that:

"Far from being harmless, as some executives assume, they're often highly destructive. Empty values statements create cynical and dispirited employees, alienate customers, and undermine managerial credibility." Lencioni, P.M. (2002)

8.3 Strategic Objectives

Strategic objectives need to be developed from the vision, mission and values of the organization. These need to be a few significant items which are clearly stated, relatable to all levels and challenging, but not impossible.

8.3.1 Deploying Strategic Objectives: MBO, the Traditional Approach

Peter Drucker recognised that each member of an organization, although necessarily contributing something different, must aim towards a common goal. That is, every job in the company must be directed towards the objectives of the whole organization, if the overall goals are to be achieved. Drucker defined the concept of Management by Objectives (MbO), in order to ensure that individual objectives of the entire management group within an organization could be purposefully organised within a structure towards a common policy.

In order to gain compatibility within the management group, each manager within the organization requires clearly spelled out objectives to avoid confusion. The objectives should identify the performance each management group is tasked to achieve, the contribution a manager and his/her unit are required to help other units achieve their objectives, and what assistance a manager can expect from other units in the pursuit of his/her objectives. This would tend to emphasise teamwork and achievement of team results, rather than individual performance alone. These objectives need to be derived from the top-level goals of the organization, and should clearly spell out individual contribution to attainment of company goals in all areas of the business. Obviously not all managers will have a contribution to make in all areas, but this in itself should be clearly identified within the objectives set. To ensure that the objectives are balanced they should be set over both short and long term timescales, and contain both tangible and intangible elements.

Every manager should have some part to play in the development of the objectives of the next level up. This serves two purposes: it provides a sense of participation, and assists in the understanding of the overall goals of the unit. This can only be achieved if managers are provided with the opportunity to think through what the unit objectives are, and are encouraged to participate in the work of defining them. Yet in reality, the objectives are often set and approved by top management and cascaded vertically down the organization, leading to specific problems such as:

- ***One way communication****:* In traditional MbO planning processes the communication process is one way, downwards from the manager to the subordinate, with little input from the team. This generates plans, goals and targets which can be unrealistic in execution.

- ***Management after the fact***: MbO has a particular focus on results without identification of causes as to why results have not been achieved, which means that performance gaps are rarely realised early enough to take remedial action.
- ***Individual skills:*** There is a particular leaning towards skills of individual employees with little effort to improve processes, or identify cause and effect relationships between plans and results.
- ***Failure to eliminate problems:*** Problems tend to be identified at local levels, which tend to be an effect of problems with processes involving many different departments. The root causes are rarely identified for corrective action and process improvement.
- ***Failure to capture knowledge:*** The performance appraisal within the MbO approach tends to be carried out annually, without any knowledge or learning feedback into the organization, to improve future planning processes.
- ***Used as a weapon***: MbO is often used as a weapon to threaten employees, by measuring individual performance against top down objectives, rather than understanding process capability.
- ***Lacks horizontal integration:*** The MbO approach attempts to achieve vertical integration between layers of management, but does not effectively integrate process activity across the organization to strategic goals.

8.3.2 Strategic Planning and Execution

The vision, mission and values of the organization need to be enacted through an effective planning and execution cycle. This is the only way in which the slightly intangible concepts and promises can be made manifest. There are, however, a number of problems that frequently occur with planning:

- *Unrealistic goals or predictions that are set arbitrarily*
- *Failure to focus on a few critical goals*
- *Selecting the wrong goals*
- *No shared vision of the organization*
- *Planned activities are not reviewed or punitively reviewed*
- *Teams have not learned to plan, use inappropriate planning methods, or regard planning as an event*
- *Inadequate factual data*
- *Over analysis of past data*

Additional barriers to effective planning can be related to particular behaviours of managers within organizations. These include the failure of management teams to face up to poor business results and identify the cause and effect relationships, a failure to agree by consensus on the critical measures of success, and a lack of analysis of the organizations strengths and weaknesses and core competencies. Also, it is common to find organizations that continue to apply existing ad-hoc planning methods, which rapidly become inappropriate as the business grows in size and stature. Ultimately, the single biggest mistake is for businesses to rely on the planning and management of financial outcomes, without the recognition that the outcomes can only be as effective as the business processes that deliver them.

The primary role of strategic planning is to set the right objectives for the business, determine the best means of achieving the objectives and to facilitate the effective implementation and review of the means as the plan is executed. This requires that planners should work in the context of higher-order purposes of the organization, which are usually very specific to its own situation including the needs and desires of the owners and stakeholders.

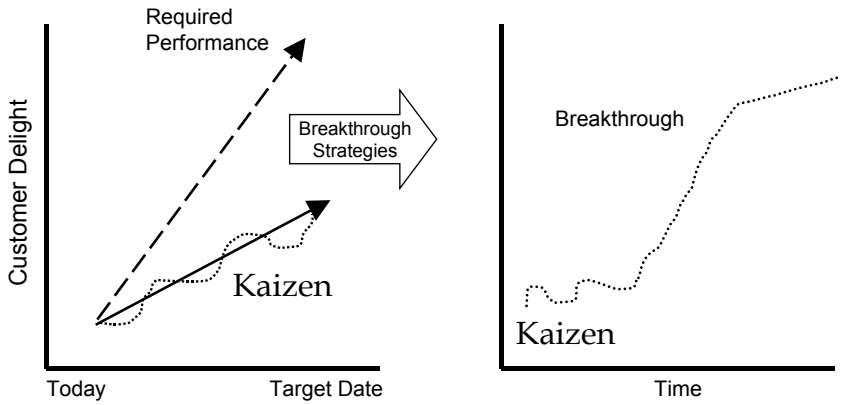


Figure 8.1. Breakthrough Performance

An example of a higher order purpose may be to provide the best products and services to society, with specific objectives of introducing for new products next year. Strategy management is needed in addition to strategic planning in order to translate the strategic intent through a reliable execution methodology into planned results. The planned results can be in the form of incremental or breakthrough improvements (figure 8.1).

A plan to achieve the strategic vision must take account of both sets of activities. Incremental non-breakthrough activities improve current business processes through use of facts and analysis to solve recurring problems. These activities are often associated with the concepts and tools of total quality management. But some performance gaps are large and cannot be addressed by merely using an incremental approach to improvement because of the greater degree of change involved, as shown in figure 8.2.

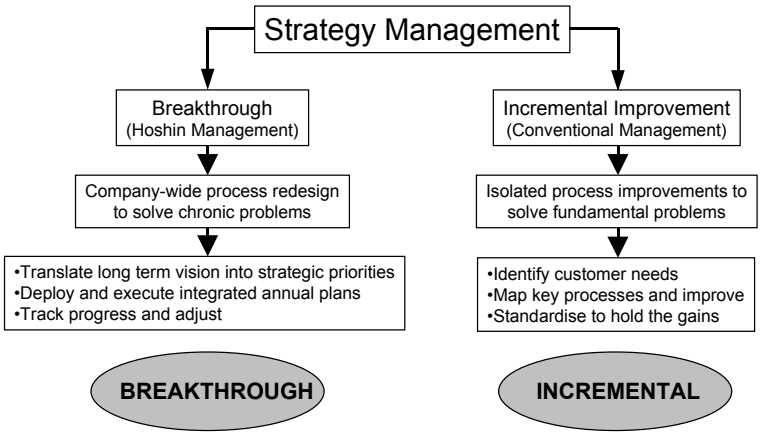


Figure 8.2. Breakthrough and incremental improvement

Incremental improvement (sometimes referred to as Kaizen) relates to isolated process improvements to solve fundamental problems. Breakthrough improvement often requires a company-wide process redesign to solve chronic problems.

8.4 Hoshin Kanri

8.4.1 Introduction

The Japanese translation of Hoshin Kanri is as follows:-

"ho" – method ***"shin"*** - shiny metal showing direction ***"kanri"*** - planning

A useful interpretation of the literal translation is that Hoshin Kanri is *a "methodology for setting strategic direction",* which is also known as Hoshin planning, policy management and policy deployment.

Hoshin Kanri is a planning system developed in Japan in the 1960's as a derivative of Management by Objectives (MbO), and is believed to be dramatically superior to other forms of planning, particularly for integrating Total Quality Management (TQM) with the business plan of an organization.

8.4.2 Hoshin Kanri Planning Principles

Hoshin planning is not a strategic planning tool in itself, but can be thought of as an execution tool for deploying an existing strategic plan throughout the organization, although it can facilitate the strategic planning process. It does depend on having a clear set of objectives articulated by the Chief Executive/Company President. Application of Hoshin Kanri will then translate the strategic intent into required day-to-day actions and behaviours.

Hoshin planning principles are formulated around companies knowing what their customers will want in five to ten years, and understanding what needs to be done to meet and exceed all expectations. This requires a planning system that has integrated Deming's *"Plan-Do-Study-Act"* language, and activity based on clear long-term thinking. The measurement system needs to be realistic, with a focus on process and results and identification of what's important. Groups should be aligned with decisions taken by people who have the necessary information. Planning should be integrated with daily activity underpinned by good vertical and cross-functional communication. Finally, everyone in the organization should be involved with planning at local levels, to ensure a significant buy-in to the overall process. Figure 8.3 shows a model of the Hoshin planning system.

Figure 8.3. The Hoshin Planning System (Tennant and Roberts, 2001a)

The major elements of the model can be summarised as:

- ***Five-year vision****:* This should include a draft plan by the president and executive group. This is normally an improvement plan based on internal and external obstacles, and revision based on input from all managers on the draft plan. This enables top management to develop a revised vision that they know will produce the desired action.
- ***The one-year plan****:* This involves the selection of activities based on feasibility and likelihood of achieving desired results. Ideas are generated from the five-year vision, the environment and ideas based on last year's performance. The tentative plans are rated against a selection of criteria and a decision made on the best action plans.
- ***Deployment to departments***: This includes the selection of optimum targets and means. It focuses on the identification of key implementation items and a consideration of how they can systematically accomplish the plan. The individual plans developed are evaluated using the criteria that were used for the one-year plans.
- ***Detailed implementation****:* This is the implementation of the deployment plans. The major focus is on contingency planning. The steps to accomplish the tasks are identified and arranged in order. Things that could go wrong at each stage are listed and appropriate countermeasures selected. The aim here is to achieve a level of self-diagnosis, self-correction and visual presentation of action.
- ***Monthly diagnosis****:* This is the analysis of things that helped or hindered progress and the activities to benefit from this learning. It focuses attention on the process rather than the target and the root cause rather than the symptoms. Management problems are identified and corrective actions are systematically developed and implemented.
- ***President's annual diagnosis***: This is the review of progress to develop activities which will continue to help each manager function at their full potential. The president's audit focuses on numerical targets, but the major focus is on the process that underlies the results. The job of the president is to make sure that management in each sector of the organization is capable. The annual audit provides that information in summary and in detail.

8.4.3 Phases of Hoshin Planning

In order to apply the principles of Hoshin planning effectively, there are a number of prerequisites that an organization have in place. It is not sufficient to attempt to translate to an environment of Hoshin planning as a short term solution.

Instead the organization must develop a strategy based on the five phases as suggested in Figure 8.4.

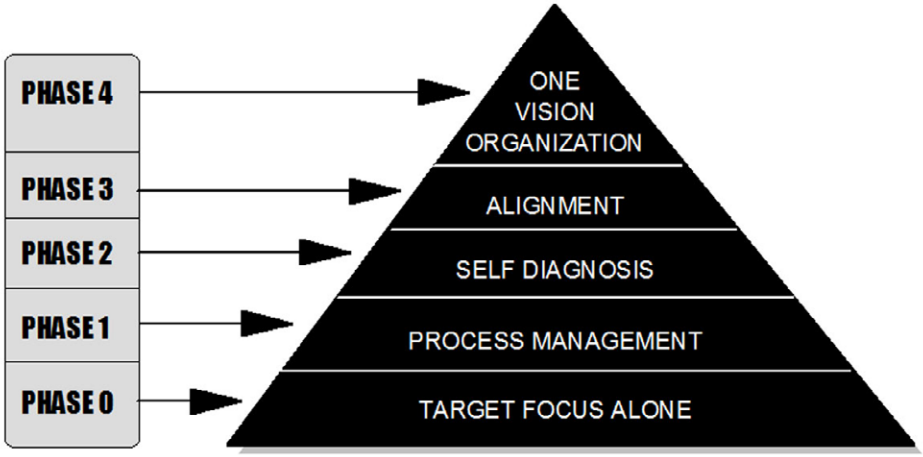


Figure 8.4. Phases of Hoshin Planning

8.4.4 Cross Functional Management

Cross-functional management (CFM) is necessary for successful implementation of Hoshin Kanri along with a concept known as "catchball". CFM requires a significant change in the structure of management relationships, in order to allow continual checking of goals and means throughout the implementation cycle to steer the organization to its new direction. Catchball is a term derived from the children's ball game, where instead of a ball, an idea or goal is tossed around from person to person. It is a vital element which requires constant communication, to ensure the development of appropriate targets and means, and to their deployment at all levels in the organization. Systems must be implemented to ensure feedback in bottom-up, top-down, horizontal and multi-directional horizons. To realise such a communication network, there must be a company commitment to employee involvement and continuous improvement. This approach builds buy-in through participation in the goal-setting process, and consensus with the team to ensure appropriate levels for goals and targets.

The positive aspects of Hoshin planning rather than management by objectives are the specific focus on measuring results through process rather than targets. In management by objectives the objectives of the target setting and measurement tends to be on business tangibles such as profits and cost. The organization tends to engender a culture of individual orientated management control and trouble shooting, rather than teamwork and continuous improvement. Hoshin planning tends to focus on self-assessment with individual participation and flexibility. In order to apply the principles of Hoshin planning effectively, there are a number of prerequisites that an organization have in place. It is not sufficient to attempt to translate to an environment of Hoshin planning as a short-term solution. Therefore the focus is on individuals making plans that are tied into a company vision, diagnosis of company processes and comparing actual results against the original targets.

An Example of Hoshin Kanri

Rover Group was one of the early Western adopters of Hoshin Kanri in the 1990s. It applied a catchball process involving interviews with over 100 members of staff at all levels to identify appropriate strategic goals for the 9 key business processes (Product improvement; new product introduction; logistics; sales & service; manufacture; maintenance; business planning; corporate learning; management of people). They then developed milestones and business plans which were cascaded throughout the organization. A gap analysis then allowed focus on the breakthrough areas where significant work was required to meet the challenging milestones. Some impressive results were achieved in several areas; for example, the area of new product introduction was reengineered to deliver dramatic improvements in lead-time (26%), warranty levels (25%), and product satisfaction ratings (20%). Sadly, the dissolution of Rover's ill-fated ownership by BMW stopped the process in it's tracks.

Adapted from Tennant and Roberts (2001b)

8.4.5 The Benefits of Hoshin Kanri

The benefits of Hoshin Kanri as a tool for *Strategic Quality Management (SQM)* compared with conventional planning systems include; integration of strategic objectives with tactical daily management, the application of the plan-do-check-act circle to business process management, parallel planning and execution methodology, companywide approach, improvements in communication, increased consensus and buy-in to goal setting and cross-functional-management integration.

8.5 Summary

The problem with applying the concept of Strategic Quality Management (SQM) by using Hoshin Kanri is that it can tend to challenge the traditional authoritarian strategic planning models which have become the paradigms of modern business. Hoshin Kanri provides an appropriate tool for declaration of the strategic vision for the business whilst integrating goals and targets in a single holistic model. Most reported applications of Hoshin Kanri have originated from companies based in Japan or in overseas divisions. Although there are some examples of Western business applying the technique.

The case study at Rover Group has demonstrated that it is possible to involve line managers in the Hoshin Kanri target development process, cross company deployment and the implementation of effective review mechanisms. This approach to managing the business can be a powerful mechanism for harnessing and directing resources to achieving common business goals.

Review & Discussion Questions:

1. *What are the key aspects of the Hoshin Kanri approach which set it aside from traditional approaches?*
2. *Consider an organization which you know well. What are the Vision, Mission and Values of that organization?*
3. *How effectively are these deployed throughout the organization?*

9 Processes

9.1 Introduction

9.1.1 Definition of a Process

A business process, simply defined, is any activity, or set of activities designed to change one or more inputs – which may be physical or information- into one or more outputs. It is desirable, although not universally true, that a process should in some way add value to the inputs so that the output is worth more than the combined value of the inputs and the processing. Figure 9.1.1 show this in diagrammatic form.

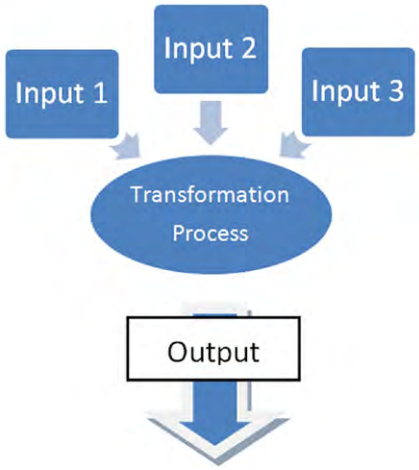


Figure 9.1. A process

Based on this definition, a process can refer to a physical manufacturing process or to a virtual or service operation where the output is not a physical product – a doctor's advice, or the transfer of funds between bank accounts for example.

9.1.2 Production as a System

In chapter 2 we introduced Deming's model as shown in figure 9.2.

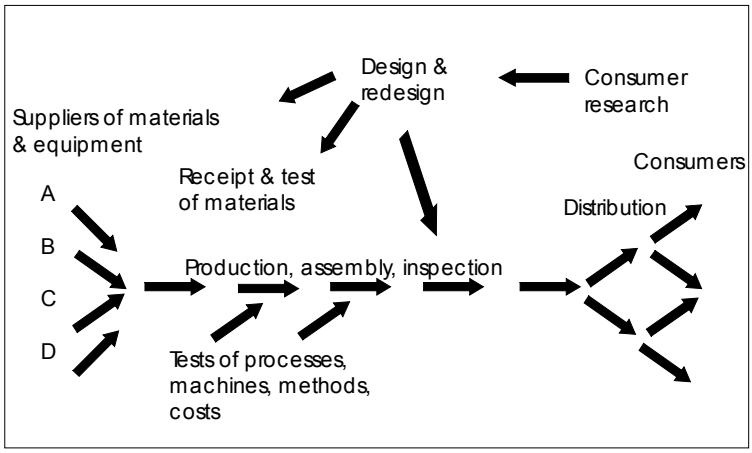


Figure 9.2. Production as a system (Deming, 1990)

The model looks initially chaotic, but simply reflects the myriad of activities that go on within a production environment. The flow is as follows:

- Consumer research drives an initial design.
- This is flowed down to suppliers who pass material into the organisation.
- The material is verified to design and passed into production.
- Processes, machines, methods etc. are monitored as the material flows through the production process.
- On successful completion goods flow into the distribution chain to consumers, whose feedback is sought to drive design changes as appropriate, and the cycle begins again.

This concept is hardly revolutionary now and, indeed, the wording of the model may look rather dated. However, the recognition that outputs of a process are clearly driven by inputs was the vital first step on the road to managing processes rather than outcomes. It may also be worthy of note that, even today, many management approaches spend more time focusing on the outcome than the means to achieve them (MBO and performance appraisal are perhaps chief amongst these).

Deming made some supplementary points on viewing production as a system. He noted that 'the system must have an aim' (defined by the customer of the process). An obvious comment, but it is amazing how often we lose sight of the end goal of the process in the endless debates over precedent and practicality which attend most manufacturing processes. Deming also noted that in the increasingly competitive production environment of recent years it is necessary to improve the system 'constantly and forever'.

Perhaps the most insightful of his comments is that:

"Every organisation is perfectly designed to achieve the results that they do" (Deming, 1990)

This encapsulates the fact that processes drive results, and that if you wish to change the results you need to change the processes. Process design and management are thus seen as key to performing on all business measures. This demands a purposeful and planned approach to defining and refining the system with which we attempt to achieve our aims.

9.2 Business Processes: The Reality

Although Deming's model is intuitively logical it can be seen that in many organisations the reality is that there exist 'functional silos' within the process. This is due to different departments or groups of experts 'owning' parts of the process and often having measures which conflict with each other.

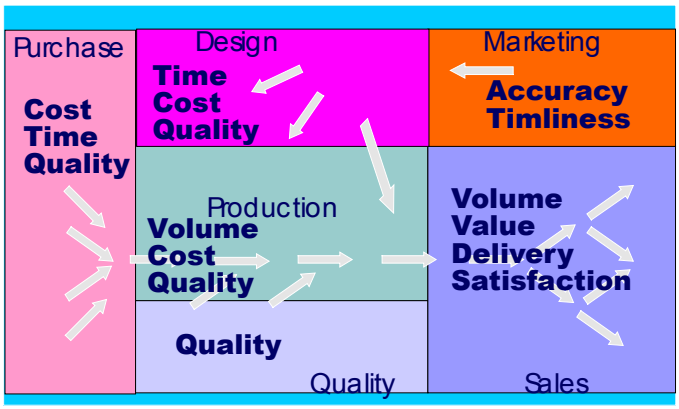


Figure 9.3. The Reality of Responsibility & Measurement in a Process (Adapted from Deming 1990)

Figure 9.3 shows schematically how this might look. The typical 'owner' departments are shown in each coloured segment and indications of key measurements that might be applied are shown in bold. It is interesting to note that the interfaces on this diagram require careful management if conflict is to be avoided. This, in effect, is where the continuous process model is most likely to break down with sub-process optimisation and local goals taking precedence over the broader picture. This picture is why the cry "I can't believe they work for the same company as me!" is so common, everyone is being driven by different goals so that the commonality of purpose one might reasonably expect breaks down. No doubt this gave rise to Deming's point 9 in his 14 points (Deming, 1990) 'Break Down Barriers Between Departments' where he expounds the virtues of the systems vision which optimises the whole rather than individual parts of the system.

Until departments can look beyond their own boundaries conflict will always exist. It can be argued that this integrating function is, perhaps the key function of management. Developing the vision and buy-in required to make this a reality can be supported by the application of Hoshin Kanri planning systems, (see Strategic Quality Management notes). Deming in his System of Profound Knowledge provides a holistic theory of process management.

9.3 Process Planning

Processes need to be planned in order to be successful, in previous sections we have discussed how corporate goals and visions can be deployed to departmental/process levels. This section looks at a methodology for creating a process focused on the needs of the customers of this process. The approach suggested is based on the QFD process-planning matrix as shown in figure 9.3

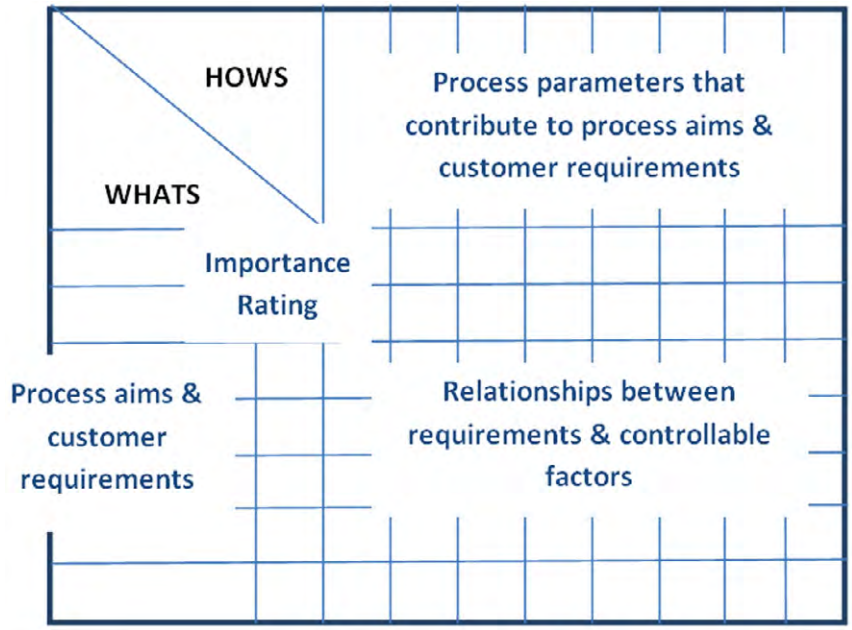


Figure 9.4. The Process Planning Matrix

The process-planning matrix links the customer requirements (prioritised by importance on the left hand side of the diagram) to the process parameters (across the top) via the relationships matrix in the centre of the chart. The process owners in consultation with customers and process fact holders will fill in this chart. Where difficulty is experienced in filling in the chart it will indicate a need to develop process understanding further via discussion or experimentation. An example of a completed chart for bulk drug manufacture process, which is then dispensed into phials by a subsequent process, is shown in figure 9.4.

