Evolution of Quality Thinking Post 1970: Part 2 of 2

Introduction

As stated in Part 1, the meaning, use and interpretation of words is of particular significance for this topic, as are perceptions, attitudes and trends. The quality movement has for perhaps too long been based around conformance and stability – but managing change is now more of a challenge than maintaining the status quo, and radical change can achieve more than minor enhancements. And this can apply to the development and application of quality standards as much as to how an organisation structures itself and plans its operations.

The way in which the UK car industry was overtaken by the Japanese in the last decades of the 20th century showed how a major change in culture and attitude can have a profound effect on performance. Yet traditionalists still find it difficult to realise that adding more and longer words to narrative procedures makes the meaning less clear. The forthcoming revision of ISO9001 is expected to involve only minor adjustments and so will miss the opportunity to explain what good process management should entail.

So the percentage of managers who truly understand the concepts of process definition, management and improvement is not likely to increase dramatically in the short term since the task of describing and explaining current operations is a challenge for many managers, even before changes or improvements are made.

Perhaps we need to get "under the bonnet" a bit more. **Edward de Bono**, the originator of lateral thinking, uses his "**Six Thinking Hats**" methodology to show how to separate your thinking into six distinct modes. Each mode is identified with a different coloured "thinking hat". By mentally donning and switching "hats" you can focus or redirect your thought.

Some basic concepts

Perhaps we should start by focussing on what "thinking" means in the context of "quality thinking". In some situations it relates to sub-conscious perceptions and assumptions, and in others it can be a rigorous and even an academic examination of behaviours, trends and past experience.

To some, quality is not something that should need to be "thought about" – it should be an intrinsic part of a product, it should not need a separate department or a specific manager to be responsible for it, your processes should be designed in such a way as to ensure that it is "built in" - and you should not need to ask for it.

At one time it was very much associated with the manufacture of goods – now it is also seen as a differentiator in the delivery of services, and it encompasses other areas such as safety, sustainability and community well-being, as well as being much more closely integrated into general management philosophy.

Quality is traditionally a concept related to what a customer receives from a supplier as a result of a "transaction". Even this definition can cause problems of interpretation when it is not clear who is the actual "customer" (is it the end user, or the person who pays you money, or the individual who benefits in the longer term?) and the picture is further clouded when "stakeholders" (such as shareholders, and even society in general) are taken into the equation.

As an example, it is important to know when writing a consultancy report for whom the report is being written – it may not be just for the "project sponsor", who may use it to support an internal proposal for funds or a development initiative or some other purpose of which you may not be aware.

The supplier / customer relationship itself needs to be considered in more detail. The elected representatives of "the people" are elected to provide a service to those who elected them – they are suppliers. Certification bodies are providing a service to their clients – they are suppliers. A customer who gives you an order is, in some ways, a supplier - they are providing you with the information you need to be able to take action.

Author: **Peter K Fraser** (pkfraser@mandossoftware.com)

Thinking of a system

A simple definition of a system (in the context of business and organisational management) is a "*set of components interconnected for a purpose*". It is more than the sum of its parts. The interactions of the parts are themselves a critical part of the system. And a system exists within its own environment of wider and bigger systems, which are not necessarily related to business and as such may not be "constructs" (in the organisational sense) but more naturally evolved systems such as society and the natural world.

Its external environment can affect a system, and a system can affect its external environment. Appreciation of these components, interactions and relationships is what is known as "systems thinking". But be warned - as Peter Drucker stated:

> "*Thinking is very hard work. And management fashions are a great substitute for thinking.*"

Many of the elements of a business system, and of its component processes (triggers, objectives, activities, resources, influences, outputs, outcomes), exist without its processes even operating. The actual (and potential) effects of the interaction of the elements of a "system" need to be appreciated (and anticipated wherever possible) for a policy to be implemented effectively, a law to deliver its intended outcomes, a product development to be successful – or staff morale to be sustained rather than reduced, a project to be completed successfully amongst others competing for scarce resources, or increased demand for a service to be managed without an adverse effect on other services.

(See **Management Systems** for further information)

A product is no longer regarded as just the goods in a box on a shelf, but it is now often perceived to include the packaging, the method and speed of delivery, the after sales service, the usable life, and even the ease and consequences of its eventual disposal. All these issues combine to form a picture of the "quality" of a product not only in the eyes of the consumer but, to an increasing extent, of society as well.

All in the mind?

Peter Bowbrick in his book "*The Economics of Quality, Grades and Brands*" questions if consistency of output is always what is required or desirable, and challenges some established and traditional views. He suggests that you may need to allow for innovation and responsiveness to specific circumstances and requirements.

On the other hand, he says that "search" (how easy is it to find produce) is an important factor in a supermarket in terms of the overall quality of service. "Quality" may involve removing the best products to ensure standard size and presentation.

In terms of the ease (or likelihood) of finding a systems view being taken by others, he believes that "*economists cannot work with accountants - accountants have a very narrow view of business, and economists recognise the impact that one change can have on all other parts of a system. They can work with engineers and architects for example.*"

And Zen there were four

So how "quality" is viewed may have something to do with how someone sees (or is able to see) the product or behaviour in a wider context. **Robert Pirsig** in his book *"Zen and the Art of Motorcycle Maintenance: An Inquiry into Values*" discusses the **Metaphysics of Quality**" (MOQ) as expounded in Wikipedia:

"*The MOQ divides Quality into static quality patterns (patterned) and dynamic quality (unpatterned). The four patterns of static value and dynamic quality account exhaustively for all of reality. As the initial (cutting edge) dynamic quality becomes habituated, it turns into static patterns.*" *Pirsig is not proposing that there are two kinds of quality: quality is one concept, yet it manifests itself in different ways.*

"Dynamic Quality includes everything not static. Dynamic Quality is the force of change in the universe; when this aspect of Quality becomes habitual or customary it becomes static." Pirsig called Dynamic Quality "the pre-intellectual cutting edge of reality" because it can be recognized before one can think about it. This means that Quality lies in the moment we sense anything during the

instantaneous present; with a short delay we give this impression a static form by describing it as emotion, thing, word etc.

It also explains that the dynamic beauty of a piece of music can be recognized before reading any static analysis explaining why the music is beautiful.

Static quality patterns: Pirsig defines static quality as "everything that can be conceptualized or recognized as forming patterns". He further divides static quality into inorganic, biological, social and intellectual patterns, in ascending order of morality:

- *Inorganic patterns: non-living things*
- *Biological patterns: living things*
- *Social patterns: behaviours, habits, rituals, institutions.*
- *Intellectual patterns: ideas.*

Assurance of quality

Quality assurance is defined as "*all those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy the given requirements for quality*" (ISO 9000:1994). But, with all the varying concepts of quality, assuring that quality exists becomes a more challenging objective.

Nevertheless, the words "*satisfy the given requirements for quality*" are a key element of the definition in relation to what has been defined as a requirement, what the customer wants and what he or she assumes they will receive. Behaviour, statements of intent and promises on the one hand can conflict with the delivery of a product.

Politics, and local and national government, form part of the "system" within which any organisation has to operate. Unfortunately, government action and political decisions can confuse and can send conflicting messages. For example, there has