The chart allows for emphasis to be put on the areas where performance lags expectation by the greatest amount. For example, in the figure above 'moisture < 0.5%' is a key focus since it is a high priority. Following this example through, we can see that the process parameter that most affects the moisture content requirement is 'temperature at the end'. This would be a key focus for improvement to move the process forward.

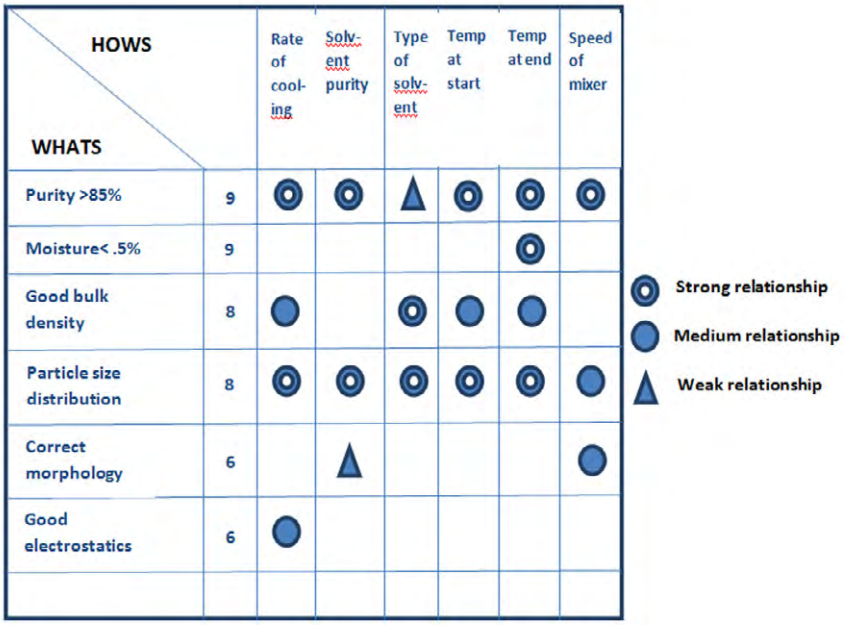


Figure 9.5. Example of a Process Planning Matrix for a Chemical Process

By using this approach there is a formal recognition of the need to link goals to means and to robustly define the priorities for improvement within the process. This is a necessary pre-cursor to establishing process stability and capability on key parameters, rather than wasting improvement effort on less relevant aspects of the process.

9.4 Process Control

Having established what aspects of a process are important to deliver customer satisfaction, it is necessary to ensure that these aspects are properly controlled, in order to deliver the required outcomes.

9.4.1 Background

Figure 9.6 reminds us of the generalised process diagram for a process operating on a detection basis introduced in chapter 2.

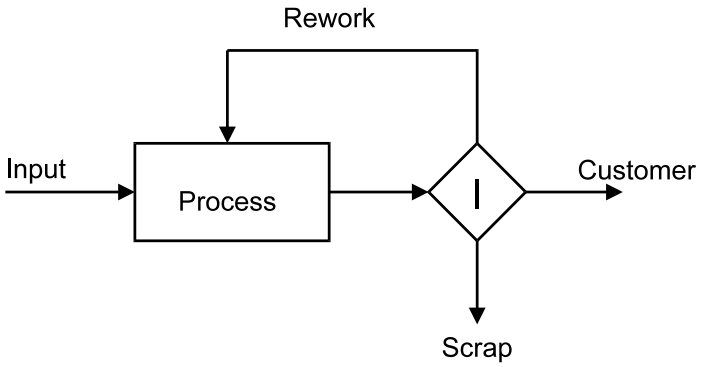


Figure 9.6. A process using 100% inspection.

There are three major problems that can be identified with such a system:

- ***It doesn't work***: 100% inspection is not 100% effective. No matter how good the inspector, some good products will always be rejected or sent for rework due to fatigue, boredom or a dozen other factors. More significantly, bad product will get shipped to customers.
- ***It is expensive***: The system is costly in terms of manpower; enough inspectors must be employed to ensure that inspection does not become a bottleneck in the production system.

- ***It is too late***: Products have already been made before diagnosis, and often there is sufficient lag between production and inspection that any feedback would be meaningless.
- ***It misplaces responsibility***: Responsibility for quality devolves from the person making the item to the inspector of the item whilst the control of quality remains where it always will remain, with the person in control of the production process. Thus, the only one with the ability to affect the final quality of the finished product has no incentive to pursue such improvements.

The logical way to overcome the problems associated with this type of system is to apply preventative techniques at the operation stage to ensure that the product is produced to the required quality. Such a system is shown in schematic form in figure 9.7, the approach is based on Statistical Process Control (SPC) which is a statistical method of data collection and analysis that works in such a way as to monitor the operation and control it to its maximum potential. This enables the operation to be carried out in confidence that the final product will be good.

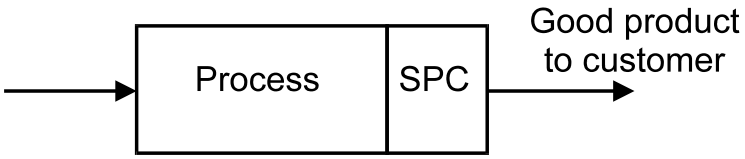


Figure 9.7. The application of Statistical Process Control.

The origins of SPC date back to the inter-war period, and are based on the work of Walter Shewhart (1980) who, in 1927 identified the use of control charts to detect process variation. The man who is seen to have most influenced the development of SPC as a technique, and popularised its use is W. Edwards Deming. Deming was a disciple of Shewhart and was sent to Japan at the end of World War Two to help redevelop Japanese industry. Amongst other philosophies he propounded the principles and practices of SPC, the Japanese listened, took up his teachings with enthusiasm and the rest is, as they say, history.

The core principle of SPC is the belief in the need to understand the variation in a process and manage it on that basis. The long-term aim of SPC is to minimise variation in processes so that customer requirements are more closely met than before. There are three key elements in achieving this aim:

- Providing control systems
- Evaluating capability
- Providing guidance towards continuous improvement

9.4.2 Special and Common Causes of Variation

Variation is part of our everyday lives. Both at work and in our private lives we make allowances for its effects from the process of getting to work in the morning to the output of a complex manufacturing system. However, whilst a seat-of-the-pants approach to deciding how long we allow ourselves to get to work may be perfectly adequate, a similarly haphazard approach to managing processes at work is not desirable. We need to get a **quantitative** feel for the variation in our processes. There are two basic elements to this variation: the central tendency and the spread. We need to have a handle on both these since they are vital to a successful process. It's no good being the right temperature on average if, to achieve this, you've got one foot in the fire and one in the fridge!

At this stage it is important to note the two potential causes of variation that can affect a process, these will be illustrated by means of a simple example of driving to work in the morning: even when we set off at exactly the same time, following the same route, in the same car it is apparent that arrival time will vary.

Common Cause (Unassignable) Variation: This is variation that is inherent in the process; it is always there. In the process of getting to work this will mean things like waiting time at fixed traffic lights, or the driver's mood and condition, or weather conditions. Only fundamental action on the process can change common causes. For example, changing route to avoid the traffic lights will remove that cause of variation.

Special Cause (Assignable) variation: This is variation due to transient causes outside the process norms and can usually be traced back to the specific cause. In the journey to work example this would include road works, breakdowns etc. In many cases action can be taken to achieve a reduction in the future effect of these 'transient problems'. For example, better maintenance to avoid breakdowns, which does not fundamentally change the process.

The difference between the two types of variation is crucially in their effect on the process. Common cause variation affects the overall spread of the process (so, for example, a journey with a lot of traffic lights would tend to have a wide variation as the variation caused by red or green at each light would add up), it would not affect predictability. A process which is subject to only common causes will be predictable (within limits), so we know that our journey to work might take between 20 and 30 minutes provided that nothing odd happens. We cannot, of course, predict the exact time it will take tomorrow, but we can make sensible decisions with regards to process management.

On the other hand, a special cause will tend to not only increase variation but also to destroy predictability. For example, if you were involved in a road traffic accident you would expect the journey to take longer. It would not, however, be possible to estimate the effect; it might be 10 minutes to exchange insurance details with anyone else involved, or if the car was no longer fit to drive you might miss the whole day at work. If a process is unpredictable it is not possible to make any sensible management decisions; you could not, for example, allow an extra 30 minutes for your journey time if you knew you were going to have an accident.

Accordingly, a process which is subject only to common cause variation is described as being ***"In Statistical Control"***. This is sometimes reduced to ***"In Control"*** or described as ***"Stable"***. This essentially means it is predictable, and we know what is coming (within limits). When a process is under the influence of special causes it is described as being ***"Out of Statistical Control"***, ***"Out of Control"*** or ***"Unstable"***.

To effectively manage a process we need to be able to distinguish between In Control and Out of Control conditions. To do this we need to establish what the natural limits of the common cause variation are. To begin this process we need to put the data into context.

9.4.3 Run Charts

The first step in putting data into context is to see it as part of the history of the process. This is best achieved by the use of run charts. Such diagrams (see figure 9.8) allow judgements to be made about process trends or shifts. They often also compare the current status of the process to the target or budget associated with that process.

While this may be a significant improvement on making judgements based on the comparison of two points it is still not very scientific. Questions arising might include: when is a trend significant? How much of a shift has to occur before we act? How does the target relate to the process performance?

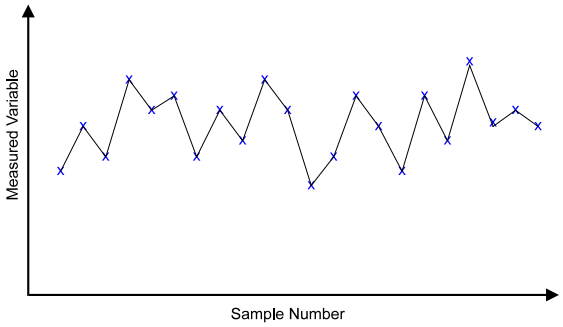


Figure 9.8. A run chart

Managing By Run Charts: A Cautionary Tale

A story is told of Dr Deming visiting a shoe manufacturer as a consultant and meeting with the CEO in his office, where Deming noticed a run chart (not unlike the one in figure 9.8) on the wall charting the number of defective shoes manufactured per day. Deming asked the CEO what the chart was for and received the confident answer that 'the chart tells me how we are doing'. Naturally, Deming enquired as to how well they were doing, according to the chart. After a few moments of thought, the CEO replied:

"Some days are better than others"

An accurate statement, but one we should not require a chart to make. It is also somewhat of an enditement of the control properties of a run chart.

9.4.4 Shewhart Charts: Application of Economic and Scientific Principles

The lack of convincing answers to these questions shows the vulnerability of this approach. Shewhart uses the empirical rule for homogenous data (Wheeler, 1995) which suggests that 3 standard deviations is an appropriate level to set up rules by which we can make consistent judgements about changes in the process – these are called the 'natural' or 'control limits'.

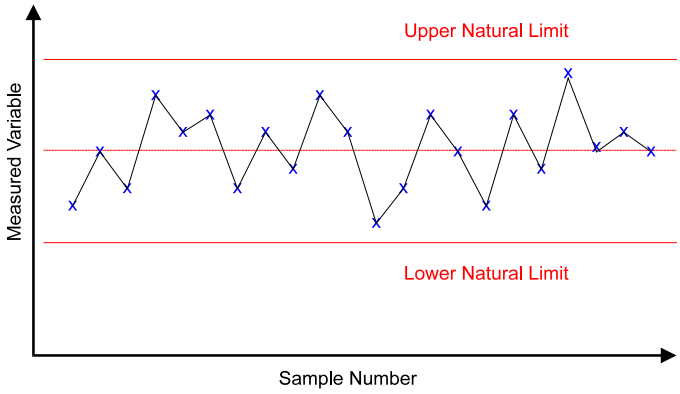


Figure 9.9. A control chart

The concept of natural limits for a process means that we can distinguish significant changes from insignificant ones: Special Causes from Common Causes of variation. Since the decision rules are based upon characteristics of all homogenous data sets rather than the specific attributes of one particular distribution this is a very robust model.

Shewhart's general approach to process control is to take a subgroup of the data and extrapolate from the results of this subgroup to make predictions for the population. The two elements of the subgroup to which control are applied are the average and the range. It is appropriate at this point to discuss the relative roles of these two elements. Both are necessary for proper control.

The average chart is concerned with variation between subgroups. The control limits are based upon 3 sigma for the subgroup average distribution. They are essentially testing if individual subgroup averages vary more than could be expected given the variability within individual subgroups. To this end the control limits are calculated using the average range of subgroup data as an estimate of this short-term variability.

For each subgroup calculate the average of the data and plot on the chart.

The range chart is concerned with variation within subgroups. The control limits are based upon 3 sigma for the subgroup range distribution. They are essentially testing if the variation within each subgroup is similar to the variation within the other subgroups. To this end the control limits are calculated using the average range of subgroup data as an estimate of this within subgroup variability.

For each subgroup calculate the range of the data and plot on the chart.

Shewhart has set down methods of calculation for the control limits for each of the charts. These are based on the assumption of 3 sigma limits for both average and range charts. These will not be discussed in detail here, but are covered in "Six Sigma: Principles and Practice".

It is worth noting that the choice of 3 sigma is an economic rather than a statistical one. Shewhart (1980) states this in his seminal work on the topic. At this level he considers that it would be economic to find and fix the causes of any point outside the limits but uneconomic to do the same for points inside the limits.

9.4.5 Out of Control Conditions

The purpose of calculating the control limits is to support the identification of out of control conditions and subsequent process learning. There are a number of rules for detecting out of control conditions (Wheeler, 1995), but for the moment we shall only use rule 1; where a data point falls outside the control limits a special cause is said to have occurred.

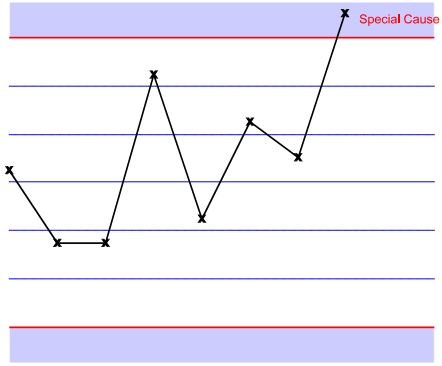


Figure 9.10. Rule 1

When an out of control condition is observed it is necessary to take appropriate action. The first point to remember is that no out of control point should be ignored. The chart can be seen as the voice of the process; if the process says that something has changed you must always listen and look for the special cause of the situation. To ignore this warning is to run a process whose output you have no confidence in. In the ideal case the process should be stopped until the cause has been found and irradicated. However, this is unlikely to be possible in every instance so it may be necessary to run with an unresolved special cause potentially present. In such a case it will be important to ensure that inspection-based controls are in place to protect the customer until stability has been regained.

The mechanisms for taking action will vary depending upon the situation in which you find yourself. To make the response to out of control points easier it's desirable to keep alongside (or preferably on) the chart a log of everything which happens which might have an impact on the variability of the process. This will obviously include such things as shift, operator, tool and batch changes but might also include observations about ambient temperature, passing traffic, tea breaks etc. In fact, the more detailed the better. As an example, it was found on one turning process that the opening of nearby external doors for the passage of factory traffic was sufficient in winter to reduce the local ambient temperature to such a degree as to have a significant effect on the process. Had this factor not been identified on the process log it is likely that this special cause would have gone undetected for much longer. The first port of call, then, when an out of control point occurs should be the process log. In the majority of cases this will allow you to tie a special cause to an effect. If this is not the case then a brainstorm will need to be carried out (possibly supplemented by a cause and effect diagram) to establish what elements of the process (in its broadest sense) and its environment might have been responsible for the disruption. Normal problem solving disciplines will need to be applied to ensure that the right solution is arrived at.

These activities will need to involve all process related local personnel and possibly technical experts. Please note that in the best organisations such activities are not merely reserved for the resolution of special causes but learning from and responding to the chart will be shared between the local team in regular informal meetings around the chart. In this way reduction of common as well as special causes can be undertaken even at the local level.

Do not content yourself with tweaking the process when an out of control condition occurs. The point of SPC is to **improve not adjust**. There are, of course, occasions when adjustment is the correct short-term response, but consideration should be given to how to make the adjustment unnecessary -or less frequent- in the future.

9.4.6 SPC Practicalities

SPC can be applied to any process where the output can be measured. However, it makes sense to concentrate on areas of most immediate benefit taking into account things like customer complaints, build problems, high scrap/rework, high quality costs etc. The characteristics to control using SPC are the same ones to which priority is given for any form of control. Those that are important to the customer and those with which we are presently experiencing difficulties.

Control limits are calculated using subgroup data and it is conventional to wait until 20 subgroups have been generated before performing the calculation. It is necessary to recalculate limits once a significant positive change in the process has been identified and cemented in by cause analysis or direct action. Do not recalculate limits as a result of negative changes to the process; find out why they happened and remove the cause to restore the process to its original equilibrium position.

9.5 Process Capability

9.5.1 Understanding Process Capability

Once a process is stable, it is necessary to determine whether the outcomes of the process can meet customer expectations – as described by tolerance limits in most product oriented applications and service level agreements in service oriented applications.

The importance of understanding process capability cannot be overstated. If we are to attempt at any level to design for manufacture we need to understand not only the requirements on the process (effectively our specifications) but also what the process is able to achieve (capability). Without both sides of the equation we are not able to make sensible decisions about how to manage our processes at an appropriate stage in the product lifecycle and we doom ourselves to fixing and fire-fighting when we actually try to make the product. A similar argument could be made for supplier selection.

Capability evaluation is the method by which we determine whether a process is up to the job of meeting the specifications set for it. It is important, before attempting to establish the capability of a process to ensure that the process is stable. The key issue is that if a process is not stable the capability will be constantly changing due to the transient effects of special causes and will hence be uncertain.

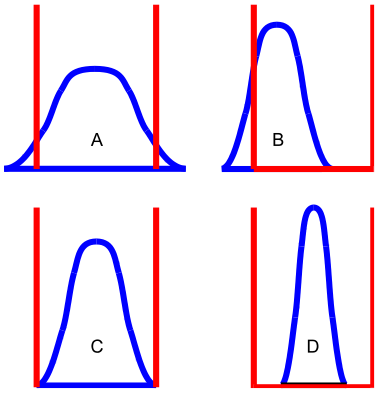


Figure 9.11. Process capability diagrams

Consider the four processes shown above with the specification limits. Clearly, process A is producing many components both above and below tolerance; process B is offset and is, as a result, producing components below the bottom tolerance limit; process C is producing almost all components within tolerance and process D is operating well within the tolerance limits.

Given the information provided in the above diagram we can act upon the process (resetting process B, for example, or attempting to reduce the spread of process A), without such information we would be making such decisions in the dark. Similarly, this information would be of use in selecting suppliers having these capabilities. If we do not understand the capabilities of processes at an early stage in the product lifecycle we give ourselves little chance of making appropriate decisions about which processes to use as they are and which to work on. If we find this out when we reach volume production we incur additional costs. Indices may be calculated to quantify capability, but these are not dealt with here.

9.5.2 Capability and Customer Satisfaction

Clearly, customers expect all products to (as a minimum) conform to the specifications which relate to their requirements. Capability is useful in determining such conformity. However, the importance goes well beyond this.

The Taguchi Loss Function (Taguchi, 1986) shows how increasing capability (i.e. reducing product variation in relation to the tolerance band) can improve customer satisfaction even all products already meet specification. The Loss Function as defined by Taguchi is basically a challenge to the traditional ideas on what constitutes acceptable quality for manufactured products. Figure 9.12 contrasts Taguchi's Loss Function and the traditional tolerance (also known as specification)-based approach to product quality.

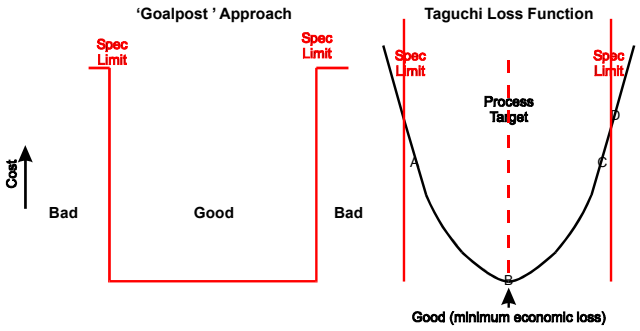


Figure 9.12. Loss function vs. tolerancing.

Traditional thinking is that any product that falls inside the tolerance limits is "good". The unspoken assumption here is that they are equally good and that no cost is incurred. Following the logic through we can see that any product falling outside the limits is bad and a cost equivalent to the full cost of producing that product is incurred (often referred to as the scrap cost). In this simple scenario we have assumed that reworking the product is either not possible or uneconomic. Again, the hidden implication is that all products outside the limits are equally bad.

The usual derivation of tolerances further throws this attitude into doubt. They are usually based upon what was done last time or the draughtsman's 'best guess'. There also exists an element of barter in the generally adversarial relationship between design and production with designers wanting to tie production down to extremely tight tolerances and manufacturing wanting to be able to drive a bus through them. Seen in this light tolerances can be viewed as, at best, somewhat arbitrary. In any case, the specification limits will always be what is acceptable, rather than what the customer or designer wants. In most cases the ideal will be all products exactly on target; this will mean the design works exactly as intended. However, this is recognised as unrealistic, hence the use of specifications.

Taguchi states that to regard the transition from good to bad as a step change is not logical. He contends that, provided the nominal has been specified correctly, any deviation from this target value will have a detrimental effect on the performance of the product and will therefore cause an overall "loss to society". This concept is probably one of the more esoteric of Taguchi's ideas. A good example may be to consider the thickness of a polythene sheet used by farmers to protect crops; if the sheet thickness is low (but within tolerance) it may tear more easily and allow the weather to damage the crops. The costs generated by this failure will be outside the company but very real. Firstly, farmers will incur additional replacement costs; secondly, the reduced crop yield will increase the price in the marketplace, a loss borne by all society.

In many cases it is easier to think of the "loss to society" in terms of a long-term loss to the company. The reduced performance of the product caused by non-optimal parts will cause relative dissatisfaction in customers who will, given sufficient stimulus, take their trade elsewhere. The further from optimum performance we deviate the quicker will be their defection.

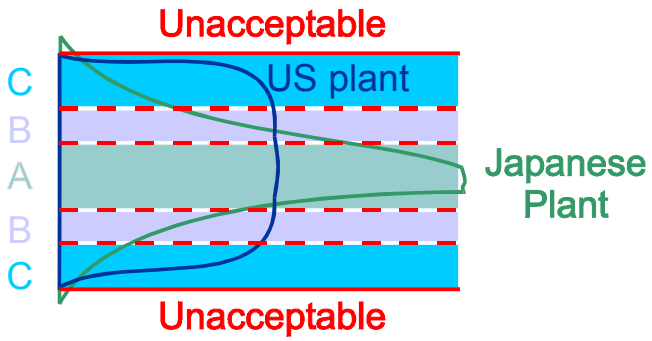


Figure 9.13. Sony TV production.

The above diagram is an illustration of the loss function as a long-term loss to the company, and appeared in a Japanese newspaper called "The Asahi" in 1979. The article discussed the preference of American consumers for television sets built by Sony in Japan over those built at an identical plant in the USA. The key performance characteristic is colour density. The 'A' band represents excellent colour density; the 'B' band good colour density and the 'C' band acceptable colour density. Outside of the limits of the 'C' bands colour density is deemed unacceptable and the TV is considered a reject.

Clearly from the figure, Sony Japan was producing defects whilst the American plant was not. However, the key fact is that the chances of having an 'A' or 'B' grade TV from the Japanese plant was much greater than the American one where the odds of getting any grade were roughly similar. The "in tolerance is OK" attitude was costing a lot of sales for the American plant. The Taguchi belief that variation from the nominal is expensive seems much closer to the truth in this case.

Taguchi (1986) states that the loss function takes the quadratic form shown above for all "nominal the best" type characteristics and the appropriate half of that shape for "bigger the better" and "smaller the better" features. Whether this is in fact strictly the case is debatable. However the principle that deviation from the target is expensive regardless of tolerances and that the rate of deterioration of the situation increases with distance from the target is sensible.

The principal implications of the loss function for the way we do business is that it gives a financial credibility to the argument for continuous improvement of processes beyond the current specification limits and it firmly indicates the reduction of variation in our processes as the way to increased profitability and success. In fact, as Wheeler (1995) notes, this effectively creates a new definition of world class quality, one with capability at its heart. No longer is in specification sufficient, the new definition is:

"On target with minimum variation"

9.6 Managing Variation Reduction Using SPC

9.6.1 Introduction

It is a sad fact that many attempts to implement SPC are unsuccessful (Wood, 2002). These failures are not due to shortcomings in the technique but in the way in which the system is implemented and managed. Typical problems would be lack of commitment from middle and senior management; union opposition; poor response to problems etc. These kinds of issues would be familiar to anyone who has tried to drive through any type of change initiative in an organisation. This is because SPC is a long term change to the way in which an organisation does business, even in the way it thinks. If you fail to recognise that and treat it as another system implementation you will be doomed to making minimal progress with your application.

9.6.2 The 14 Points

It is significant to understand that SPC is a cornerstone of the 14 points -no successful business transformation along these lines could take place without understanding the principles of variation. It is also true to say that the principles of respect for the individual and the right to take pride in your work are essential for the successful introduction of SPC as a business driver. Similarly the practical aspects of SPC can be seen as an application of the Plan, Do, Study, Act cycle. It is a mistake to see SPC as isolated from the rest of Deming's philosophy, it will only work to its full potential as a business transformation tool (rather than a trouble-shooting/problem solving technique) if applied in the context of sound management practice and appropriate company culture. This is not to say that you have to have a full Deming transformation cemented in place before beginning to use SPC, it can be a powerful part of the transformation process in itself.

9.6.3 Juran's Trilogy

Juran's Trilogy (Juran, and Gryna, 1998) effectively illustrates the steps in variation reduction.

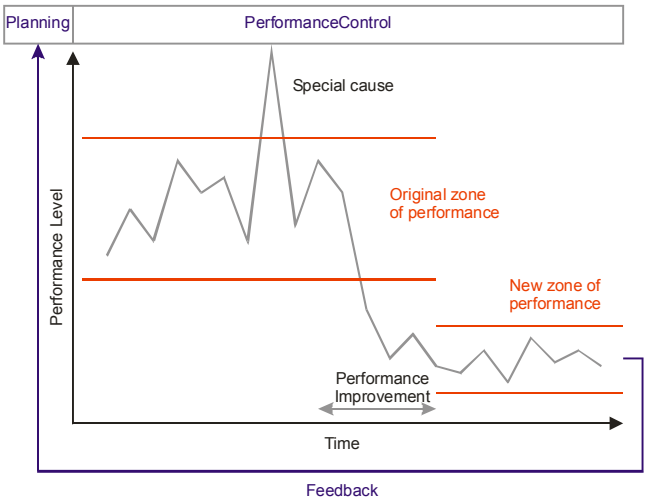


Figure 9.14. Juran's Quality Trilogy (adapted from Juran, and Gryna, 1998).

The trilogy indicates that a process is designed with an initial level of capability and an inherent amount of (common cause) variation. This needs to be controlled and any sporadic (special cause) variation spikes addressed as they occur. In order to make a breakthrough improvement the inherent common causes must be tackled to reduce variation and to move the process closer to target (in this case zero) variation. This new level of performance must then be controlled as before and, importantly feedback to the designers of new processes of the learning enables them to create new processes which are at the new level, rather than repeating the mistakes of the previous process.

This forms an excellent template for managing variation reduction at both a process and an organizational level.

9.6.5 People Issues

People are the most important element of the implementation of SPC. Don't forget, this is a way of thinking rather than just a tool. The system will stand or fall on the actions of people rather than just how accurately the charts are developed and interpreted. You are attempting to change behaviour here. Remember these salient points:

- The best people to improve a process are those who are close to it.
- Management need to be actively involved, especially in reduction of common causes.
- Company 'experts' can be useful in kick-starting and supporting the process but they should not own it (or be perceived by others to own it).

9.7 Benefits of SPC

These are, obviously dependent upon the quality of the approach but should include the following:

- A more consistent product or service leading to happier customers (Caulcott, 1996)
- Reduced waste and thus lower costs and better profits (Rungtusanatham et al, 1999).
- Better management decisions at all levels of the business (Wheeler, 1993).
- A more consistent and controlled workplace.
- Pride for all those who are now allowed to be in control of their processes, rather than having the processes run them and living in fear of the next big problem.

9.8 Summary

Processes are crucial components of how an organization operates and delivers value to its customers. Processes need to be considered holistically as a system, since all business processes will affect each other. The aim of the system needs to be clearly understood, and the impact of the various processes upon this defined in order to establish goals for those processes. Once it is clear what a process should do it is necessary to establish a process which is both in control and capable of delivering its key outputs to the satisfaction of customers (be they internal or external). To paraphrase Deming:

Process management is a way of thinking with some tools attached: not the other way around.

Review & Discussion Questions:

1. *Why is it important that a process is in control before process capability is calculated?*
2. *What are the management implications of an incapable process?*
3. *What are the management implications of an out of control process?*
4. *Can you think of an example where one process in dependent upon another in your experience? What happens if the process dependency is not considered by those managing the process?*
5. *Conduct a process planning exercise for a fast food outlet. What are the key outcomes, and what needs to be controlled to ensure they happen?*

10 Partnerships and Resources

10.1 Introduction

These two areas are considered together not just because they are conflated within the model, but because there is a natural linkage. Resources in an organization are deployed, as I hope we agree by now, to deliver customer value and corporate objectives. Some of the resources deployed (raw materials, logistics services etc.) will be purchased from suppliers. One key opportunity in ensuring the right resources are deployed in a cost-effective manner is the use of partnerships. Partnerships can be established with:

- Suppliers
- Customers
- Competitors
- Other groups

10.2 The 'Transactional' Supplier Relationship Model

10.2.1 Basic Assumptions and Benefits

Traditionally, the approach to suppliers has had three central tenets:

1. ***Cost is Everything***: The job of the customer is to drive down piece-part cost. Suppliers are expected to make year-on-year reductions in cost. If an alternative supplier offers the same specification at a reduced price they should be preferred regardless of the length of relationship with the current supplier.
2. ***Short Term Contracts and Competitive Tendering***: We do not wish to commit to a supplier for a long contract because they will become complacent. They need to be 'kept on their toes' by regularly having to face open competition for their business. This not only encourages them to stay competitive, but it allows us to find better suppliers in the long run.
3. ***Suppliers are not Your Friends***: The customer/supplier relationship is necessarily adversarial. Suppliers try to get as much money for as little value as possible. We must police them carefully and bear down upon costs. Mutual interest will always be subordinate to individual gain in the supply chain.

This type of relationship is often seen as 'efficient' because it maintains competition between suppliers, ensuring that 'best value' is offered and that a company cannot be 'held to ransom' by a supplier upon whom they have come to depend. There is also an implied flexibility in that if demand changes extra suppliers can be brought on-line or suppliers can be 'turned-off' if required. Organizations are also free to take advantage of innovations wherever they occur, rather than being tied to one supplier whose technology may be overtaken by another (Slack, et. al., 2006).

10.2.2 Issues with the Transactional Model

Despite the superficial appeal of the transactional model it has, over the years, garnered a significant amount of criticism. A number of these are briefly discussed below:

1. ***Purchase costs may not be reduced***: Slack, et. al. (2006) point out that the costs of regularly re-selecting suppliers can be significant and need to be factored in to the savings made on the price of goods. There is also the learning curve costs associated with developing the relationships with a new supplier that had been developed over months or years with the existing supplier.
2. ***Lifecycle costs may increase***: Deming (1990) notes that an over-reliance on price as a selection criteria for suppliers could lead to buying products which have a low purchase price but may have higher consequential costs. An example might be materials which have lower quality standards and might therefore create more wastage during production or increase production times due to fitting less well, or being more difficult to handle. These costs would, in most circumstances, be opaque to the purchasing department who would, at most, be on the end of complaints from the operations departments. In the end, the total cost to the company of choosing that supplier goes up, even if the purchase cost is smaller.
3. ***Problems with competitive tendering***: If as a supplier you have to prepare a response to an invitation to tender (ITT), typically you will have six weeks to prepare and deliver the documentation on which your ability to fulfil the requirements of the customer will be assessed. Figure 10. 1 shows how, typically, that time may be used. Let us assume that of the six weeks; professional printing and delivery by courier takes two weeks; one week is required for senior management assessment and approval; contract preparation takes half a week and one and a half weeks is required by the purchasing department for assessing sub-contractors and cost assessment. If we assume that two days are required for internal photocopying and distribution, then a mere three working days are made available to the design team to design the product.

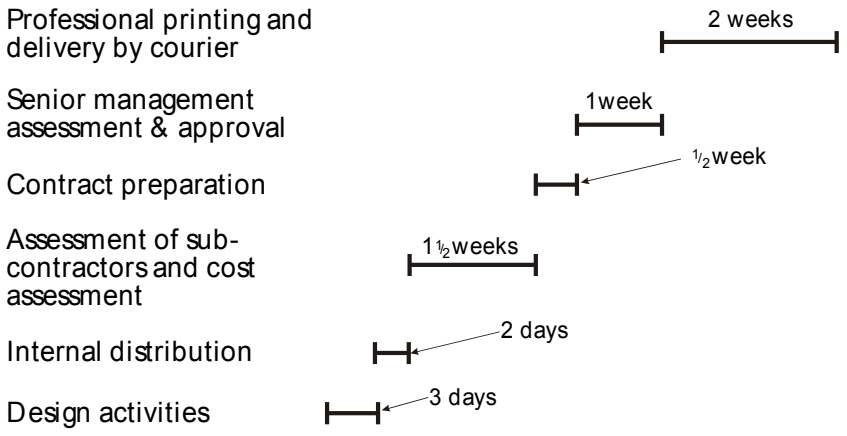


Figure 10.1. Planning the response to an ITT.

By any standard, this constitutes a crash design with no time available for the most basic analysis, let alone consultation with manufacturing to ensure that the design is producible. How many projects are conducted on this basis? The answer, sadly, is all of those projects subject to competitive tendering in which the potential supplier has to concentrate on producing an attractive proposal in cost terms because experience says that the cheapest compliant tender will win the contract.

The supplier's difficulties do not end there, for having been accepted on the basis of a crash design and optimistic predictions; he has to deliver to tight time scales with no margin for cost setbacks. Often the saving grace for the supplier in such a situation is that the main contractor will suffer problems due to insufficient knowledge of customer requirements or a poorly written specification, and will have to request changes from the supplier that will require a re-negotiation of the contract.

The process is doomed to produce conservative designs because the ITT is expensive to administer and does not motivate the supplier to develop innovative skills for fear that failure will result in severe financial penalties that it may not survive. Another important consideration is the cost of the tendering process. Who pays for the 6 bids out of 7 that are unsuccessful? It is likely that this cost becomes an overhead that has to be recovered through the successful bids, potentially reducing the industry's competitiveness. Finally, and most importantly, it is usually conducted too late in the product life cycle to ensure that the work of suppliers is fully integrated in the design process.

4. ***The adversarial relationship***: Probably the most significant issue here is the adversarial relationship which the approach fosters. Trust has been stated many times to be a very significant driver of supply chain performance (e.g. Kwon and Suh, 2004; Beccerra and Gupta, 1999). The adversarial relationship implied in the transactional model destroys trust. In this model neither supplier nor customer has any obligation to the other party beyond the contract; in fact the very existence of a contract (by definition enforceable in law) implies a lack of trust. Consequently supply is guaranteed only in so far as it meets the contract. Requests for help from a supplier (where, for example the customer has accidentally damaged a delivery of components or a sudden surge in demand) are likely to be met with requests for extra payment, or polite refusal. In fact, during the tendering process it is likely that suppliers will seek out areas of poor definition in the specification in order to regain the margin lost in the bidding process. Any mis-specification or elements missing can be charged as extras, or used as a pretext for re-negotiating the contract. It is unlikely that any specification is gap-free as the supplier is much more expert in the product or service specified than the customer (why else do you go to them?). As the supplier has no confidence in the long term relationship, why should they spurn any chance of a short-term profit? And what happens if a better or bigger customer comes along?

Competitive Tendering: The Law of Unintended Consequences

Under government legislation requiring local government authorities to seek "best value" in the provision of services in the 1980's a UK local authority out-sourced the running and maintenance of sports facilities in the city to a private contractor.

The contractor was selected on the basis of a competitive tendering activity, and submitted the lowest compliant tender based upon the requirements in the ITT. The contract was let for an initial 3 year period.

Two weeks after handover of the council began to receive complaints about the length of the grass on football, rugby and hockey pitches. They contacted the contractor to ask why the playing fields had not been mowed, only to be told: "That is not in the contract". Sure enough, on checking the contractor was proved to be right and the contract had to be re-negotiated but with the contractor in a very powerful position as the incumbent service provider and not being in breach of contract. Total contract cost was inflated by 3% for this one issue, representing a sizable loss for the authority and a good bonus for the contractor.

Of course this put the future of the contract in jeopardy, but that was always the case in a lowest bidder wins situation and they had 3 years of extra profits to spend finding other work.

We must ask ourselves if this was the anticipated outcome of a "best value" policy.

Overall, the traditional approach can be seen as short-termist, divisive and, ironically, not even very cost-efficient.

10.3 The Supplier Partnership Model

Poirier (1999) and Christopher (1998), amongst others, suggest that the historical model of competition between individual companies is defunct; competition is now between supply chains. If your supplier has quality or delivery problems they will either disrupt your production or affect your customer satisfaction. If your car breaks down on the way to a job interview, it is likely to be the assembler who is the focus of your irritation rather than the second tier supplier who manufactured the component which failed.

We therefore need to view our suppliers in a different way: as partners in delivering superior customer value than competing supply chains. The characteristics of a partnership are suggested below (modified from Slack et al, 2006):

- ***Strategic***: Partnerships need to be undertaken in a strategic manner; in particular the cultural and business 'fit' of the organizations needs to be clearly understood.

- ***Long term***: Partnerships are designed to be lasting; the effort that goes into building up strong relationships is only repaid over time. Decisions need to be made with long term benefits in mind, rather than short term ones. The security of the long term partnership frees up much effort which would have usually gone into looking for the next business opportunity to be focused on improving processes and products.
- ***Collaborative***: They are voluntary and focused on working together; contracts are either not required, or minimal. The focus is on seeing the supply chain as a whole and delivering customer value by working together.
- ***Trust based:*** The most important element, assumptions are that all parties will work for mutual benefit rather than trying to take advantage at the expense of other partners. Trust is difficult to establish and maintain, but is the heart of a partnership.
- ***Transparent:*** This helps to build trust. Sharing information allows the partnership to work more effectively. The principle is to share as much as possible, as early as possible to support effective joint decision making.
- ***Gain sharing:*** Part of the collaborative nature of the relationship is to share gains, no matter where they are made. This facilitates the effective assignment of resources to wherever in the partnership they can do most good, rather than where they will help an individual partner.
- ***Joint problem solving and learning:*** In a partnership all problems are mutual; this is supported by the gain-sharing mentality. The long term approach allied to trust allows for sharing of learning from experience within the partnership.
- ***A small number of partners:*** Usually a one-to-one relationship in a given area – so multiple suppliers for a component would not be envisaged.

10.3.1 Benefits of Partnerships

The benefits of partnering are really the polar opposites of the problems with the traditional approach. The partnering approach allows for 'constancy of purpose', fostering collaboration, systemic thinking and through supply-chain improvement to deliver sustainable customer value. The risks are few if the partnering is done effectively, but clearly the safeguards which exist in the traditional approach are missing. If the will to partner does not exist then all partners are exposed to much more risk. But, of course, that is all the more reason for everyone involved to make it work.

10.4 Partnering Beyond the Supply Chain

Arguably, partnering in the supply chain is a relatively obvious thing to do. The commonality of interest is clear, despite being obscured by inappropriate practices such as competitive tendering for many years. This is, however, only part of the partnering story. Organizations are partnering with educational establishments, community groups and other organizations from outside their supply chain; but perhaps the most counter-intuitive partnering activities are those that are occurring between competitors.

Surely you cannot, by definition, partner with competitors? But many companies now recognise that choosing at what point in the product lifecycle you compete, and at what point you collaborate it is possible to generate industry-wide efficiencies without harming the commercial interests of the individual business. This concept is perhaps best illustrated by an example (see box below):

In country A the 10 top semiconductor companies identify the need for a 'super chip' that would help to create a smart domestic robot. Instead of pooling their resources to co-develop this chip, they compete, each investing $1 billion in research and development activities. Assuming that each company creates a successful chip, the total cost of developing this chip in country A is$10 billion. Suppose that the global market for such a robot is 1 billion, the development cost per unit is $10.

Let us now consider country B, which may be in another continent. In this country the 4 top semiconductor companies realise the same need for a smart chip. Instead of competing, they work together. They each invest $250 m to develop the chip and, therefore, the total cost of developing this chip in country B is £1 billion.

Now all 14 companies will compete ferociously with each other in production to gain as much share in the potential market as possible. Unfortunately for the companies in country A, the cost of producing each chip is virtually negligible. The companies in country B could sell the chip for $1.25 each and make a healthy return on their investment, whereas the selling price of the companies in country A has to be $10 per chip just to break even. They cannot compete with the country B companies and in their frustration accuse country B of dumping cheap products.

Not only has co-operation in development provided country B companies with market leadership, it is possible that by pooling intellectual as well as financial capital, their product may be superior in aspects other than price alone. Of course, this is just a theoretical example, but real examples are becoming more and more common. The Blu-Ray DVD is a very good example (Christ and Slowak, 2009). Back in the 1980's the fight between VHS and Betamax cost companies a lot of money and created a number of losers on the Betamax side as well as some big winners on the VHS team. Loathe to repeat the same mistakes around 15 companies banded together to do the basic research for the Blu-Ray DVD system and then competed on the specifics of their players and recorders in the market. The market is not any less competitive, it is just that they chose to compete at a point in the lifecycle where the huge development costs are not all sunk into one organization.

10.5 Resources

Organizations need to use resources effectively. There is a need to control the financial resources used. In this section we have seen how a partnership approach makes for more effective use of the resources associated with the supply chain. Further links to ideas on cost of quality, process improvement and strategic approaches to customer satisfaction are the ways in which resource utilization can be optimised in a given company. It is not proposed to add more detail in this section to supplement those contained in other sections.

10.6 Summary and Impact

This section has shown how partnerships come in a range of types and demonstrated the potential for benefit of employing them in an organization's supply chain and beyond. The focus on long term relationships, quality and improvement replaces the traditional lack of trust and focus on cost alone.

As Ruskin says:

"There is scarcely anything in the world that some man cannot make a little worse, and sell a little more cheaply. The person who buys on price alone is this man's lawful prey." (attrib).

Review & Discussion Questions:

1. *Why do you think the idea of competitive tendering is so popular?*
2. *Consider an organization with which you are familiar (perhaps your University, or a company which you have worked for) and describe their approach to partnerships.*
3. *For the same organization, describe their approach to resource management.*

11 People in Quality Management

11.1 Introduction

This section is very closely related to the section on leadership, since leadership is about change and change, for the most part, is about people. This section looks in a little more detail at some of the specific people oriented aspects of a Quality Management approach.

11.2 Respect for the Individual

The central tenet of a Quality Management approach to managing people is respect for the individual. It is recognised that everyone has their own unique contribution to make, whatever their role in the organization. The view of an organization as a system which permeates the quality mindset helps in this regard. If we see the organization as a system we can easily realize that poor performance in any aspect of the system can reduce the effectiveness of the whole, and that interdependence is the order of the day. Apparently menial tasks can have significant impact on other aspects. For example, if cleaning is not done effectively it can have a knock-on impact on machine performance (swarf becoming an issue on cutting machines, for example), health and safety (trip hazards, slippery surfaces or dust causing allergic responses for example) and morale (no-one likes to work in squalor). Recognition of this enhances the importance of the staff that perform those tasks.

A second aspect of respect for the individual is to respect the differences amongst the workforce. This goes beyond respect for religious beliefs and cultural sensitivity (although, of course, these are important) to accept the fact that an organization has a multiplicity of views held by individuals. This may lead to conflict if individuals or groups within the organization see an issue differently, but rather than trying to impose a common view a more effective approach is to see areas of conflict as opportunities to learn by understanding all the different perspectives. By supporting individual's right to disagree we can more fully explore the way the system works and see how it might be improved for the benefit of all.

11.3 Empowerment, Motivation and Participation

Again, many aspects of this are already covered in chapter 7 on Leadership. Empowerment, motivation and participation are all inherently linked; there is no point in empowering staff if they are not motivated to accept their enhanced role, motivated staff who are not empowered to take action, but must refer to managers or stick to rigid procedures will deliver little (and soon become demotivated) and without participation it is impossible to sustain either of the other elements.

11.3.2 Motivation

As mentioned in chapter 7, it is the responsibility of leaders to motivate the individuals who work for them. Theories of motivation recognize the power of intrinsic motivation; Sarmiento, Beale and Knowles (2007) show that there is a positive and significant association between job satisfaction and performance. Motivation stems principally from the opportunity to contribute to a range of business activities and from feeling invested in the organization and its goals. Clear vision and values, management behaviour which is consistent with these and integrity and care in the way individuals are treated all help to foster and sustain motivation.

Section 11.4 looks at a very common approach to motivation and performance management, Performance Appraisal (and its frequent companion Performance Related Pay). This has been singled out for separate discussion due to the pervasive nature of the approach in industry and public sector alike, and the controversy which surrounds it in relation to Quality Management.

11.3.3 Participation

Quality Management is a participative process. It has been made clear in previous chapters that this is a very significant activity and it cannot be left to a small proportion of the organization to deliver its goals. Participation is all about involving a wide variety of employees in as much of the organizational strategy setting, policy making and deployment, and process improvement as possible. By mobilizing the brain power of all individuals within the organization it is possible to generate better ideas, better decisions, better productivity, and better quality (Goetsch and Davis, 2010). As we have already seen, the wider the participation, the more complete the organizational buy in to approaches and the more comprehensive decisions, process designs, etc. are likely to be.

11.3.4 Empowerment

If participation refers to the breadth of involvement within a company then we might want to think of empowerment as the depth of involvement. Empowerment is strongly linked to ownership. In empowering our employees we give them genuine ownership of the processes they run. True empowerment allows them to make decisions about how to do their jobs, how to best serve customers and what actions are in the best interests of the company. An empowered employee is able (and willing) to question the status quo in his part of the organization; asking not just 'how can this be done better?', but 'why are we doing this?' Empowerment implies trust; a manager must trust her staff before she can empower them, otherwise she will feel the need to put in checks and approval systems. Clearly in some cases these are necessary, but the central idea of empowerment is for decisions to be made as close to the process in question as possible. Semler (1993) points out that most participative leadership amounts to little more than consultation, as managers retain the decision making. Until you allow employees to take decisions they are not empowered and practical participation is hamstrung.

Empowerment may also require significant amounts of training; it effectively enlarges the job of the employee and they need to be prepared to take on the additional responsibilities. In some cases individuals and teams are fully able to adopt empowerment without any additional training, but where this is not the case it is unfair to push responsibility at an individual without giving them the tools to discharge the responsibility effectively.

Empowerment is most obviously visible in service organizations, whether it is the experienced midwife over-ruling a doctor in the delivery suite, or a waiter offering immediate compensation for a poor or slow meal, or a salesman negotiating a deal without recourse to his manager we know when we are dealing with an empowered employee. But in all situations one of the key outcomes of empowerment is an enhanced level of ownership, pride and engagement in all staff. It is natural to care more when the process more closely reflects your decisions and priorities. A caution to note is that many organizations say 'empowerment' when what they mean is 'blame'. By this I mean that they see this as a way of holding employees more responsible for the outcomes of their process without necessarily giving them more control. This is a disastrous error; the 'responsibility' is on paper only and not in the hearts and minds of the employees; as they know that they cannot take genuine responsibility for things they are not allowed to control. Deming would think of this as being about allowing employees to take pride in their work.

To create an empowered workforce the role of management is to create the environment for empowerment to happen. This will involve things such as:

- Encouraging challenge and questioning; not being defensive of their position.
- Facilitate and mentor to help people take on extra responsibility.
- Acting quickly on concerns where possible, recognizing efforts and accomplishments.

11.4 Teamwork

Teamwork is a crucial aspect of Quality Management, while individuals are very important, most of the work undertaken in an organization will be undertaken in teams, whether they are manufacturing teams, management teams or improvement teams. Teams are important for several reasons:

- ***Task Complexity***: Most tasks in organizations are multi-faceted and complex. The likelihood that the knowledge and expertise of one individual will be sufficient to complete the task is limited.
- ***Synergy***: Working together, teams can become much more than the sum of the individuals within them – think about great sports teams; although there may be outstanding individuals within the team, it is those that work best together who maximize their potential and win more often than not.
- ***Communication and Understanding***: Working together in a team (especially a cross-functional team) allows for individuals to better understand the issues they and others face as part of their working lives. Communication will be enhanced and a broader understanding of processes and their problems generated.
- ***Social Interaction***: Humans are social animals, working in isolation is not normal for us; being in teams helps with the sense of belonging which Maslow (1987) identified on his Hierarchy of Needs.

11.4.1 Building and Leading Teams

Although working in teams can be seen to be 'natural', the work situation can create stresses which mean that they require care and effort to set up and lead. They are essentially a microcosm of the organization as a whole and so present similar issues to leaders: Team leaders need to act as coaches and mentors rather than controllers and drivers; it is important to have clear vision and goals for the team to which the team are bought-in; support, challenge and trust are also important within the team and between the leader and the team; teams need to be environments where learning occurs and is stimulated (more detail on all of this in chapter7).

An effective team must have the following (Adapted from Goetsch and Davis, 2010 and Lencioni 2003):

- A strong team identity and purpose.
- Clear goals, strong commitment and effective accountability.
- Healthy levels of challenge and conflict.
- Trust and integrity.
- Mutual support and participation towards team results.

There is, of course, much more to say on teams, and many authors have done so (e.g. Sethi, Smith and Whan Park, 2002; Lencioni 2003) but that is not the main purpose of this section.

The principal use of teams in the Quality Management environment is in process improvement: Quality Circles (sometimes called Quality Control Circles) and Quality Improvement Teams (which have been given many different names in different organizations).

11.4.2 Quality Circles

Quality Circles originated in Japan. Before the war Japan had a reputation for copying western ideas, thereby producing a version that was cheaper, but quality-wise much inferior. Over a long period during both the 1940's and 1950's Professor Ishikawa, amongst others, studied the situation and concluded that much of the trouble originated from the gulf between management and shop floor. Operators were frequently well aware of the cause of quality problems and, with modern standards of education, often knew how to cure them. The trouble was that they were not usually asked. The solution, he concluded, was to introduce quality circles. The first of these began around 1962, and were so successful that today Japan is reputed to have over 1,000,000 circles, involving some 10,000,000 workers.

A Quality Circle is a small voluntary cell of operators sharing a common work situation who meet as they deem necessary for the reduction, by their efforts, of the countless number of problems that impede the effectiveness of their work. Each circle member is an equal partner in the venture and meetings take place in company time. The frequency and duration of meetings is set by the group, but it will be regular and often on a weekly basis. Although they have a common work interest the members do not necessarily do the same job. For example, a foundry circle may have two moulders, one pattern-maker, one furnace man, one foreman moulder, one sand technician, one fettler and one inspector. The term operator is used to describe people working at the same level, usually at the producing end of the enterprise, although producing can have a fairly wide interpretation and circles are coming to be seen in very varied spheres of activity.

There are five fundamental benefits expected from the operation of Quality Circles. The relative importance attached to these benefits will largely be determined by the task or people orientation of those responsible for their introduction into the company. They are offered, as follows, and no level of importance is implied by the order in which they are presented:

- ***Direct Pay-off (cost/benefits)***: The actions of quality circles save money, by working on problems and waste they generate a direct pay back to the company for the time and effort invested.
- ***Operator to Manager Dialogue (involvement, participation, communication)***: The formal organisation structure evident in the majority of companies can often be counter-productive to communication, causing the organisation to operate at a sub-optimal level of effectiveness. Messages are difficult to transmit through more than one control level, and even when coming down they seem frequently to become strangulated or distorted unless they originate from the very top. Under these circumstances it is little wonder that the problems that beset and bedevil the operators remain unseen or unheard, or lose their urgency by default of the system. Invariably, the shop floor has no mechanism to transmit its problems directly to another part of the organisation. Quite frequently problems causing a significant loss of output hang around for many years, without any attempt being made to find a solution. At operator level the abandonment of any attempt to solve their problems, is seen as an expression of lack of interest by the rest of the organisation. The frustration that results is the breeding ground for a change of attitude away from enthusiasm and towards indifference and disillusionment. The circle can utilise its creative ability in a large variety of ways, to set-up rewarding information links with managers, to generate alternative solutions to a given problem, (whatever the nature of that problem), to determine the optimum way of implementing a particular solution. All this leads to a directness of approach and speed of solution that in turn leads to the removal of many habitual and long standing problems in a short space of time. Additionally, this same directness keeps its shop floor peer group well informed of management ideas and intentions, and keeps management well informed of shop floor opinion.

- ***Manager To Manager Dialogue (awareness):*** The complacency of many managers, believing they are doing their job well, often receives a severe jolt when they become involved in a circle. They are shocked to find their desired intention to communicate does not necessarily presuppose an actual ability to communicate. This apparent disparity, after an initial self-appraisal, culminates in a useful discussion with other managers about improving their attitudes and about ways and means of eradicating some of the shortcomings of the formal systems.
- ***An Operator To Operator Dialogue (attitudes):*** Membership of a quality circle is likely to be the first time that operators work together to solve work-related problems; the operation of the circle will provide team building. Once the formation of the circle has proven successful, the initial scepticism and reluctance to believe that circles can achieve a change and gradually a positive attitude towards the work place will occur.
- ***A Quality Mindedness (product quality and reliability, prevention of non-conformance):*** Following the positive change in operator attitude to the work place and management, a shift in attitude towards improvement will occur. This change is significant because the organisation will then have teams of people proactively seeking change for the better, rather than a work force united by resistance to change imposed by an apparently uncaring management. As people realise that by their own efforts, together with supportive management, they can improve their processes a quality mindedness will develop. Deming would relate this to the workforce being allowed pride of workmanship. As more circles form then the shift from a few (management) people thinking about improvement in the organisation, towards everyone being harnessed to achieve excellence occurs.

- ***The Personal Development of Participants***: For many people the education and training process ends when they finish school, apart from informal on-the-job training. The successful operation of quality circles is based on training ranging from problem solving techniques to report writing and development of interpersonal skills. Since this training is applied when it is required for immediate use, the skills of the operators are developed to give a more capable workforce.

The principal benefits of Quality Circles are to change attitudes and harness the efforts of all the company's employees to improving the way it does business. The Japanese description of the effectiveness of a quality circle is expressed as:

"It is better for one hundred people to take one step than for one person to take a hundred".

Quality Circles should be formed and managed using the following guidelines:

- ***Start on the Shop Floor:*** Quality Circles should start on the shop floor; it is vital that the formation of the circle is not seen as yet another management flavour of the month or other similar initiative that has failed after a short time. In the opening session Quality Circles should be explained and particular emphasis should be placed that the circle belongs to the members and not the management.
- ***Base Circle on Training:*** Quality Circles should be based on training to ensure the participants have the appropriate skills before attempting any improvement work. The training should be conducted in a professional manner; if necessary get someone from outside, not associated with management, to give the training sessions. It is important that the training is not delivered on a shoestring. Nothing sends a clearer message than a poorly delivered course with inadequate supporting notes. The formation of a Quality Circle is an investment in people, and there is an opportunity to foster initial changes in attitude by providing well executed training.
- ***Allow The Circle To Form Itself:*** The circle should have a degree of autonomy and be encouraged to form its own group. In organisations that have unions it may be a good idea to get the shop stewards involved. The group size should be between 6 and 10; any smaller than 6 makes it likely to have insufficient combined experience, and if greater than 10 makes self management difficult. It is advisable to run 2 pilot groups when starting Quality Circles so that if one fails and the other survives there is more information available to understand the difference between success and failure.
- ***Management Support:*** The group must be allowed time and resources to enable it to conduct its activities properly. If action beyond the circle's span of control is required, management must become involved to facilitate, coach and encourage. During their problem-solving activities the circle is likely to require information that is usually retained by management. It is vital that this information is provided when requested.
- ***Provide Skills And Experience:*** If the circle needs additional skills or experience from a member of staff, these should be provided to enable them to conduct their work.

- ***Recognition System:*** Some form of recognition system for achievements should be devised. This does not necessarily have to be in the form of monetary payment, and the author believes that financial recognition is probably the least effective. Referring back to Maslow, esteem needs are far more likely to be fulfilled by presentation by the circle of their work to senior management, or an article in the company newsletter.
- ***Integration:*** The Quality Circles must not be started in isolation; they are part of a wider programme of Company-wide Continuous Improvement. Thus, the education of management as part of a larger programme must precede the formation of Quality Circles.

11.4.2 Quality Improvement Teams

Quality Improvement Teams (QITs) can be formed where there is a specific problem whose solution is unlikely to reside in a single department and which is large enough to justify the establishment of a team to resolve the problem. For example, if test equipment is always breaking down it may require the combined actions of Production, Testing, Technical Departments as well as the Supplier, and a team could be formed which would include all these departments. It is most important to realise that these teams are **not** the same as Quality Circles; they have a different purpose and are formed differently and have unique characteristics:

- They are set up by management and, therefore, can be seen to be an extension of the management process. Members are selected for expertise that is likely to assist in the resolution of the problem.
- They are inter-departmental in membership. The more strategic issues in an organization cross several departments and it follows, therefore, that the solution to problems which have strategic significance are likely to lie in a number of departments which must be represented in the team membership.
- Problems for resolution are usually generated outside the group. Expressed another way, the group is usually formed to resolve a problem identified by others.
- The team is usually disbanded once the problem is solved; another team may be formed immediately to resolve a different issue.

The use of QITs as a powerful problem-solving activity has benefits in addition to the solution of the problem under consideration:

- ***Break down Inter-Departmental Barriers:*** Many organisations adopting Company-wide Process Improvement find that the obstacle of departmental rivalry is difficult to break down. Organisational structures and appraisal systems have tended to produce senior management that is more committed to departmental rather than corporate goals. The formation of a multi-disciplinary team from various company departments starts the process of breaking down traditional departmental barriers. Part of the QIT process is team building and ownership of the problem, the resolution of which they seek, regardless of the departments involved in corrective actions. That is QIT members tend to identify with the team rather than doggedly retain old departmental allegiance.
- ***Solutions Are More Global In Concept:*** Allied to the previous benefit is the tendency for solutions to be more global in concept rather than being ruled by more narrow departmental considerations. Thus, solutions are developed which are optimised for corporate rather than departmental goals.

- ***Improved Communications:*** Also allied to the breaking down of departmental barriers is the resulting improvement in communications throughout the organisation, as problems and potential causes are discussed more openly and solutions are sought for the corporate good rather than to shift blame.
- ***Improved Problem Solving Capability:*** As the success of the QIT activity becomes more established, so will more teams be formed to overcome difficult problems that hitherto have remained unsolved. This process will create a degree of mobile expertise in problem solving within the company.

Although QIT members may be selected for their expertise or knowledge pertaining to the project, they may not have the necessary skills in problem-solving. If this is the case, adequate training in appropriate skills must be provided before the QIT starts work. To deny the team the problem-solving tools it needs to carry out the task is inviting failure, which will affect not only the issue under consideration but the credibility of the QIT process itself. It is equally important that QIT members and the person appointing the team understand the problem-solving method.

11.5 Developing People

Since we accept that people are crucial to the success of an organization, it follows logically that we should pay attention to the development of this important organizational resource. The EFQM model (EFQM.org, 2010) suggests that an excellent organization will identify, develop and sustain employee's knowledge and competencies. Whilst important this may be slightly reductive with the focus firmly on training, which is necessary but not sufficient for long-term success.

It is worth noting the difference between training and education in the work context: Training is immediate, specific and focused on the current role of the employee. Education, on the other hand, is about developing latent abilities, seeing bigger pictures and contextualizing experiences. In short, training helps us to respond to an immediate organizational need better, while education is about an uplift in our knowledge and capability which may not have an obvious immediate impact, but which may allow for a broader or more effective contribution in the future.

Training might, for example, involve learning how to do a particular aspect of your job better; an advanced course on a computer program or a customer care workshop. Education might involve something like learning about psychology. This may have no direct impact on the job you are presently doing but could bring benefits in improving the way you interact with your team, or recognize the mental processes at work in decision making, allowing for more effective contributions in this and more senior roles.

Many organizations are looking at how they can develop people more broadly than simply task-oriented training. For example, at The University of Warwick, staff members can choose to undertake any programme of study offered by the University (subject to availability) at no cost to them. There is no requirement to prove the direct benefit to your current role in the university, as the learning process itself is seen as beneficial.

It is crucial to see development as something that benefits the organization (even if indirectly) rather than a 'perk' which has to be earned. Also, formal courses are not the only way to develop staff, mentoring and reflection opportunities are also important. For example, Giordano (a clothes retailer based in South-East Asia) guarantees staff at least 60 hours of training a year, and new staff are allocated a 'big brother' or 'big sister' to help them develop their skills.

11.6 Reward and Recognition: Performance Appraisal and Performance Related Pay

It is recognized that reward and recognition are a key part of managing people. This section examines the predominant approach and considers how well it fits with the broader Quality Management principles.

Performance appraisal and performance related pay (PRP) have long been cornerstones of the Performance Management of commercial organizations. They form a fundamental part of Taylor's Scientific Management approach and although in their most basic form (piecework) they are now becoming discredited they remain crucial, in more sophisticated guises (merit rises, performance bonuses) to management theories such as Management By Objectives (MBO). Performance appraisal has been challenged by key Quality thinkers such as W. Edwards Deming (1990) who identifies it as one of his 'Seven Deadly Diseases' and denounces it as the most pernicious source of competition in the workplace which he sees as a fundamental failing of most Western enterprises. It is, however, germane to note that even most organizations which purport to have followed the 'Deming route' to excellence have ignored his thoughts on performance appraisal and PRP. Research has not yet made dear the full reasons for this, but Deming's views on this area remain controversial whilst the rest of his philosophy is becoming much more main-stream.

The purpose of this text is to set out some of the arguments for and against performance appraisal and to indicate potential alternative approaches.

11.6.1 The Case for Performance Appraisal

Performance appraisal is a necessary pre-cursor for performance related pay (PRP). Before merit-based pay can be awarded some estimate of the value of the work performed by an individual must have been done. In this context we shall regard performance appraisal in its most common form: an annual, or more frequent, formal discussion between a subordinate (appraisee) and his or her line manager (appraiser). The discussion may include reference to targets set at previous appraisals and the appraisee's performance against these targets, barriers to achievement of such targets, training needs, immediate and future career aspirations and the appraiser's views on the levels of performance attained by the appraisee allied to plans for improvement and targets for the coming period. Note that not all appraisal systems will incorporate all these elements and that even those that do will give different weight to the elements depending on the culture of the organization and the individual circumstances of the appraiser and appraisee.

Claims Made for Performance Appraisal Systems

Performance Appraisals Give Direction: By having a regular, formal time and space set aside for discussing performance management are able to give one-to-one guidance on the direction which his role within the organization needs to take in the light of organizational goals. Agreement of goals between appraiser and appraisee not only helps to align the direction of the individual and the company but also serves to indicate the levels of performance deemed to be acceptable.

***Performance Appraisals Give Feedback*:** The performance appraisal interview is the ideal forum for giving feedback on the performance of an individual over the appraisal period.

***Performance Appraisals identify a reason for Training*:** During the performance discussion it is natural that areas of relative weakness will be surfaced, this allows for the setting up of training or education programmes alongside other remedial actions in order to facilitate the development of the individual in the required direction.

***Performance Appraisals Allow Reward to be Related to Performance*:** The formal rating of performance means that good performance can be rewarded, delivering improvements, in morale and motivation. If an employee can see that effort and/or success lead directly to financial reward then they will work harder towards their goals. By rewarding performance it is also possible to attract and retain high achievers as they will see themselves as being dealt with fairly in respect of their exceptional abilities and work rates.

***Performance Appraisals Set Goals Which Motivate*:** People are motivated by knowing what is expected of them, if goals are set at an appropriate level (challenging but achievable) they will encourage the employee to stretch themselves in pursuit of the high standards set, thus maximising the performance of individuals, and thus the organization as a whole.

11.6.2 The Arguments Against Performance Appraisal

The previous section contained what might be described as the conventional wisdom regarding performance appraisal. The process is still very widely used and justified in these terms by the organizations which do so. A growing body of opinion is, however, challenging these arguments. The central tenets of this group of thinkers is that, although some of the needs claimed to be fulfilled by performance appraisal and PRP are valid and important, the costs to the organization of adopting this approach are far greater than any benefits gained. They also argue that, even on some of the matters for which the approach is traditionally regarded as strong empirical evidence and sociological theory do not support its efficacy. Let us now examine the problems they see with performance appraisal and PRP.

Performance Appraisal Is Neither Repeatable nor Unbiased

The arguments for performance appraisal rest principally on the fact that it is an accurate and unbiased measure of the relative contributions of various members of an organization to the goals of that organization. This is traditionally taken as read but it may not be quite that simple. If we take a systems view of work (i.e. that all individuals are in fact, part of a system and dependent to varying degrees on other individuals and system design/culture in their performance) then this central tenet seems less obviously true.

A suitable analogy is the teaching environment. The system here includes the teacher, the individual student, the teaching system (Lecturing to 100 people vs. small seminar groups, audio-visual aids, library support, time allocated vs. material in the syllabus, etc.), the other students, the classroom itself (temperature, comfort, lighting levels, etc.) and the material being taught. Failures in any one, or a combination, of these elements can cause a dip in the performance of the individual student in examinations - we have all experienced a subject taught badly or the effects of disruptive classmates. The appraisal is of the individual student despite the multiple factors affecting performance. Of course, especially gifted students may be able to overcome negative elements in the other factors, just as particularly poor students may fail in the most propitious of circumstances, but this only indicates that the appraisal may work at the extremes of the scale but is doomed to be inaccurate for the vast majority of students.

The same situation arises in commercial organizations. Each individual works within a system created by management (corporate culture, accounting practices, departmental set-up, etc.) and is part of a customer-supplier chain- depending on his suppliers and responding to his customers. Add to this the fact that the apparent performance of an individual will be dependent upon his native ability and early education, amount of effort expended, training and experience in the job, capability of the system and any variability in the evaluation mechanism and it is evident that we have a complex equation:

Effort + Ability + System Capability + Training/experience + Etc...= Performance

In the video "The Case Against Performance Appraisal" Peter Scholtes argues that, of all the elements noted above only individual effort is truly under the control of the appraisee (although it may arguably be acceptable to rate an individual with regard to native ability since this is a fixed facet of that person). He further states that only organizations which can solve the above equation, rating only by individually controllable elements, are qualified to run performance appraisal schemes - a clear impossibility.

Since performance appraisal involves human interaction it will, of necessity involve variability. This will take several forms:

Personal bias on the part of the appraiser has long been recognised as a problem. As long ago as the 18th Century China's Imperial evaluator was accused of making judgments according to his own likes and dislikes.

Since relationships will change over time this can be viewed as a lack of repeatability in the measurement system. Some appraisal schemes seek to avoid this by encouraging appraisers to stick to objectively measurable items for appraisal (deadlines met, output, etc.). This, however, will inevitably lead to a focus on measurable items rather than important ones. For example, interpersonal skills, team working and problem solving ability are all difficult or impossible to measure quantitatively.

In addition to likely personal preconceptions the review will also be influenced by the paradigm within which the evaluating individual is operating. The two extremes of this are assumptions that 'all my people are good' or that 'all my people are poor'. It is clear that the same person being evaluated by two managers operating under the opposite assumptions would receive very different feedback. In technical terms this can be described as a lack of reproducibility. A further complicating factor is the reputation of an individual; if they are universally viewed as a high flier then there may be pressure on the appraiser to look for evidence to support this view where, in someone seen as a poor performer, evidence in this direction may be given undue weight. This is sometimes known as 'The Halo Effect'.

Appraisal Against Targets is Unworkable and Misleading

This is a general argument of Dr. Deming against the application of targets which has particular relevance in performance appraisals -where targets are set for individuals to meet over the appraisal period (note that this is a common but not absolutely necessary part of performance appraisal).

There are several aspects to the argument the first being that setting goals which will be challenging but achievable over perhaps a six month or one year period is virtually impossible. How can we know what will happen over the course of this period when most organizations find even rough estimates of customer demand almost impossible to achieve over similar periods. Following on from this there are related problems with how people will react to the targets. Dr. Deming argues that if a target is set too low it effectively puts a cap on the aspiration of the individual. If they can achieve the target with minimal effort, why should they exceed it? This problem is compounded by the tendencies of organizations to set harder targets in years following exceptional performance. Think about the way departments always spend every last penny in their budget so it isn't cut next year. If targets are set too high then when it becomes apparent that they cannot be met then the individual's focus is likely to shift from improving his own performance to cheating the measurement system or to ensuring the blame for failure can be placed elsewhere.

Targets have a further problem in the context of performance appraisal. Since the targets are supposed to be agreed between the appraiser and appraisee it is possible that the apraisee will try to ensure that the targets are easily achievable. This 'aiming for mediocrity" approach (Scholtes, 1990) is a safety first response from individuals who feel threatened by the system.

The thrust of this section is not to imply that the measurement of performance is bad, but to indicate that if such measurements are used to evaluate individuals rather than as an aid to improving the system (of which the individuals are an important part) it is likely to create negative reactions which undermine rather than enhance performance.

Performance Appraisal is Not a Motivator

Much motivational theory (including Maslow,1987 and Herzberg, 2003) challenges the concept of money as a motivator in all but the most deprived circumstances. Instead, they argue that -provided the individual has enough money for their basic needs- emotional and psycho-social factors have more power to influence motivation and hence performance. This indicates that many organizations which attach monetary reward to performance appraisal systems -merit rises, bonuses, etc. - may be wrongly focused. Other theories (such as equity theory) however, tend to be more supportive of PRP.

It seems that the softer elements of appraisal; feedback, support mechanisms, listening to concerns etc. may be more important than the related monetary rewards.

Performance Appraisal is Anti-Teamwork

The arguments in this section apply to performance appraisal to some extent but are more particularly relevant to those systems which link performance to reward. By rating individually performance appraisal schemes create artificial demarcation within teams and departments. By setting specific goals for personal performance it dilutes the goals of the team or the process and places a strain on customer-supplier relationships -do you work towards meeting your appraisal goals or satisfying your customer needs? Aligning appraisal goals to customer requirements and process goals can minimise this but cannot totally remove the issue.

Tension can be caused within teams both prior and subsequent to appraisal. In the run up to the appraisal meeting each individual in the team is likely to be more focused on their own progress than that of the team as a whole. This will lead to them concentrating on tasks which reflect well on them at the expense of potentially more important activities from an organizational perspective. The degree of this behaviour will depend upon the individual concerned and their present circumstances -the more below target they are the more likely they are to concentrate on their own activities. Post-appraisal tensions will result from differential rewards and may take the form of resentment towards better rewarded individuals or, in more extreme cases, lack of co-operation with 'winners'. This latter is particularly likely if the awards have been made due to 'special skills'. I have seen cases, for example, where members of a team refused to use computers when one person had been awarded a merit rise based largely on his ability with IT applications.

Performance Appraisal Creates Losers and 'Players'

Performance appraisal systems (particularly those incorporating PRP) create a small number of winners and a far greater number of losers. If in an office containing 10 people all doing the same job everyone is given a merit raise of 15% except for one worker who is given 15.2% it is likely that the rest of the office will spend more time wondering why that person was given more than they were rather than focusing on their own significant rise. This creates a class of bitter losers, hardly the intention of the scheme. Companies often exacerbate this problem by their approach to targets; it is not unusual to move targets if they appear to be being met too easily and thus create a culture of failure. Neill Irwin of ICL quotes this as being the consistent practice of that organization in their pre-TQM days.

There will also be individuals who become adept at playing the system, squeezing other departments or individuals in order to maximise their own gain. Such individuals will push problems elsewhere (passing scrap to other departments, blaming suppliers for faults for which they are responsible, etc.) and focus on beating the measurement system rather than on the benefit of the company. This will naturally bring the appraisal system into discredit.

Performance Appraisal Reduces Informal Communication

For many managers the performance appraisal system is the way in which they communicate with their subordinates. This creates problems because appraisals typically happen every 6 or 12 months whereas the situation for most individuals changes on a monthly if not weekly or daily basis. By setting aside time for formal review it is quite possible that the manager feels released from the obligation to 'walk the process' or communicate regularly with workers. The 'my door is always open' approach is often taken, but this puts barriers in the way of real communication since a worker will feel that he/she has to have an agenda to cross onto the manager's turf rather than just talking about the job. In this way it could be argued that by introducing a small number of formal opportunities for discussion, the potential is created for a failure to pursue other, less formal opportunities.

11.6.3 Making Performance Appraisal Work Better

There have been several developments in the approach to performance appraisal which have been designed to counteract some of the criticisms noted in the last section. A combination of such changes is likely to form an appropriate response for those who feel that performance appraisal is a flawed but workable system.

Some of these strategies are briefly discussed below.

Involvement

To be properly workable an appraisal system should be something in which everyone has a stake. Personnel, who will typically run the system, must involve its users (appraisers and appraisees) in establishing its objectives and creating and installing the system. Obviously this will involve individuals to various degrees, but if people do not feel they are partly responsible for the system they may not respond positively to its outputs.

This principle should also be carried through into the operation of the system; commitment can only come from the appraisee believing that appraisal is a two- way street.

Action Based

Appraisal systems need to be about facilitating change. If nothing happens as a result of the meeting it will be seen as a waste of time. Follow up action may be necessary throughout the appraisal period as priorities and circumstances change. The plan resulting from the appraisal needs to be a live document, not one that is only dusted off once a year to measure the appraisee.

Fairness

Actions need to be put in place and monitored to ensure that the system is perceived as fair. Principal amongst these must be the training of all appraisers. Only by consistent and adequate training can the necessary degree of uniformity be ensured. If there are people in the organization who are seen as 'soft touches' it will undermine the whole system, so ongoing monitoring of the appraisers is also vital. The involvement of individuals in setting of goals etc. will also help to improve the perception of fairness by keeping the system open.

The Balancing Act

In all appraisal systems the appraiser is treading the thin line between judge and counselor, both roles which he or she will have to fill at various points during the interview. More successful appraisal systems will tend to focus more on the counseling for improvement rather than the judgment of performance. It is, of course, still debatable whether this balancing act is truly possible; however it is approached there is going to be a degree of criticism in appraisal which is likely to have a negative effect in a number of cases. This approach is about minimising that impact.

One key way in which we can make the balancing act much easier is to break the link between pay and appraisal. This means that the focus can be on improvement and not on the effect of the appraisal on the individual's income. The break must be a real one, if merit increases are still awarded the traditional claim by organizations that they are not related to the performance appraisal will be seen for the humbug it obviously is. The problem with this may be that the link between performance and reward is seen as crucial by the organization so this approach may not be acceptable.

Three Hundred and Sixty Degree Appraisal

This is a more modem approach to appraisal which allows for appraisal to occur not only in the hierarchical fashion which is more traditional but also for the subordinate to appraise his or her boss and for peers to appraise each other. This provides a more holistic view of capabilities as some will have better experience than others of certain aspects of the appraisee's behaviour. For example, a peer would be better qualified to judge someone's team working ability whilst a subordinate might have a dear view of their ability to delegate. Theoretically this also allows the judgmental sting to be taken out of the appraisal system because only one appraiser has any power over the individual.

Whilst this system is quite appealing in its apparent egalitarianism it must be remembered that it has certain practical difficulties: it involves more paperwork; there is the danger that the validity of the appraisers (and thus of the process) is questioned by the appraisee; there is a potential for minimising negative comments since everyone you appraise gets to appraise you; consistency of appraisal technique is even harder to establish.

Some organizations, for example Semco, have turned the appraisal system on its head, i.e. the managers are appraised by their subordinates and not the other way round (Semler, 1993).

11.6.4 What to do Instead of Performance Appraisal

The first thing to say is that if you view performance appraisal as having significantly negative effects then you do not necessarily have to have anything to replace it in order to have justification for stopping doing it. Just stopping will be beneficial to the organization. However, it is unlikely that any organization which currently operates performance appraisal would be prepared to stop it without something in its place to achieve the perceived benefits of the system, so let's examine how this might be done by looking at some of the key areas where performance appraisal might be expected to contribute to an organization.

Giving Direction

It is possible to give direction by many other means than performance appraisal. The process can be begun, for example at a team level with team briefings. Indeed it could be argued that direction at team level is more appropriate with the team then allowed to sort out internally roles and direction for individuals. This can be supported by a 'Managing by Walking Around' approach. By visiting individuals in their place of work you can allow direction to be passed on much more informally than in the appraisal interview where communication is interfered with by roles and perceptions about the nature of the discussion. By having informal discussions it is possible to allow the worker contribute to the setting of the agenda and therefore to make the direction much more meaningful and focused.

Giving Feedback and Identifying Areas for Training

The simplest way to give feedback is by the 'Management by Walking About' system noted above. The more informal the setting the less threatening the feedback (especially if improvement is required) and the more likely it is to be taken on board and acted upon. People who feel threatened do not respond well to perceived criticism. A salient point here is that perhaps the manager of the individual is not the best person to be giving feedback. By encouraging teams and individuals to take a process approach to their working environment rather than a hierarchical one much more appropriate and useful feedback can be provided to the individual from customers, suppliers and members of their team. Training needs can similarly be better identified by the individual and his peers within the customer/supplier chain.

Developing Reward Systems

One of the thorniest areas when moving away from performance appraisal is that of rewards. Most organizations use the results of performance appraisals to feed into their payment systems, most commonly some form of PRP. The fact that many individuals within the organization do not consider the rewards to be fair or equitable does not counter the fact that, from the company's perspective, they have a reward system based on a logical view of the contribution of each individual.

Alternative strategies here might include establishing a market rate for an individual (including levels of experience and skills) or for a job; payment by seniority (pay for age) recognising that time in the organization is likely to impart more knowledge, expertise and local understanding; rewarding the accumulation of relevant skills (pay for knowledge), recognising that the more skills acquired by the individual the more they are able to contribute. On top of these approaches many organizations would add a prosperity bonus (profit related pay) to tie earnings to the overall performance of the business so that everyone is encouraged to pull in the same direction.

Providing an Objective Basis for Promotion

The vulnerabilities of performance appraisal do not make it an ideal way of deciding on promotions but it still needs to be replaced by another system. Several possibilities are available: Assessment centres taking advantage of the latest thinking on psychometric testing and psycho-social profiling as well as traditional interview techniques, these centres may also involve customer input to establish the key characteristics of successful applicants; lateral moves to establish flexibility and the ability to perform in a variety of environments; special projects or assignments being spread around amongst all likely candidates to establish their abilities in a more objective fashion.

Motivating Staff

It seems likely that the elements of appraisal which motivate staff are the non-monetary ones such as feedback, management showing an interest and any actions taken to improve the lot of the appraisee as a result of the discussion. All of these elements can be equally well addressed in other forums by the techniques mentioned above. If the PRP element does indeed contribute to motivation (although evidence for this appears weak) it could perhaps be compensated for by better recognition systems with non-monetary rewards for special achievement (inclusion in company newsletters, presentations to the board, tie-pins etc.

There is no longer a consensus on the desirability of performance appraisal. In the end the decision will be made according to the individual's view of the world and the experience of the organization with the impact of performance appraisal. It may be necessary to slay a few cultural dragons in order to facilitate the necessary changes to the organization's approach to this delicate area.

The System is deceptively simple; none of the elements are unduly complex in isolation, but in practice their combination requires significant effort and ingenuity. The first step however, is to grasp the need to move away from the simplistic, results focused, mechanistic approaches which have their roots in Scientific Management and to develop a people and process centred learning culture more compatible with long-term survival in today's increasingly competitive environment.

11.7 Summary and impact

This section looks at people in the context of Quality Management. As previously mentioned, each of the topics have many texts which deal solely with that issue in the wider literature, the purpose here is not to replace those.

Quality Management is highly people focused and requires emphasis on the motivation, participation and empowerment of people. In support of this careful consideration needs to be given to how we select, develop, organize and reward teams and individuals. The principle consideration is respect for the individual and recognition of their central part in achieving excellence.

Review & Discussion Questions:

1. *Consider any organization you are aware of from work, study or the media. How do they manage people? Do people in those organizations feel important?*
2. *What is your personal experience of performance appraisal and/or performance related pay? Consider the arguments made in this chapter, which best fit your experience? Ask others for their experiences and see if you can build up a picture.*

12 Ethics and Corporate Social Responsibility

12.1 Introduction and Conceptual Foundations

How should we live? Shall we aim at happiness or at knowledge, virtue, or the creation of beautiful objects? If we choose happiness, will it be our own or the happiness of all? What are our obligations to the other creatures with whom we share this planet and to the generations of humans who will come after us?

Ethics deals with such questions at all levels. Its subject consists of the fundamental issues of practical decision making, and its major concerns include the nature of ultimate value and the standards by which human actions can be judged right or wrong.

The terms ethics and morality are closely related. We now often refer to ethical judgements or ethical principles where it once would have been more common to speak of moral judgements or moral principles. These applications are an extension of the meaning of ethics. Strictly speaking, however, the term refers not to morality itself but to the field of study, or branch of inquiry, that has morality as its subject matter. In this sense, ethics is equivalent to moral philosophy.

Although ethics has always been viewed as a branch of philosophy, its all-embracing practical nature links it with many other areas of study, including anthropology, biology, economics, history, politics, sociology, and theology. Yet, ethics remains distinct from such disciplines because it is not a matter of factual knowledge in the way that the sciences and other branches of inquiry are. Rather, it has to do with determining the nature of normative theories and applying these sets of principles to practical moral problems.

Are business ethics different to medical ethics or legal ethics? The question here is whether ethics is a discipline that is applied to other disciplines. If this is so, one could consider ethics to be overlaid on the primary discipline, and, therefore, if a conflict took place, which would take precedence?

It is important to regard ethics as a framework within which we operate in society and the values or principles that society adopts should be applied to all disciplines.

12.1.1 Conceptual Foundations

In order to understand the conceptual foundation of a business, it is necessary to understand the goals of the organisation. Is the singular goal to make profit or is it to produce a product or service for a customer? Whether or not it is recognised by those in the business, the purpose of a business is to provide a product or service to someone and from this profit may arise. Deming felt strongly that if the prime motivation of an organisation was towards satisfying the customer, profit would result. The converse is not true. There are countless businesses who failed to survive despite achieving high levels of profit shortly before their demise.

Is there then a conflict between an organisation that makes ethically sound decisions and the need to make profit? If one takes the view that the output of an organisation may affect people or society in general, then are not the people or society customers of the organisation? If they are regarded as customers then there need not be a conflict between meeting their needs and achieving profit. Of course there may be instances when sound ethical decisions may conflict with the interests of certain customers, in which case the management must make a judgement on the long-term effects of their decision. It is interesting to note that the Business Excellence model has a separate category in the assessment of results for the organisation's impact on society. This implies that the immediate customers of the organisation are not the only ones whose needs must be catered for.

12.2 Ethical Models

There are a range of ethical models which may be applied by an organization, they are dependent upon the ethical stance of the organization concerned and arguments can be made for each one.

12.2.1 Egoism

Egosim is the concept that individuals should always seek the greatest personal benefit regardless of the consequence for others. It is a central tenet of many economic theories that this is how humans are programmed to behave, leading to the concept of 'Homo Economicus' where individuals always seek to optimise their personal economic outcome in every situation (there is a reason why Economics is known as 'the dismal science') (Aldred, 2009) . The extension of this to businesses is that they should always maximise their benefit in a given situation, regardless of other impacts. So, for example, a business would not consider the social or ecological impact of polluting rivers with effluent from their plants. The only reason they might consider avoiding such action would be the potential or actual cost of polluting exceeding the cost of not polluting (through legislative penalties, loss of market share, etc.).

12.2.2 Formalism

Formalism comes from the works of philosophers such as Kant, and holds that there a certain set of 'natural laws' of ethics (Pollock, 2001). That these laws can be clearly defined and apply in all circumstances; there is no room for interpretation. So, for example, slave labour is wrong; or moving production to an economy where costs of compliance with ecological mandates are reduced because of lower regulatory requirements is not acceptable. Virtue ethics is another form of this approach where an individual or group of individuals seeks to do 'what is right' regardless of the consequences for themselves or their interests. While it is hard to argue that a complete moral set of rules can be generated, organizations may choose to have a set of 'absolutes'; the stance on slavery certainly seems uncontroversial for example. The company can leave room for manoeuvre on issues which are not so clear-cut and apply another approach in these cases.

12.2.3 Relativism

The relativist tradition suggests that morals (and thus ethical behaviour) are not absolute, but are rooted in the traditions, values or practices of an individual or group (http://www.moral-relativism.com, 2011). So, a company might define its own set of values. It may become complicated where an organization operates multi-nationally. Norms of acceptable behaviour are different around the globe. For example; in some parts of the world bribery of officials is an accepted cost of doing business, while in others it attracts outrage and heavy penalties. In this case, the question for a company rooted in the latter tradition is, do they refuse to offer bribes, despite the potential business impact and local norms, or do they flex to do so where it is accepted locally, but not in territories where it is frowned upon?

12.2.4 Utilitarianism

Based on the ideas of John Stuart Mill amongst others, utilitarianism is the idea that the best course of action is the one that creates the most benefit for the greatest number of people (Lyons, 1965). This makes sense as an abstract concept, but as with most moral philosophies, it is complicated to apply. For example, do business decisions need to consider the good of competitors (they have workers with families, etc. too)? How do we determine how many people will be affected, and to what extent, by our actions? If applied rigorously there could be very protracted debate and information gathering about apparently simple business decisions.

12.2.5 Ethics in Practice

Practically organizations, and especially those which are profit oriented, will adopt a combination model. On certain issues they will take a formalist approach; murdering rivals might fit well into this category. There may be things upon which they choose to take a more utilitarian approach. For example, having a factory in a low-wage area and paying slightly higher than usual wages, or offering improved welfare provision might be deemed better than providing jobs in more developed nations where citizens already enjoy higher standards of living. This aspect of utilitarianism has a dose of relativism in it too. Outside of these kinds of situations the business is free to pursue self interest. For example, it may be possible to sell a luxury product for a lower price, but the company would maximise revenues as far as the market will bear since no-one is forced to buy the product, and thus any economic harm they come to is self-inflicted.

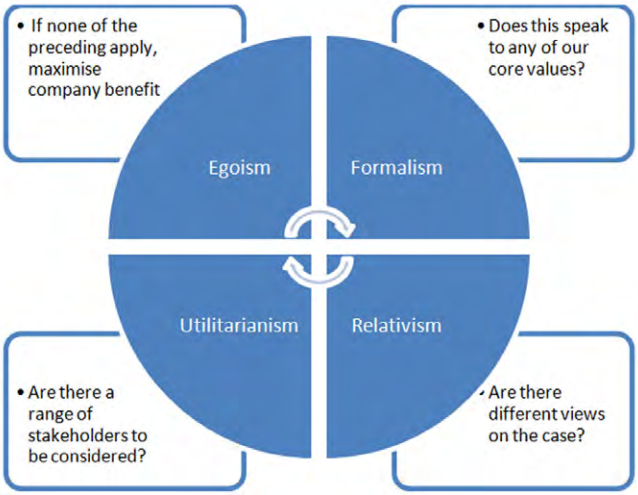


Figure 12.1. A mixed ethical model

Clearly, the exact balance will be determined by the organization. It is important that the core values of the organization clearly set out their ethical principles openly and explicitly. This area is an oddity in the field of Quality Management, in that we eschew the usual concepts of co-creation and consultation and suggest that there are certain immutable rules which are not to be transgressed. Of course, the usual ideas of leaders modelling the behaviour and explaining why the ideas are so important will apply.

12.2.6 An Ethical Decision Making Model

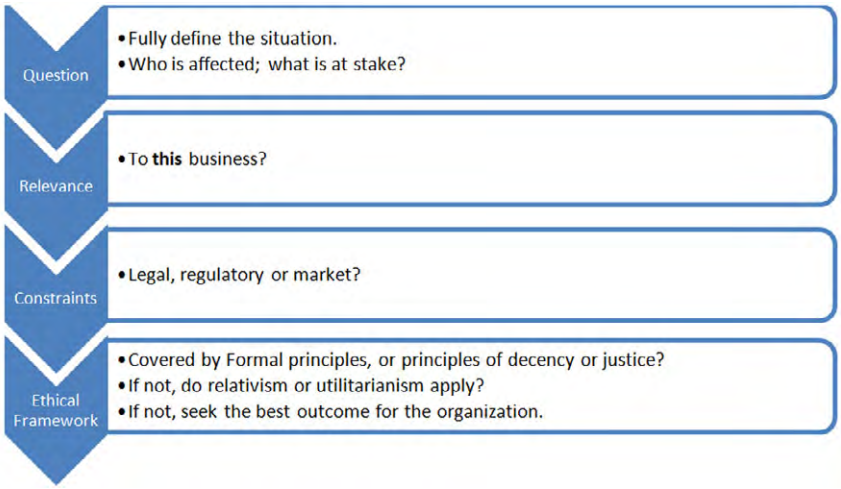


Figure 12.2. Ethical Decision Model (Adapted from Vallance, 1995)

Based upon the foregoing and the work of Vallance (1995) an Ethical Decision Model might be suggested when significant business decisions need to be made.

Such a decision making process needs to be both explicitly deployed within the organization and to become part of the inherent behaviour of all employees in order to have maximum impact.

Churchill and The News of The World: Differing Ethical Stances

When writing about his discovery that Singapore was far from impregnable in World War II, Churchill stated, "I ought to have known. My advisers ought to have known and I ought to have been told, and I ought to have asked." Churchill (1950).

Churchill's comment demonstrates the multiple nature of causality. What he was saying is that the Japanese invasion of Singapore may have been prevented in a number of ways.

It could have been prevented by one person (Churchill) taking different action or several persons (his advisers) acting differently. He made the point that he could have known how to prevent the invasion, and that others should have known as well, and they, knowing, should have informed him. If they had not known, they should have found out and informed him without his asking. If his advisers had not known, Churchill should have asked them. If his advisers had known but not informed him, his questions should have resulted in his knowing the weaknesses of the fortification of Singapore. Thus, there were multiple causes leading to the fall of Singapore, any one of which, if recognised, may have resulted in a different outcome.

Contrast this with the response of senior executives at The News of The World when confronted with the phone hacking scandal of 2011. They denied that they knew and attempted to lay all blame squarely on low level employees (reporters).

12.3 Ethics and Communication

Effective ethical behaviour requires effective communication of the principles of the approach, but it further requires effective and honest communication about decisions and incidents in order to allow for ethical behaviours to be the norm. There are some issues which need to be considered.

12.3.1 The Concept of Single Causes

Human Error. Because of the commonality of seeking a single cause to a single event, when something goes wrong there is a tendency to seek the person or factor to blame. Once blame or fault has been assigned, the cause of the problem has been explained. There is the illusion of having solved the problem, and, since human error is inevitable and cannot be eliminated, there is nothing that one can do to prevent the problem.

Scapegoating. This is an attempt to place the blame on a single individual or technical reason for the error under consideration. There is often systematic pressure to assign responsibility for an event to an individual and when this is successful, the system then thinks in terms of punishment of the scapegoat. However, nothing has been solved. Human error is inevitable and there will always be a scapegoat. This is not only unfair to the individual but scapegoating hides the real problem - the real causes of the event have not been defined and thus could occur again. The allocation of blame allows the system to end its investigation and thus, scapegoating is a process that avoids true determination of causes.

Although human error can certainly occur, this type of thinking is usually flawed for the simple reason that it is rare that a single cause occurs in splendid isolation from other factors.

12.3.2 The Concept of Multiple Causes

Usually a number of causes combine to create a particular event. Take for instance, a mother awaking to the sound of her baby crying. Air must be present to transmit the sound and the mother must be in a state to receive and acknowledge the sound even though she is sleeping. One of the factors that makes the mother receptive is that she is responsible for the baby as the mother of the child. Thus, rather than a single cause giving rise to the event of the mother awaking, there are multiple causes and all must be present for the event to occur.

12.3.3 Degrees of Freedom

Taking the Singapore example, Churchill believed that there were several causes, any one of which could have resulted in a different outcome. This gives rise to the recognition that there are different paths and decisions that one can take in many situations. The outcome is not, therefore, predetermined and is subject to freedom of those involved to select. If, on the other hand, there is a single set of events then freedom is limited to those events alone and they predetermine the outcome. Thus, where scapegoating has taken place for example, it appears that a single set of causes has lead to the undesirable outcome.

If one is able to analyse a situation and identify more alternative paths or freedom to make choice, more responsibility is placed on those involved in determining the outcome. On the other hand, the more freedom of choice that exists the greater is the ability to determine the outcome of events.

12.3.4 Multiple Responsibility

The idea of multiple causes gives rise to that of multiple responsibilities. This does not reduce the responsibility of a single individual or factor, but extends the responsibility of all individuals or factors. Take for example, responsibility for the personal relationship between two people. Both are responsible for the state of the relationship. If one person accepts one hundred per cent responsibility, and the other person no responsibility, is the relationship likely to remain sound?

The outcome of a particular set of circumstances is rarely predetermined because of the multiplicity of causes, and therefore, the outcome can be affected by planning. Such planning should serve to optimise a particular situation or prevent the occurrence of an undesirable outcome. Thus, all factors or individuals that may have a bearing on the outcome should be considered or be part of the planning process.

12.3.5 Passing The Buck

The saying "The buck stops here" was originated by President Harry Truman as a way of saying that if a problem reached his desk, he would not pass it on to anyone else — he would not 'pass the buck'. Unfortunately, this well intentioned expression has lead, where there are several levels of organisational authority, to every level passing on responsibility until the highest level is reached. Thus, if the buck stops at the highest level, it doesn't stop anywhere else. This means that if the highest level in the company is accorded responsibility for all that happens with respect to the company, no-one lower in the chain has to accept responsibility. This is unacceptable because at the worst, responsibility lower down the organisational hierarchy is not recognised, and at best vacillation occurs because the buck is passed upwards for a decision.

The new phrase should be, "The buck stops here and everywhere else as well", denoting shared responsibility. It is proposed that in every instance of poor corporate decision making there was, at some level, information that could have resulted in a different decision.

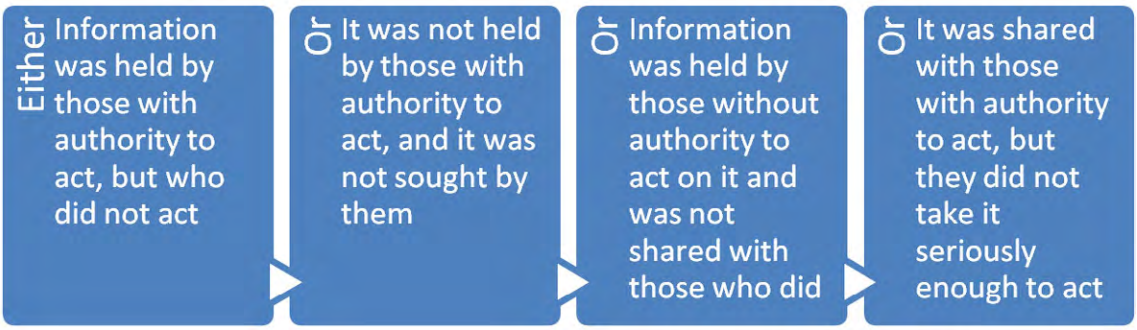


Figure 12.3. Failures of Information Flow

In any case, a proper information flow was impeded — a communication problem.

12.3.6 Communication

Communication is much more than the physical transmission of information. It starts with the will to communicate. To be successful both the transmitter and receiver must believe in the need for the communication.

If the transmitter of information does not believe that the information will be acted upon or that it is not wanted (shoot the messenger), it will not be passed on — the motivation to communicate will not exist.

If the receiver of the information believes that he or she already has all the answers to a particular problem, the information will not be truly received. Also, there will be no motivation to seek information if there is no understanding of the requirement for information.

If all levels in the organisation believe that the buck stops at the top because that is where all the power is and where all the important decisions are made, then there will be no communication of importance at lower levels. If this is the case, the organisation will be dysfunctional in terms of effective decision making.

12.3.7 Empowerment

An organization, in which all levels believe in the need for communication and for that information to be acted upon at an appropriate level, is one that empowers its employees. There is no point at which information is blocked and the belief in the organisation is that "the buck stops here and everywhere else as well". In such an organisation everyone has the responsibility to act, pass, seek and receive information.

This is a proactive process in which those receiving information actively question and seek additional information from those in a position to give it. Those sending information actively ensure that the information is acted upon, and if it is repeatedly ignored it may be necessary for them to take the information to others in the organisation.

The passing of information should not be seen as passing the buck which is refusing to take action when it is the person's responsibility to act.

12.3.8 Organization

This free flow of information in an organisation could be adversely affected by organisational structure. If so, the structure should be changed. However, the organisational structure alone will not ensure a free flow of information — the will to communicate must be there too. This is, therefore, a cultural issue. Everyone in the organisation has the responsibility to act on, pass, seek and receive information and there is no possibility to pass the responsibility to anyone else.

12.3.9 The Manager's Role

The role of the manager is to ensure that information flows freely and speedily, for information is the life blood of the organisation on which decisions are made. If the information is poor, takes too long or is blocked, the function of the organisation is impaired.

The Manager as an Educator. It follows that the manager must ensure that the free flow of information continues. In the manager's role as coach, education is the key to ensure that everyone within his or her responsibility understands the need and mechanisms for effective communication. By the manager's actions will subordinates understand the need to take action where appropriate and be part of the communication chain. The manager must become a role model for this type of behaviour which, ideally should start with the CEO and be actively supported by the whole senior management team.

Thus, this process of education towards the achievement of full and free flow of information is the heart of empowerment and the organisation functioning as a holistic process rather than a hierarchy based on functional power bases. This links with the Total Quality view that everyone in an organisation should be part of and understand their contribution to achieving the mission and vision of the company.

12.4 Benefits and Risks of Ethical Behaviour

12.4.1 Benefits

These days, the benefits for ethical behaviour are becoming clearer and more immediate. There has always been a suggestion that in the long run behaving ethically will be of benefit to an organization; however, this is a little vague as motivation. Organizations which behave unethically do often lose out in the end (one might think of Enron, The News of The World or some of the financial organizations involved in the financial crisis), and there is now an ethical niche market in all manner of industries, from cosmetics to banking and investment. The more immediate and direct benefits are:

- Treating staff ethically can lead to enhanced loyalty, increased motivation and associated benefits.
- Ethical behaviour in respect of the environment leads to avoidance of costs such as those incurred by BP in the Deepwater Horizon spill. It can also reduce taxation which is increasingly based on the principle of 'polluter pays'. The less tangible benefit of improved public perception is becoming more significant too. Business models such as that used by Innocent rely upon the ethical purchaser.
- Ethical behaviour in terms of social issues and in respect of the communities with which an organization comes into contact can also lead to beneficial impacts on customer perception, and purchase decisions.
- Perhaps the greatest, if intangible, benefit of ethical behaviour is the feeling of being proud of how you have behaved. Being able to look at yourself in the mirror is a valuable gift.

The positive organizational impact of ethical behaviour is always increased in times when the negative consequences of unethical behaviour are fresh in the minds of customers. In 2009 the Co-Op bank, renowned for its stance on ethical investments posted record profits in the teeth of the financial crisis, while other organizations saw earnings tumble.

12.4.2 Costs of Ethical Behaviour

The costs of ethical behaviour are opportunity costs incurred by not avoiding clean-up costs, by offering better terms and conditions to workers, and by losing business due to refusing to give bribes, or excessive cost of production.

If a company chooses to take an amoral stance and look purely at financial benefit, then it needs to consider the balance of the two sides, this has not been done effectively in many organizations. There is another phenomenon which is clouding the issue; known as 'green-washing' some companies are mounting long-term PR campaigns to persuade customers, legislators and wider society that they are behaving ethically when, in fact, they are not. Lip-service is paid to the principles of ethical behaviour, but significant change does not occur. In doing this it is hoped that a business will reap the rewards of ethical behaviour without the costs. Of course, this is, it itself, unethical behaviour and, if discovered can lead to much worse penalties than more open pure pursuit of profit. Again, one might think of the Deepwater Horizon disaster where distaste at unethical practices which emerged led to calls for tougher action and harsher penalties for BP.

12.5 Creating an Ethical Environment

There is no magic to this. As always it is a combination of process, environment and behaviour:

- ***Make a statement of principle*** – tell people what is acceptable, and what is not. Nail your ethical colours to the mast and reiterate them at every opportunity.
- ***Model and enforce the principles***- senior officials must behave with integrity and act in the spirit of the declaration. Failure to do so even once can fatally undermine confidence in the sincerity of the senior team. Also be as demanding of everyone else in this regard; clear and significant consequences for breaches must be forthcoming.
- ***Develop processes to support the principle*** – make it as easy as possible to follow the rules and uncomfortable to break them. Make the consequences of non-compliance as immediate and as compelling as possible. If I have a relationship with those affected by my unethical behaviour I am far less likely to do it.
- ***Support appropriate behaviours***- celebrate good practice; make heroes of those who, despite temptation and pressure, stick to the principles. Provide resources and support to deliver results through ethical practice.

12.6 Corporate Social Responsibility

Corporate Social Responsibility (CSR) is ethical behaviour on a corporate level. It is an attempt to ensure that social, economic and environmental considerations are considered and balanced across the whole of an organization's activities. Quoted in Smith (2004) William Clay Ford Jr said of CSR:

"I believe the distinction between a good company and a great one is this: a good company delivers excellent products and services; a great company delivers excellent products and services and strives to make the world a better place."

12.7 Summary

Ethics and Total Quality Management are inherently linked. At the heart of both lie respect for the individual, integrity, decency and justice. Ethical business behaviour leads to both tangible and intangible benefits, as well as costs. However, ethical organizations are culturally richer as well as having a sound basis for long term profitability which is not built on undue exploitation of people or natural resources.

Review & Discussion Questions:

1. *What ethical stance do you consider appropriate for an organization? Is this different than for an individual? Does it depend upon the type of organization?*
2. *If your company believes that it should not take contracts from organizations allied to the military, what should it do if taking an MOD contract were the only way to avoid redundancies and the associated effects on the workforce?*
3. *Consider an organization you know well. Imagine you discover unethical practices taking place within it. What would it take to make you act as a whistle-blower? And what might dissuade you?*

13 Learning, Change and Process Improvement

13.1 Introduction

If Quality management is about anything, it is about change; change for the better (improvement) and learning are crucial if an organization is to achieve a degree of excellence. The three are intimately connected in that change management and learning are both necessary for improvement to happen. Learning, however, is a more holistic concept covering culture, attitudes and behaviours as well as mechanistic processes and short-term benefit. For sustainable benefit organizations need to become learning organizations, continually challenging the status quo and re-inventing how they do business at all levels.

13.2 Process Improvement

The basis of continual improvement of processes is the scientific model, as embedded in the Plan, Do, Study, Act (PDSA) cycle. This model suggests that we need to begin with a goal and then develop a plan as to how the goal might be achieved; the plan needs then to be enacted and the results (good and bad) observed. The analysis of these results (and our understanding of the causes) then leads us to act to modify our original plan, which brings us back to the start of the cycle. There are a huge number of improvement models, but careful analysis reveals the PDSA underpinning all of them.

It is imperative that when we seek to improve a process we recognise that we need to remember what we are trying to do, and how we shall know when we have achieved it. A practical model is provided by Process Management International (Gillet and Seddon, 2009).

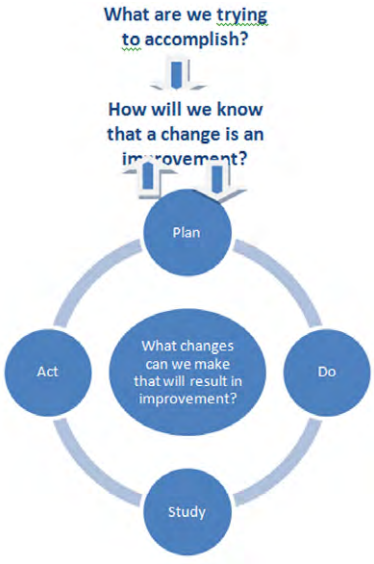


Figure 13.1. The three question model (Gillet and Seddon, 2009)

The plan-do-study-act cycle (PDSA) guides the definition of appropriate actions, allowing for learning as implementation happens and promoting reflection on the outcome of actions, while this occurs in the context of a clear understanding of not only the goals of the change, but also (crucially) how we will recognise improvement. This recognises that all improvement requires change, but not all change is an improvement.

Probably the most popular model for process improvement at the present time is the Six Sigma Define-Measure-Analyse-Improve-Control (DMAIC) model. This model is not treated in detail here as it is, unsurprisingly, a derivative of the PDSA model. However, more detail can be found in the companion text (also on Bookboon.com) "Six Sigma: Principles and Practice".

13.2.1 Focus of Improvement

Improvement activities basically focus on one (or a combination of) three areas:

1. Reducing process cost.
2. Increasing process quality.
3. Increasing process speed (reducing time).

The precise focus will depend upon the analysis of customer priorities and current performance to assess where maximum benefit can be gained. It should be noted that these areas are not mutually exclusive, as was once thought to be the case.

13.2.2 Improvement Approach

There are essentially two approaches to process improvement: the Kaizen, or continuous improvement approach and the step change approach.

- ***Kaizen***: Favours the use of a large number of small local projects (such as those run by quality circles) in order to deliver significant aggregate improvement. This is the mainstay of Japanese organizations and is about the cultural change to everyone pursuing improvement. It has advantages in gaining company-wide momentum and delivering behavioural change and lasting improvements but may miss opportunities to rethink larger systems.
- ***Step Change***: Is a more Western idea and modern approaches such as Six Sigma which are expert led epitomise the approach. The advantage is that it allows a radical rethink of processes giving much bigger potential improvements, and may take into account wider processes rather than the local focus of Kaizen. However, the nature of the approach means that it has higher levels of risk (bigger changes always mean more risk) and Imai (1986) amongst others points out that the lack of local ownership of changes proposed by 'expert' teams means that improvements often fail to be sustained.

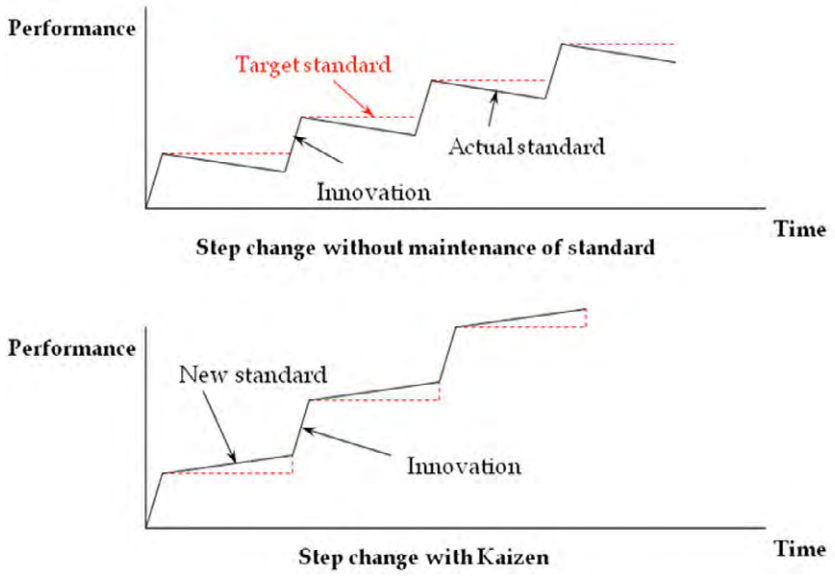


Figure 13.2. Standard Step-Change and integrated Step-Change and Kaizen. (Imai, 1986)

Figure 13.2 shows how Imai (1986) suggests that step change projects fail to hold the (admittedly significant) gains made when the project team departs. The lower diagram shows how he suggests that by integrating Kaizen into step change the gains can be both sustained and built upon. This would imply a much greater involvement, and deference to the opinions of, local staff in step change projects. This is now recognised as the most appropriate model to strive for; an underlying basis of Kaizen with step-change projects implemented sympathetically with this system in areas where significant (sometimes called 'breakthrough') performance improvement is required.

13.2.3 Waste and Variation

Both waste and variation have been touched upon in earlier chapters. In the context of improvement they represent different focuses: waste approaches look to improve process flows and to reduce non-value adding activities as well as to reduce the time taken to do a task, whereas variation centred approaches look to improve consistency of processes and products. In many ways they are complimentary, but most improvement efforts will principally focus on one or the other depending upon the circumstances.

13.3 Change and Change Management

"It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change."

Charles Darwin

This section does not seek to provide an answer to 'the best way for managing change' in fact it is probably true to say that there is no single solution. What it does seek to do is to outline the key aspects of the management of change and to give some 'pointers' in useful directions. The management of change is highly context sensitive. The approaches, tools and techniques that are appropriate will vary from one situation to the next. You will ultimately develop your own models for change that work for you in your situation. There are 3 aspects to consider:

- Your personal response and input to change.
- The 'soft' people aspects of those who are undergoing change.
- The process or system of change.
- The tools to change.

13.3.1 Personal

In our dealing with others it can be argued strongly that it is not possible to change others, we can only change ourselves. If this is accepted then it becomes clear that awareness of your own role in the process is a key element of success.

In management textbooks much is made of 'Leadership' as a skill set to strive for and it is true that the ability to play the role of a leader will help you in the management of change. However, Leadership means significantly more than simple charisma, exhortation and the ability to 'motivate'. There are a number of elements of leadership that are useful characteristics for the manager of change:

Congruence – 'walking the talk', 'doing as you say', and 'saying as you do'. This is about demonstrating your commitment to the change in everything that you do or say in the organisation.

Flexibility – an effective leader will readily adapt to the use of new tools, will support those around them with a wide variety of approaches to everything that they do.

Facilitation – being the leader does not always mean making the decisions. In most cases the process of change will benefit from the people involved being given the opportunity to develop their own solutions and to create their own meaning. The effective leader will support this process by facilitating the group processes and coaching individuals.

Perhaps the key element of being a good leader is 'knowing when and how to ask for help'. This statement may seem to challenge many traditional views of leadership and yet probably has more meaning in the context of a modern organisation than the 'military' models of command on which much of the literature is based. Building on this alternative view of leadership it is possible to begin to see how there can be more than one leader in a change project, each providing different aspects of the necessary support and each coming to the fore or working in a supporting role at different stages of the project.

13.3.2 People

A change isn't a change until people are doing things differently. People in the organisation can then be seen as being the principal enabler in change.

In discussions on the management of change much time is taken up talking about how people are uncomfortable with change. Think about your own experiences, do you always enjoy change? Right from the outset? There are two forces at work here, firstly your past experience of change – good or bad? Secondly the very nature of change is that it is likely to involve uncertainty and this is often the aspect of change that most unsettles people. Whatever the causes you can be sure that if you seek to create change then along the way you can expect to meet some strong reactions from individuals – often emotional and sometimes apparently irrational. As Machiavelli once said (paraphrased from his book The Prince):

> *"There is no greater task than the development of change since the change agent can expect violent criticism from those who feel that they may lose out as a result of the change and only lukewarm support from those who expect to benefit."*

Much of being an effective manager of change comes down to understanding these 'emotional' reactions in others – where do they come from, what do they hope to achieve through it and most importantly, what can you do to help them move forward.

The starting point is to begin to develop a high degree of self-awareness – what is your motivation, why do you maintain the beliefs and values that you hold dear, what drives your behaviour and what effect does this have on others. Remember also that you are dealing with individuals – terms such as 'the shop floor', 'the workers', 'the management', 'the front office' and so on are generalisations that hide a multitude of attitudes, emotions, motivations and behaviours. They do not describe the individuals that work within these units.

Figure 13.3 is adapted from the grief curve defined by Kubler-Ross. This recognises that all change involves loss. In an organizational sense this can be loss of expertise, status, connections and contacts, or control. The initial response is to deny the need for change, followed by resistance (which can be active or passive), then engagement with the change and exploration of possible effects followed by commitment to the new status quo. However, it should be noted that this does not occur at the same rate for all and that adverse interactions can send an individual back to an earlier phase. As a leader of change it is important to understand that all those involved go through this process (even you!) and that your job is to help them (and you) work through the emotional side of the change as well as the practical one.

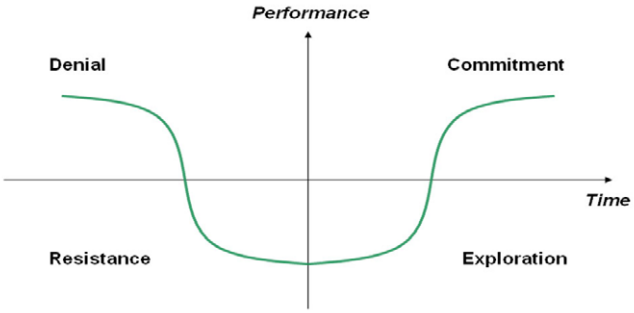


Figure 13.3. The emotional phases of change (adapted from Kets de Vries and Miller, 1984)

Focusing on the individuals in change is an essential element of success. However we are talking about organisational change so we need to also consider the effect of the organisation.

In the literature on change you will find a good deal of discussion of the relative merits of top-down and bottom-up change. Naturally there are strong arguments for both.

Top-down change provides a framework for the organisation through the use of Strategy, strong Vision and the provision of enablers for change – such as resources, money, time, external support and so on. The down side is that often the requirements for the change are not fully understood at a local level, the message is lost on the way and the individuals in the organisation can feel uninvolved and therefore are unlikely to be motivated towards effective implementation. Examples of this in the quality field might be Six Sigma or even Quality Improvement Team activities.

Bottom-up change ensures that the change is based on a good understanding of local conditions, the needs of a particular unit of the business and the skills and interests of the people within it. You may have heard the expression that the best way to get someone to support an idea is to get them to think that it is their own, well this is very true. A major benefit of a bottom-up approach is that through involvement you can gain understanding and commitment. The down side of bottom-up change is that it can result in sub-optimisation of processes if the scope of the project is not great enough and of course it can meet with opposition from above if it is not seen to be supporting the goals of the business – or the goals of the individuals who have the right of veto.

As with many aspects of change the answer is of course to do both. This approach has been described as 'Need-down, How-up'. That is the strategy and direction are provided from above (top-down) whilst the solutions and approach to change is generated locally and fed back up the hierarchy (bottom-up). We have seen this approach work well in an organisational context with Directors providing the strategy and a multi-functional, multi-level project team providing the solutions – presented back to the Directors as "This is what we are planning to do and this is the support we need from you in order to achieve it". You may want to look again at Hoshin Kanri in chapter 8 in this context.

Whether you are looking from the top down or the bottom up or even somewhere in the middle looking both ways it is important to recognise that successful change is achieved through the changing behaviour of individuals and groups within the organisation. This change in behaviour only follows if people are motivated towards it – they need the answer to the question "what is in it for me?" This motivation comes through creating meaning. The key to creating meaning is involvement – that is, when people are fully involved in creating change than they are given a real opportunity to develop their own understanding of what it means for them.

If you are not able to fully involve everybody in the change then you will have to rely on effective communication to spread understanding and meaning. There are many way to communicate information but the most important aspect is to remember that it is a two way process. The meaning of the communication is in the response it elicits and different people will need different approaches – don't guess what makes people tick, build relationships based on trust and mutual understanding.

13.3.3 Process

Many times new approaches or procedures implemented in one part of the organisation to improve performance ultimately have a negative effect on another part of the organisation. The sales team that begins to sell single units without consideration of the effect of production, the purchasing department that changes the nature of supply without considering the impact of goods-inwards, the planning department that changes the nature of its reports without considering the needs of the users … and so on.

In fact many of the problems that exist in organisations are a direct result of the functional focus that we have tended to give to our businesses. Functional organisation has developed as a neat way to control the behaviour of common skill groups and as such it is a useful approach. Unfortunately the focus on functions and functional performance targets can lead the organisation to forget its ultimate aim which is to support the process that delivers goods or services to the customer.

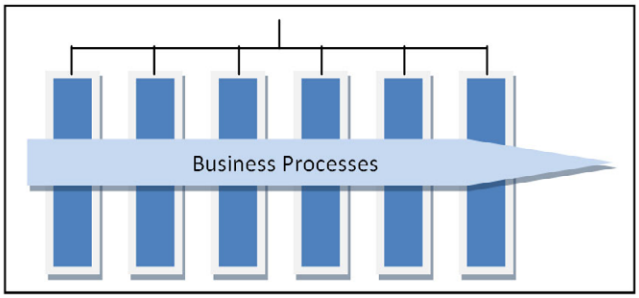


Figure 13.4. Business process versus functional organization

So, in considering change we need to be able to consider an entire process. This will lead us away from sub-optimisation, towards looking at the whole picture and will bring a focus on the needs of the customers (both internal and external).

In addition to taking a process view we must remember to consider the interactions between the various business processes (the tangible or formal elements of the system) and the 'human' processes (the intangible or informal elements of the system). This is what is meant by taking a systems view. In theory it is often very easy to appear to be attributing cause and effect, however in practice the true relationships between cause and effect may not be so clear or predictable. Systems thinking or systems mapping provides a set of tools for exploring these complex relationships in more detail and for testing possible solutions.

We also need a process for the change itself to happen. Below are some models for change suggested in the literature and a generic interpretation of the theories.

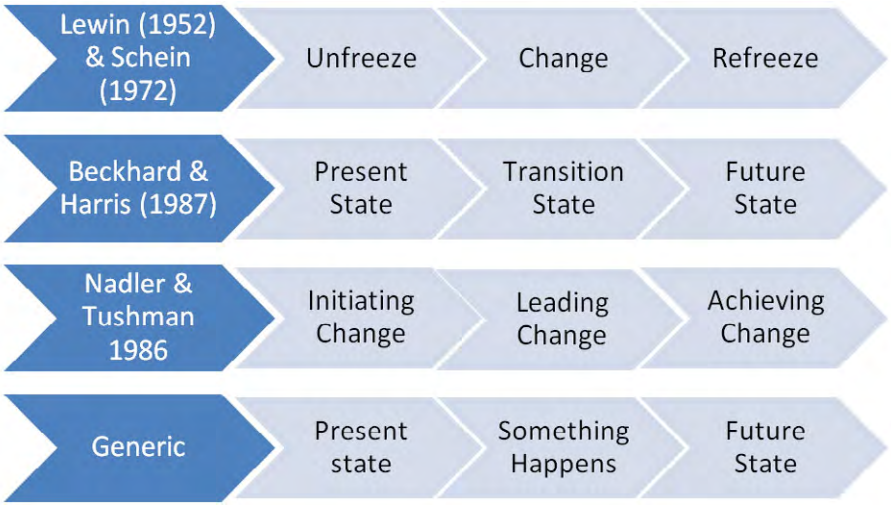


Figure 13.5. Models of change

It can be seen that the generic process is to define the original state, and do something to generate a new state. Clearly, the devil is in the detail of the 'something happens' phase. There are, again, various models in existence, but Kotter's (1996) 8 step model is perhaps the most commonly used:

1. ***Establish a sense of urgency***: This is generally taken to mean create dissatisfaction with the status quo. However, this may have a negative impact on the early phases of the emotional journey of change; we are all invested in our existing processes to some extent and beginning change by attacking them may harden the initial denial and resistance phases. An alternative might be to take an approach like Appreciative Inquiry (Whitney et al, 2010) which starts with the belief that what we are looking for already exists somewhere in our organization and the task is to discover what works well and understand how that can be grown and expanded in order to operate effectively across the organization. This aids buy-in by celebrating the good in the existing system and looking to grow it.
2. ***Form a powerful guiding coalition***: Effectively ensuring that the process will have appropriate and effective support. This needs to be across the organizational spectrum, rather than just focused on senior managers.
3. ***Create a vision to direct the change effort***: As noted in earlier chapters the direction of the effort and the rationale need to be clear to enable people to accept both the need for and direction of change.
4. ***Communicate the vision***: The vision needs to be made available to all who will be affected by the change.
5. ***Empower others to act on the vision***: As a change leader, you cannot do it all yourself, engage resource and empower appropriate individuals and teams to take action to deliver the vision.
6. ***Plan for, and create short term wins***: To establish and maintain momentum it s useful for benefits to be seen as early as possible, so that people are aware of progress. If possible, target areas of known staff dissatisfaction (difficult to use systems, causes of customer complaints, areas of stress) so that individuals can see what is in it for them.
7. ***Consolidate improvements, producing further change***: Build on what works and modify what doesn't.
8. ***Institutionalise new approaches***: Build new measurement systems which support the new processes and behaviours (what gets measured, gets done) and create structures which build new practices into day-to-day work. Ensure that management focus and behaviours are appropriate in this regard also.

The Gillet and Seddon (2009) process, shown in section 13.1, offers a sensible way of progressing from steps 3 to 8, and a good model for operationalising the principles of Kotter's model. In particular, the aspect of ensuring that the change is delivering the goals of the action is useful in keeping change on track and ensuring a reflective, learning stance is maintained.

13.3.4 Tools for Change

"If all you have is a hammer then every problem begins to look like a nail"

Mark Twain

What Mark Twain is pointing us towards here is a full and careful consideration of the nature of our problem and the tools that we choose to use. All too often in organisational change the tools is chosen well before the problems are understood. The choice of tool will typically be based on the latest thing the director has read in the press, the latest training course that the production manager attended, the particular approach of the consultants employed and so on. The results of this approach to tool selection are all too evident in organisations around us. It is a sad fact that most business development projects fail to deliver the results expected. My belief is that this is more to do with the application of the tools than with the effectiveness of the tools themselves. Accordingly, it is not the aim of this section to consider the potential change management tools, they are many and varied and I could not do justice to them in this context.

The secret to success is to let the situation choose the tool. By this we mean that before you can consider choosing a tool (certainly long before you attempt to develop solutions) there is much to be gained from a careful examination of the nature of the problem. We have to answer the questions – 'What are the objectives?' or what do we need to be good at – and 'What are the obstacles?' or what do we need to overcome before we can say that we have cracked it. Once we have the answers to these questions we can begin to choose appropriate tools – if the objectives are quality related and our problem is that we are too functionally focused then perhaps a Total Quality approach may provide the solutions, if the objective is to build to order and we have a high degree of variety in our products then perhaps a cellular manufacturing approach may lead us to new and successful ways of working.

Once we have understood these aspects of the situation then one further question remains and that is one of 'style'. In other words, 'which tools best suit our own personal and organisational style?' A good tool will be one that the people in the organisation can readily pick up and use, building on what you have already got and even expanding and developing along with the project as understanding and motivation grows.

13.4 Organizational Learning

"In times of change the learners will inherit the earth, while the knowers will find themselves beautifully equipped to deal with a world that no longer exists"

Eric Hoffer

13.4.1 The Concept of Organizational Learning

Organizational learning is an influential theory, which has come into popular usage since its inception in the 1990's. Much debate has been entered into over what organizational learning actually means. West and Burnes (2000) describe two key strands of thought. The first they describe as writers focusing more on descriptive or analytical studies, who believe that new ways of thinking are sufficient in themselves. This strand of thinking might be exemplified by Stata (1989). The second strand is those who take a prescriptive approach, believing behavioural change is required for learning to take place. This position is exemplified by Garvin (1993) and Pedler et al (1997) amongst others.

Perhaps Gray (2001) puts it best in saying that knowledge and learning are not goals in themselves and only generate economic value when they are used to solve problems, explore opportunities and make decisions. A useful summary of the position is offered by Garvin (1993) when describing the learning organization:

"A learning organization is an organization skilled at creating, acquiring and transferring knowledge, and at modifying its behaviours to reflect new knowledge and insights."

West and Burnes (2000) build upon this to note that learning organizations have capacity for (amongst other things) systematic problem solving, experimentation, communicating effectively within and beyond the organization and systems thinking.

13.4.2 The Individual Learning Cycle

The purpose of this section is not to review the body of work done on learning or learning styles over the past 30 years, but simply to look at the concept of a cycle of learning as postulated by Kolb (1984) and generally accepted by subsequent authors. This will be used as a basis for developing the organizational learning cycle, which underpins much of the thinking on organizational learning.

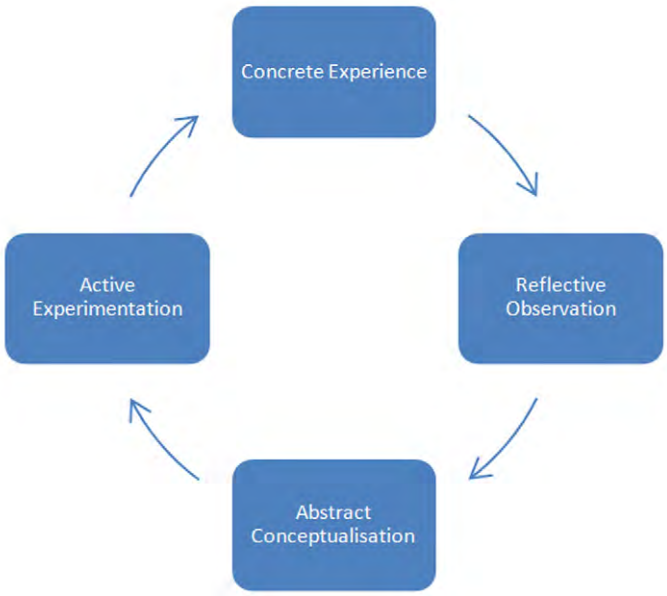


Figure 13.6. Kolb's Learning Cycle (Kolb, 1984)

The cycle begins with the learner undergoing a concrete experience. The learner then reflects on the experience in the light of their context (usually the work context) and is able to draw upon this to create an abstract concept of how a process should be managed in their work context. The learner can then experiment with applying this concept and experiencing the responses of the system and the individuals in it. This experience is, in turn, reflected upon and modifies or underpins the concept, leading to more experimentation, and so on.

Learning is often not associated with educative inputs, and can often be contrary to the stated aims and approaches of the organization if experience does not align with that vision. For example, the experience might be the individual being reprimanded for missing a deadline when that decision was taken in order to avoid delivering poor quality. Reflection upon this in the light of the stated emphasis of the company on quality and further observations of management behaviour might lead the learner to construct a concept which states that the company's commitment to quality is a sham. Experimentation might consist of trading off in favour of timeliness or cost and allowing quality to suffer when these measures are in conflict. Management's reaction to these decisions will be carefully observed to validate or modify the concept. If they align better with the concept than the company's pronouncements this becomes the learner's reality.

The learning cycle is operative at all times on a wide variety of issues. Clearly, if properly considered and acted upon this can be helpful in generating concepts and associated behaviours that will help the organization in achieving its goals. However, if ignored then it may allow the generation of concepts harmful to the goals of the company.

13.4.3 The Organizational Learning Cycle

Just as an individual learns in a cyclical manner, an organizational learning cycle can be identified. Dixon (1994) described such a cycle.

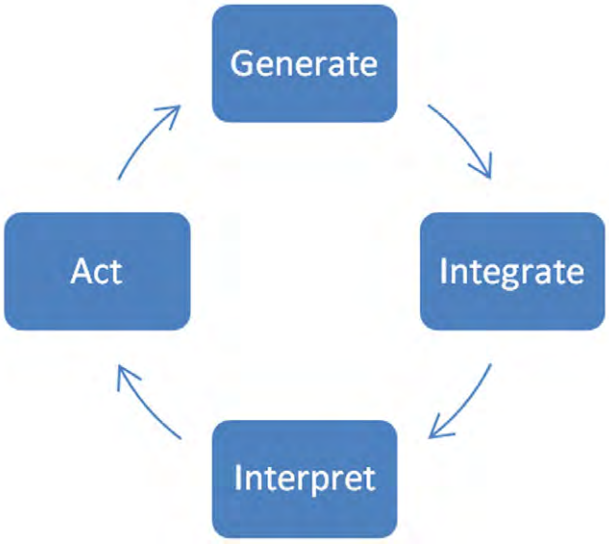


Figure 13.7. The Organizational Learning Cycle (Dixon, 1994)

- Experiences need to be spread throughout the organization in order to *generate* learning.
- Reflection, at this higher level, requires the *integration* of the experience into an organizational context.

- To create shared concepts and mental models collective *interpretation* of the contextualised experience takes place.
- As for the individual, *action* is required to test the analysis, which underpins the interpretation.

Organizational learning can take place at a number of levels; it can apply to small teams, departments or the organization as a whole. This can account for the apparent inconsistencies in behaviour and ethos between departments in the same organization. The models and behaviours, which form the essence of the departmental culture, are the results of learning mechanisms that have taken place over time in those departments.

Similarly to individual learning, organizational learning is often happening in an unconscious and uncontrolled fashion. The danger of this is that the learning may be counter to the desired direction of the organization. This is by no means to imply that learning is to be discouraged, if an organization is to survive in an evolving marketplace then learning and adapting are essential. In essence, the organization needs to understand the learning mechanisms that are strongest in the business and develop structures and systems to support the learning and influence it towards positive outcomes.

For successful Organizational Learning it is necessary to have both a process for learning, and an environment conducive to learning.

13.4.5 Huber's Model of the Organizational Learning Process

Huber's (1991) model of OL developed from a meta-study of the literature at the time suggests a structured approach which could clearly be managed included 4 components:

1. ***Knowledge acquisition*** is the phase where new knowledge is generated or existing knowledge is brought into the organization.
2. ***Information distribution*** is when this knowledge is (where necessary) made explicit and communicated to those in the organization who need to know.
3. ***Information interpretation*** is conducted through personal reflection, dialogue and internalisation until a shared understanding is reached.
4. ***Organizational memory*** is the mechanism by which the knowledge is stored for re-use at a later stage. This can be in formal mechanisms such as organizational routines or structures or informally in the tacit knowledge, schema and mental models of the members of the organization.

13.4.8 Creating a Learning Organization

It can be seen from the preceding sections that organizational learning entails more than just individual learning (although this is, of course, important). In order to stimulate learning on a wider and more comprehensive scale it is necessary to put in place an integrated environment which supports learning at individual, team and organizational levels.

There exist many models for supporting organizational learning; Pedler et al (1997) define 11 characteristics of a learning organization, which are shown below.

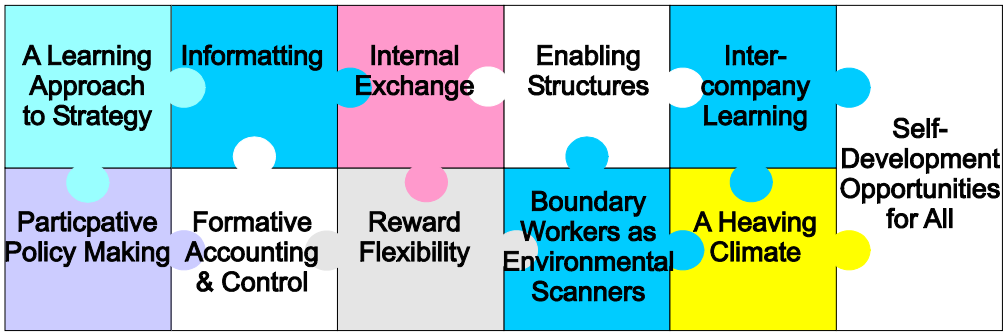


Figure 13.8. Characteristics of a learning organization (Pedler et al, 1997)

A learning approach to strategy and participative policy making: Strategy and policy are not the preserve of senior management alone. In order to ensure true buy-in all levels within the organization participate in, as a minimum, developing policies to deliver strategy and in clarifying the meaning of strategy in their situation. Approaches such as Hoshin Kanri may be relevant here.

Informatting: Ensuring that everyone has timely access to the information which will enable them do their job effectively. This is as much about ensuring that the needs of customers and organizational context are understood as it is about knowledge and information management.

Formative accountancy and control: Ensuring that control mechanisms, particularly financial ones, are set up to support learning and improvement rather than as judgemental (summative) systems. The latter approach tends to lead to dishonesty, cover-up and 'playing the system', which hampers organizational progress.

Internal exchange and creating a heaving climate: Creating a willingness to experiment and innovate (heaving climate) and generate constant change. Developing and utilising sophisticated approaches to sharing knowledge and insights gained in one area of the business with other parts of the organization.

Inter-company learning and boundary workers as environmental scanners: We need to look outwards as well as inwards to maximise the potential for gain. Formal inter-company learning mechanisms include benchmarking, informal ones involve those members of the organization who work at boundaries (with other organizations, with customers, with the wider environment) scanning for opportunities to learn and bringing this back into the company.

Self-development opportunities for all: Actively generate opportunities for all employees to develop themselves to improve the intellectual capital of the organization.

Reward flexibility: Recognise improvement and contribution.

Enabling Structures: None of the above will happen by themselves. A key role of management is to define, develop, maintain and improve corporate and departmental mechanisms to support and sustain learning in all its forms.

In essence, to support organizational learning it is necessary for an organization to build participation, empowerment and active learning into its operating practices from strategy development through to policy deployment and into everyday operation. Creating systems and an environment that fosters the spread and constructive use of knowledge, both inside and outside the company, is also vital.

McAdam et al (1998) mapped the learning organization model characteristics generated by Pedler et al (1997) against the EFQM model criteria and found that there was a very good match with the 'enablers' section, cementing the link with Quality Management..

13.5 Summary and impact

Change, improvement and learning are vital to continued organizational health. They are all inter-related and must be thought of in the context of both the process and the contextual issues which can make the process a success. In essence, the leader of change, improvement and learning must develop approaches and strategies to allow for the effective integration of the process and the human element of change. In terms of impact, it is perhaps interesting to note that these areas are perennially top of the agenda for most organizations and account for very significant amounts of consultancy spending in larger businesses.

Review & Discussion Questions:

1. *If you have ever been involved in a process improvement or change activity, consider how successful it was and try to understand the reasons for the success/failure. If you have never been directly involved use a case study from the literature for the same purpose.*
2. *What is the relationship between learning and continuous improvement?*
3. *Taking any organization of which you have a reasonable knowledge and consider how you might go about setting up a process improvement initiative. How about turning it into a learning organization?*

14 Service Quality

14.1 Introduction

Much of the material in this book is applicable to both service and manufacturing operations, a small proportion is explicitly and exclusively focused on manufacturing; this section looks at the specific things which set service environments apart from others.

The unique aspects of service are readily apparent:

- The service is often created and delivered at the same time (a hotel receptionist, for example, creates and delivers the checking-in service at exactly the same time). This means that the option to 'inspect quality in' is very limited.
- Service inherently includes a human element.

What this means in terms of the approach to service quality will be explored in this chapter.

14.2 The Dimensions of Service Quality

There are many approaches to delivering service quality, but they all start from an understanding of what the key elements of service quality are.

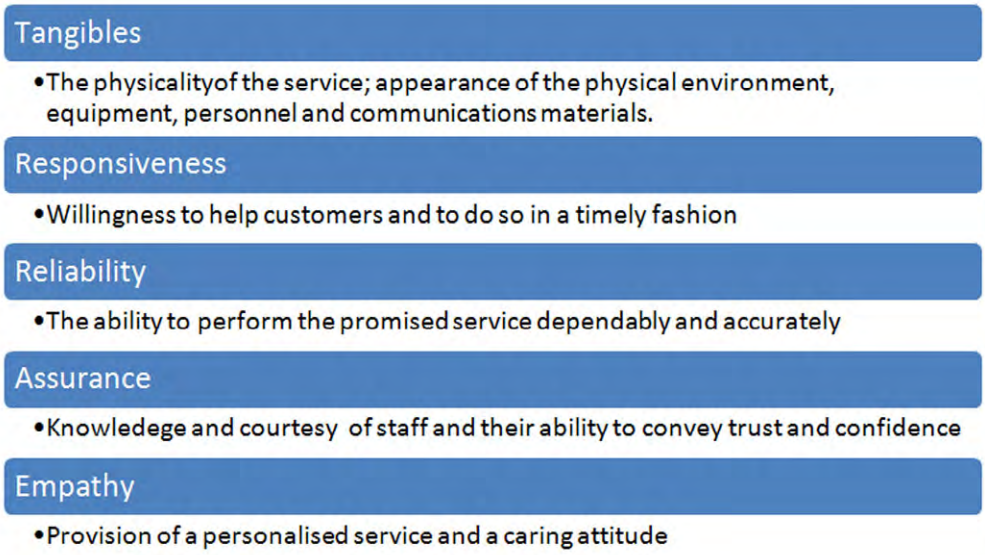


Figure 14.1. The Five Dimensions of Service Quality (Zeithaml, Parasuraman and Berry 2009)

The five elements create a holistic view of any service environment; firstly the tangible aspects of the environment must look right. Note that 'right' does not necessarily mean that it should be luxuriously appointed in all cases; a fast-food outlet needs primarily to look clean and efficient, whilst not implying to a customer that a lot of money has been spent on excessive luxury. A management consultant may, on the other hand, find it useful to wear designer clothes and drive a high end car – clients wish to know that they are hiring someone who is doing well at their job.

Secondly, the organization needs to 'do what it says on the tin' in terms of delivering customer promises and expectations. If the fast food is not fast, or not acceptable in terms of quality then the rest will not matter.

Thirdly, a responsive organization would attempt to customize the service for the customer, and respond effectively and quickly to any particular requirements. One might think of Burger King's "You got it" adverts as stressing their flexibility and responsiveness. Similarly, a dental service which can fit in emergency patients quickly, or an insurance company which can quickly provide quotes on unusual risks or in unusual circumstances without a hefty penalty would be seen as responsive.

Fourthly, assurance would be the confidence inspired by the staff through their demeanour, dress and demonstrated knowledge. Concierge services at high end hotels would perhaps be the most obvious positive example of this, whilst wildly contrasting examples might be available in large computer shops where staff knowledge can often be rather lacking. I recall on one occasion asking for help regarding the capabilities of a particular product, only to have the member of staff pick up the display card and read it out to me in its entirety! It might also be noted at this point that an aggressive display of superior knowledge designed to make the customer feel confused and belittled provides no assurance either.

The final and most challenging piece of the jigsaw is empathy. Empathy is the ability to put yourself in the place of the customer. An empathetic service make the customer genuinely feel at the centre of the service and cared for. An obvious place for empathy might be in a funeral directors; it is necessary to pick up on the cues from the bereaved in terms of the type of service and products will fit them best, at a time when they are unlikely to wish to have long discussions about choice of casket, or flowers etc. Perhaps less obviously, a car salesperson might improve the customer experience (and long term performance) by recognising and responding to customer preferences, rather than attempting to 'up sell' and get them to buy the most expensive car and options that they can be persuaded to. Empathy is often a nebulous concept, but customers know when they have experienced it, and will seek it out over and again.

It should be noted that the dimensions of the model have been criticised (e.g. Buttle, 1996; Lages and Fernandes, 2005) in terms of their completeness and direct linkage to customer decision making processes, but the model makes intuitive sense and, as Nyeck, et al 2002 note it is still probably the most complete attempt to conceptualise and measure service quality, and allows for comparison across a range of service industries.

14.3 Measuring Service Quality

Historically, service quality has been measured by customer satisfaction audits, where customers either rate satisfaction on an ordinal scale or give verbal feedback on their experience of the service (or a combination of both). This has often proved to be little more than a 'feel good measure' where organizations get a general sense of doing OK or not doing OK. It often does not, however, impart much impetus for, or data to support, detailed improvement activity. One useful way of thinking about this is to consider the equation for customer value described in chapter 6 on customers:

Value = Results – Expectation

The SERVQUAL model (Parasuraman et al, 1988) suggests that, in fact, we should modify this equation, because the results as delivered are moderated by the perceptions of the customer, that is, what we perceive as the result may not actually be an accurate reflection of the actual result. For example, the time to deliver a meal may meet our expressed tolerance, but due to circumstances such as mood, urgent appointments elsewhere or degree of hunger, it may feel too long to us at that particular time. So the equation modifies to:

Value = Perception -Expectation

This equation can be applied to all of the 5 dimensions of service quality identified in order to establish which elements of customer value are being delivered, and where improvement is required. The overall measure of service quality is the sum of the equation for all of the dimensions modified by the importance placed upon each dimension by customers. Clearly the importance of a dimension will vary for different services. For instance, customers at a high end restaurant will have a great focus on the tangibles whereas at a doctor's surgery they will have a strong focus on empathy, and a train operator might be tasked principally with reliability. This is not to say other dimensions are not important, just where customers place their emphasis. So the equation further modifies to:

Value = ∑I(E-P) Where,

I = Importance to the customer P = Perception E = Expectation

(Parasuraman et al, 1988)

14.4 Service Quality Gaps

The broad measure of quality might be adequate for keeping score, but it lacks sufficient detail to effectively direct improvement effort. This is addressed by looking at a number of sub-gaps which make up the whole.

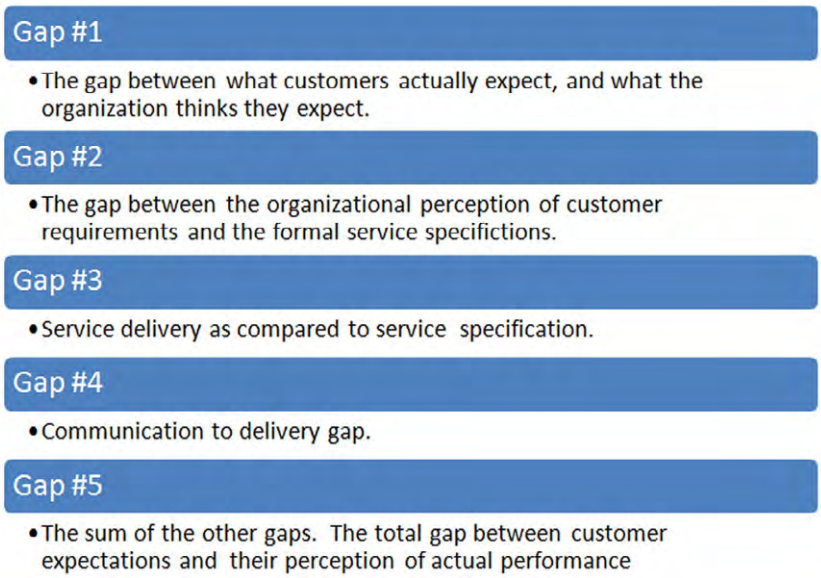


Figure 14.2 The Five Service Quality Gaps (Zeithaml, Parasuraman and Berry 1990)

Clearly, gap 5 is the one in which we are interested overall, as this represents the value experienced by our customer. However, it is useful to understand in more detail how we are failing. Are we failing to understand what our customers want (Gap #1)? Or are we unable to effectively translate our understanding into a useful specification (Gap #2)? Or does our performance fail to match the specification we set ourselves (Gap #3)? Or do we fail in our communication with the customer to help their perception of performance match the actual performance (Gap #4)? Understanding the answers to these questions helps to focus improvement efforts.

It is arguable that the 'gap' focus of this approach leads to a negative (or at least reductive) view of customer value; although it is possible for a 'positive' gap to exist where the expectations of the customer are exceeded by their perception of the experience, this is at odds with the notation which clearly assumes a 'natural' state of falling short of expectations. This may be true for a large number of companies, but might encourage a focus on compliance rather than excellence.

14.5 Delivering Service Quality

14.5.1 Systems and Processes

The SERVQUAL model shows the differences between manufacturing and service from a Quality Management perspective, indicating the added complexity of dealing with the human element of customer interaction. The 'Gap' model, however, points us to pretty similar approaches in terms of organizing to deliver value to the customer:

- ***Create a system for capturing customer expectations***: It is necessary to understand clearly what it is that the customer requires from the service. This understanding will need to be refreshed frequently as their requirements evolve.

- ***Translate expectations into specifications***: The 'Voice of the Customer' needs to be translated into a clear understanding of what the service needs to achieve. So that 'fast check-out' at a supermarket might translate into 'a wait of no more than 4 minutes in check-out lines'. This will also need to apply to more emotional components, such as the need to feel important when dining out in a restaurant.
- ***Design and operate processes to meet specifications***: A clear understanding of the standards which need to be met needs to be allied to the development of processes capable of delivering it.
- ***Develop appropriate behaviours in staff***: Processes are important for the more direct requirements (Kano's'Spoken Performance') but the feel of the service is defined by the people who deliver it, and how they behave ('Basic Quality' or 'Excitement Quality'). This will be dealt with in more detail in 16.4.2 but selection, training and support of staff would be important here.
- ***Measure performance and take action to improve***: We need to understand how well we are doing from the customer's perspective, and what particular aspects of the service need our attention. This is where the gap analysis can be useful.

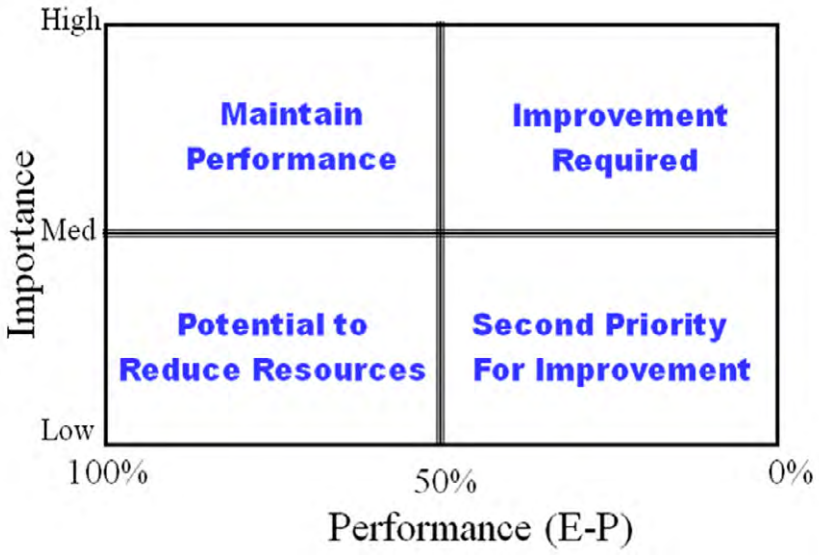


Figure 14.3. Challenge Analysis Matrix (Adapted from Capon and Mills, 2002)

A challenge analysis matrix (Capon and Mills, 2002) is one way of prioritising the areas for improvement. In essence, it is a four quadrant model where the axes are importance to the customer of a particular dimension (vertical) and performance, as defined by E –P (horizontal). High importance items with good performance are areas for maintaining the standard; high importance areas with poor performance indicate a need to improve, with secondary emphasis on lower importance items where performance is poor. Areas of high performance which are of low customer priority may represent an area where effort or expenditure might usefully be transferred to higher priority areas. An example is shown in figure 14.4.

In the example we can see that the most important things to the customer are reliability and responsiveness while tangibles are not really important. This pattern might, perhaps, reflect customers of a budget airline. The minor axis of each ellipse recognises that there will be a range of opinions amongst customers even in a relatively homogeneous group. The major axis of the ellipses represent the range of expectation to performance gaps reported by the customers; since both expectations and experience will vary for each customer it is reasonable to assume that there will be a wider range of variation along this axis.

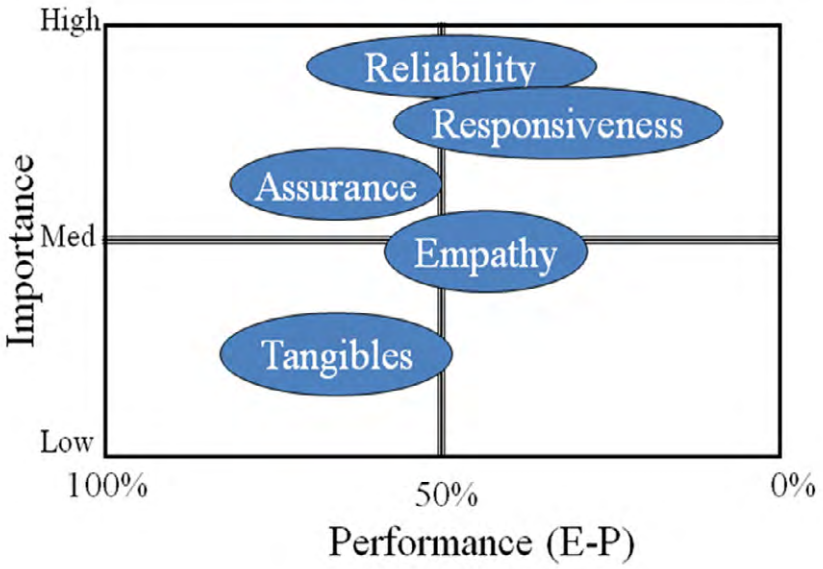


Figure 14.4. Challenge Analysis Matrix example

In the example it would seem that tangibles are performing close to expectations despite not being seen as important the customer base. This might indicate that some money or effort might be saved in this area without significant detrimental effect on customer value. This is especially true if the effort or money can be re-directed to responsiveness (probably top priority for improvement due to the poor performance despite a marginally lower importance rating) or reliability. Empathy is not a particularly high priority for improvement, but if a cheap intervention is available to improve performance this would be sensible. Assurance seems to be firmly in the 'maintain' zone.

14.5.2 People

The approach to delivering service quality value can be seen to be similar to that for delivering manufacturing quality value, as noted above. However, there is a significant additional element in the delivery of a service activity which is the human element. Gap analysis is a little prosaic and reductive to address how we inspire confidence, or delight our customers with our interactions.

One way of looking at this is epitomised by Jan Carlzon (1987) who coined the term 'moment of truth'. Carlzon, who was Chief Executive of SAS Swedish Airlines from 1981 to 1994 and presided over a transformation of business focus and performance (Customerthink, 2006) suggested that every time a customer has a contact with an organization – on the phone, face to face or, these days, on the web – there is an opportunity to make an impression. If the customer's expectation is surpassed then a positive impression is created, if the customer feels their expectation has not been met then a negative impression is given. Carlzon advocated an active management of such 'moments' within a framework of understanding your customers (Customerthink, 2006). The management of 'moments of truth' implies a number of things which are about creating an environment for employees to deliver customer value:

- ***Create an obsession with customers***: This involves a strategic focus on customers with constant engagement to understand their needs and levels of satisfaction and designing processes to respond to these. This needs to be reinforced by management behaviours in focusing meetings on customer outcomes.
- ***Select for, and develop empathy skills***: Staff need to be able to put themselves in the place of the customer to be able to respond quickly and effectively in the 'moment of truth'.
- ***Empower staff to respond to customer needs***: Staff need to be free to decide what response is appropriate in a given situation. Managers need to defer to the instincts and expertise of front-line staff in doing what is right for the customer, and allow them access to appropriate resources to deliver. The key principles are:
- Speed – A solution delayed creates irritation and a sense that the problem is not regarded as a priority.
- Proactivity – offer, do not wait to be asked, a customer requires much more to be satisfied if they have to ask for it. A pro-active response generates a much stronger positive effect, and shows that you care enough to notice they need something rather than waiting to be told. A recent trend in 'customer service' is to ask a customer 'what they need to make them happy' over a problem; this may be designed to ensure that a response is appropriate, but has the effect of putting the emphasis back on the customer and increasing their stress. Applied thoughtlessly it can even seem passive aggressive to the customer. If this approach is taken it is necessary to consider in advance how to respond if you feel the customer's request is unreasonable; asking what is required to put something right and then refusing to do what you are asked for in response clearly creates an issue.

- Over reaction – always do more than is reasonable to address a customer issue. The emotional state of a customer with a problem heightens their sensitivity to being taken seriously; for most people the act of raising an issue is highly stressful. If you do more than they might fairly expect you reassure them that you understand how they feel and actually are giving even more weight to their concerns than they do.

- ***Feedback and systemic improvement***: Encourage staff to seek feedback from customers and to ensure this reaches the right people in the organization. Always seek to uncover root causes for problems, whilst it important to fix things for the person in front of you it is more important to ensure issues do not arise again. Telling those who experienced a problem how you will ensure it doesn't happen again is also a good way of building assurance and making them feel important.

Although Carlzon's approach has elements of systematisation, it is much more about empathetic responses to customers and empowering the front line to do what is necessary to enhance customer value. As noted earlier, systems and processes are necessary to achieve quality, but in themselves they are not sufficient; without individuals taking responsibility and behaving appropriately the effect of good processes will be limited. This approach also allows for more readily exceeding customer expectations rather than just minimising gaps.

Exceeding Expectations: A Truly Groovy Move

Excellent service experiences come in many shapes and sizes. A personal favourite of mine is our experience of moving home with a family run business called 'Groovy Movers'.

It is probably worth noting that the service experience starts with the name when the customer is choosing from many potential suppliers in the phone book. Interestingly, I was unconvinced by the name, it didn't really speak to me of 'Assurance'. My wife felt differently seeing it as indicting a sense of humour and a human side (she was right, I was wrong, but I'm used to that by now).

My concerns were dispelled when the boss came round to quote; he was personable and struck the right balance between informality and professionalism. We were confident after the meeting that he and his team would do the job well and keep the stress down – after all, we are often told that moving house is the second most stressful thing you can do (after getting divorced).

The impressive thing about Groovy Movers is that they actually made the process of moving an absolute joy; not tolerable or minimally irritating but an actual pleasurable experience. They brought a sense of fun to the whole (normally) sorry affair. From gently ribbing us during the (excellent) pre-packing process, to giving the kids rides on the tail-lift, riding my youngest daughter's hobby horse during part of the clearance and performing cod Feng Shui on our pot-plants in the back garden, they kept us entertained the whole time - while still managing to be ruthlessly efficient in getting the job done, and ensuring we got things exactly where we wanted them.

In terms of the Servqual model, it is worth noting that we started with low expectations of the process given previous experience and common perceptions. The best we hoped for was professionalism and a reliably delivered service; these, if you like were our spoken requirements. What exceeded our expectations was the responsiveness in how the service was delivered, and the empathy in realising how we preferred the interaction to go. I am sure if we had required a more sober service, that's what we would have received.

14.6 Summary and Significance

Service quality has much in common with manufacturing quality, especially in terms of execution. The emphasis on the human element is much more significant, however, and requires an integrated thought process to deliver maximum customer value.

Review & Discussion Questions:

1. *Try to remember a positive service experience from your past; what made it good? Frame your answer in terms of the SERVQUAL dimensions.*
2. *Try to remember a negative service experience from your past; what made it bad? Frame your answer in terms of the SERVQUAL dimensions.*
3. *Select any service with which you are familiar, how important are each of the SERVQUAL dimensions to you in that service, and what gaps did you notice, last time you experienced it?*
4. *Next time you experience a' moment of truth' notice how well it goes and think about why that is the case in terms of the issues raised in section 16.4.2.*

15 Implementing Quality Management

15.1 Introduction

Although the preceding chapters, taken as a whole provide sufficient detail on how to implement a Quality Management approach this section is designed to provide a summary of principles to be borne in mind, and one approach to the journey which has been successful. The important caveat is that this section does not purport to present a 'best practice' approach, nor even that such an approach exists. What follows is 'A Way' not 'The Way'.

15.2 Will-Focus-Capability

If action to transform is to be taken there is a need for three elements to come together. Smith and Tosey (1999) proposed one such model for organizational learning which applies equally well to Quality.

Figure 15.1. The Will-Focus-Capability model

For individuals to act they need the will, this will be bound up with their personal motivations, and the culture and politics of the organization. They also need the capability; this will mean they need to have the skills, techniques and experience that allow them to deliver change. But to make it an attractive proposition to act they must perceive that this is a priority for the organization; leaders and managers must encourage and create an environment where the desired behaviours are supported by systems and procedures as well as their own actions and statements.

Many organizations try to begin TQM with a campaign to win hearts and minds and lots of training. However, if there is no immediate organizational focus on action once the training has been conducted they will lose momentum. If we stir up interest with a campaign and set up appropriate systems, but fail to show people how they can make a difference then we have the kind of top-down initiative which does not work because most people don't know what action to take. Finally, unless we address changing the culture and motivating individuals, process change and training will not make much difference; they could act, but the likelihood is they will not. Remember Peters and Waterman's (2004) 'system without passion and passion without system'.

For an effective transformation, the three elements need to be kept in balance throughout the process.

15.3 Prepare the Organization for Transformation

For most organizations, the transition to a Quality Management approach is nothing less than a total transformation of the culture of the business. To this point I have avoided the use of the term 'culture' because it is often used vaguely and defensively. By this I mean phrases like 'that's not part of the culture here' or; 'it's OK for the Japanese, this stuff is part of their culture'. In this context I am referring to culture as the shared norms, mental models, attitudes and accepted behaviours that define 'the way we do business'. This is in line with the thinking a many practitioners and theorists in the field (e.g. Schein, 2004). Changing the norms and behaviours built up and reinforced over years is not a trivial activity.

15.3.1 Develop Senior Management Commitment

No Quality Management initiative ever succeeded without the genuine commitment of the senior team. This needs to be informed and active commitment. The senior team will need to be role models for the new attitudes and behaviours as well as committing resources to the initiative; they must realise how much effort they are personally responsible for putting in, without active involvement the programme will falter when people notice their leaders behaving incongruently with their words.

Deming on Commitment

Dr Deming was once engaged by a business to help launch their quality initiative. The CEO gathered the employees together to receive Dr Deming's initial presentation. He entered the stage with Dr Deming and introduced him and the initiative in glowing terms, stressing his personal commitment, and then handed over before heading for the exit. He was surprised to find Dr Deming following him out of the door. He turned and explained that he had some urgent commitments to attend to and that now was the time for Dr Deming to present his ideas to the employees. Deming's response was:

"If it isn't worth while you staying, it isn't worthwhile me staying either"

As the leader you need to ensure the team understand your vision and what it means for them. Running workshops (possibly facilitated by external consultants) will help to establish these, but cement this by giving the top team some homework; give them a week to go away and come back with proposals as to how they might implement this within their own areas. When they present their ideas encourage challenge and discussion about the approaches and how they might integrate. These will not necessarily be the final approaches, but it will show how they are thinking about the initiative and if their suggested approach is 'hands off' it shows that they don't yet see it as part of their day job.

This part of the process is so important that it is worth whatever time it takes to generate genuine commitment. Without this, the success of the initiative is very unlikely.

15.3.2 Define Vision, Mission, Measures and Guiding Principles

As with any strategic activity the direction of travel is crucial and needs to be articulated as clearly as possible and as early as possible (chapter 8 will remind you of detailed considerations for this phase). Develop the vision and mission within the senior team, within a set of guiding principles which make sense for the organization. A good start point for the principles might be Deming's 14 points, or the principles underpinning the EFQM excellence model as these are both long-established and cohesive sets of principles.

One key piece of thinking here is to develop a view of how you will recognise any improvements made by the approach adopted. This means developing measures and indicators that things are going in the right direction. These should be based on the desired future state and might include the following:

- ***External measures of business performance***: Ultimately this is what most organizations are interested in. Appropriate measures here might be market share, customer satisfaction, profit, etc.
- ***Internal measures of performance***: Things like cost of quality, employee satisfaction, process waste and cost will give an indication of what direct impact has been delivered on business processes.
- ***Measures of understanding and buy in***: It is important to keep taking the temperature of the organization in respect of the initiative, activity is important but so are attitudes; how do people feel about the progress etc. What is going well, and what needs action.

It is important that the measures are compatible with the behaviours that are associated with the new (desired) organizational culture and that potential unintended consequences are thought through, particularly if the measures are to be incentivised (not that this is a recommended course of action). It is also important to decide on the time periods over which measurement will occur. You will also need a blend of measures: Leading vs. lagging; For example customer satisfaction levels can indicate that there are likely to be higher sales in future. System vs. lower level; it is important to ensure the sub-systems are working together in the best interests of the company but also to break measures down to a level where they indicate what to do differently. For example high overall levels of scrap can only be tackled by establishing where in the company they are caused. Perception vs. results. How people feel is as important as the actual observed results.

Measurement and Incentives

Measurements and associated incentives are generally designed support the goals of the organization, and to promote behaviours which fit the company's principles. But, if not properly thought through they can have unintended consequences.

Aldred (2009) points to the targets for waiting times in accident and emergency units in British hospitals. This has led to some hospitals reclassifying waiting trollies as "beds with wheels" and other hospitals to request ambulances carrying patients to wait outside for a while to reduce the measured waiting time.

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At this point in the process we are at a high level and will lack detail. This will be addressed in the next step.

It is probably worth noting that this is the point at which many commentators recommend setting up a steering committee. However, this is a risky strategy as (by implication) the steering committee will consist of members other than the board. As noted earlier, the senior team need to be directly involved in driving the approach, and it should be part of their day job. A steering committee may involve delegation which dilutes commitment and certainly implies that this is something outside the normal activities of the top team.

Remember also, that the organization is a system, and that the top level strategies need to recognise the inter-connectedness and look at systemic goals which will be addressed by systemic actions. A map of the processes which flow across the company to deliver the organizational goals is a very useful thing at this stage.

15.3.3 Engage the Wider Organization

Once the strategic direction is agreed and clarified at senior levels it is time to spin out the ideas to the rest of the organization. What is required is enthusiastic and comprehensive communication. The most important rule of communication is that it is two-way; this is not simply an exercise in telling, it is also an exercise in listening. There are several sub-steps within this step:

- ***Launch the principles, vision and mission***: Be careful not to overplay this, it is easy to switch people off if it looks like this is 'the next big thing'. This is especially true for organizations suffering from an excess of historical initiatives; sometimes called 'initiative fatigue'. Ensure everyone hears about it at roughly the same time.
- ***Consult and integrate***: Seek the views of staff about what is excellent in the organization and what needs to be improved. Don't make the mistake of trying to create dissatisfaction with the status quo purely by denigrating the existing system; many people have many years invested in the current organization, allow them to guide you in what might need to be changed and what is definitely worth keeping. Take a short time to integrate these results with the original vision and mission – feedback where changes have been made and assumptions reinforced to show that you are listening. If there is a gross mismatch between the views of the leaders and those of the rest of the organization address them now openly and with candour.
- ***Deploy Hoshin Kanri and the catchball process***: To engage staff in the change rather than just involve them in delivering it the leaders must allow them to have a say in how the vision can be delivered. The Hoshin Kanri catchball process is the most effective way of doing this.
- ***Diagnose the organization and conduct a gap analysis***: Using an appropriate tool (such as the EFQM assessment model, Deming's 14 points, etc.), look at the current performance of the organization. Bear in mind how this compares to the vision. Establish where the vision requires only continuous improvement to achieve and where 'breakthrough' improvements in performance are required. Deployment of this diagnosis should follow similar patterns to the Hoshin Kanri deployment so that departments, sections and sub-sections can see what their key challenges are.

The key element of all these steps is the empowerment of the vast majority of the workforce and their active engagement in the decision making processes, not just in delivering the actions which come out of them.

15.4 Take Action to Achieve Transformation

15.4.1 Develop Improvement Projects

Having established priorities from the activities in the previous section, the next step is to begin to work on the improvements. Again, we have some sub-steps to consider:

- ***Establish the improvement system***: Select a business wide approach to improvement, perhaps using DMAIC or PDSA. Establish the balance of full and part time resources to be involved in improvement. Establish fully trained and experienced coaches and mentors to provide support.

- ***Set up initial projects***: They must be clearly linked to business and customer priorities and to closing the gaps identified in the earlier analysis. Ensure that they are also in line with staff issues to further cement the idea that this is something that staff can own and influence.
- ***Identify and Train staff***: Avoid a 'sheep dip' approach to training all staff, this is never effective and absorbs huge amounts of resource. Train those immediately involved in projects and those who might be affected by them to an appropriate degree. Train on a just-in-time basis so that skills are used very soon after they are trained.
- ***Generate quick wins***: Although projects may be systemic and long term in nature try to find quick highly visible improvements which can establish the potential and usefulness of the overall project. Publicise these quick wins.
- ***Review projects***: Make sure that progress is reviewed regularly. Encourage reflection and self-assessment in the project teams and place emphasis on honest reporting rather than meeting goals. This is important at all times, but more so in the early phases when we are learning about the deployment and need to ensure the correct approach is being taken. Encourage 'double loop' learning where governing ideas as well as processes are challenged.
- ***Celebrate success and learn from projects***: On successful conclusion it is important to recognise the efforts of those involved and publicise not only the benefits but also the things that have been learned.
- ***Review the initiative and realign priorities***: on project completion it is important to update the higher level and re-assess where priorities now lie for the next set of improvement activities.

Throughout this process the teams need to engage fully with local personnel (they must also form a substantial part of the team). Solutions without widespread support in the areas where they are implemented stand little chance of success, and solutions developed without the insight of local staff are unlikely to be optimal.

Involvement at Lakeside Engineered Systems Division: Aeroquip Group

The re-engineering of the business required everyone to be actively involved:

- All levels of the organization were involved in reviewing the processes (both before change and of the newly adopted procedures)
- In establishing manufacturing cells, the cells were designed by the cell members.
- Project members were encouraged and empowered to follow projects to a conclusion regardless of job description, demarcation lines, etc.).

Over a 4 year period on time delivery went from 76% to 96%; lead time reduced from 16 to 7 weeks and sales per full-time employee from £132,200 to £328,300.

Businessballs.com (2011)

As time goes by and successes multiply, begin to widen the basis of the initiative, training as you go.

15.4.2 Tools to Transform

There are many books on tools and techniques to support quality. They are, of course, extremely important and are dealt with in some detail in the companion book to this on Bookboon.com "Six Sigma: Principles and Practice". This book is intended to deal with the principles and approaches to quality management rather than the detail of the tools and techniques so will not look at them in significant detail.

15.5 Communicate, Review, Diagnose and Revitalise

Communicate the successes and the learning from projects as widely as possible and as effectively as can be achieved. Review not only the success of the individual projects, but also the overall initiative. Again, you need to consider not just the actual results, but also perceptions. If the initiative is not at the front of people's minds, or worse, has a bad reputation, this can serve as a leading indicator of reduced results to come and is even more important than actual results in predicting the sustainability of the system. Apply the PDSA at the organizational level as well as in individual projects.

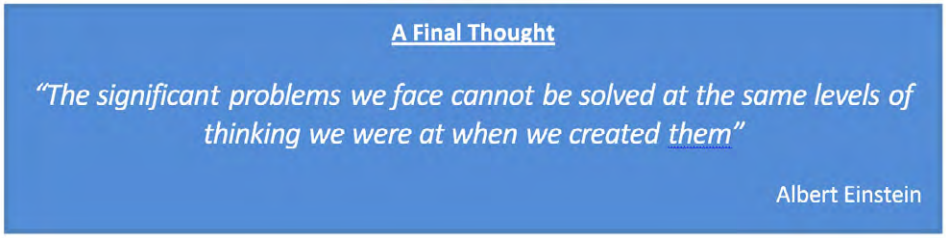
As initiatives get older they often lose their impact, and become 'wallpaper'. This is not entirely a bad thing, particularly if they are becoming absorbed into the culture. However, it may be appropriate to freshen things up occasionally by the use of some additional training or relaunch events.

Remember, this is a learning activity at all levels. Keep reviews open, honest and process focused in order to get the most out of them.

15.6 Critical Success Factors

There are innumerable texts on the factors which lead to success in deploying Quality Management, and consensus is pretty widespread. The following are a summary:

- ***Senior management commitment***: The most important success factor from almost all the research.
- ***Strategic alignment and customer focus***: This allows for the organization to derive maximum benefits from improvement activities by ensuring they are working on the things that matter most.
- ***Widespread engagement***: Put simply, the more people actively working on this the better.
- ***Good infrastructure and support***: Essentially resources need to be available in the right place, time and quality to allow for effective execution. This includes people, money, training, and expertise.
- ***Learning***: The whole system needs to focus on generating continual learning as well as continual improvement.
- ***Good measurement and recognition systems***: To establish success you need to measure, to maintain commitment you need to recognise effort and results. Note that recognition does not have to be monetary.
- ***Communication***: Is the lifeblood of any Quality Management system. Effective, two way dialogue allows the organization to evolve and priorities to be reviewed and addressed.



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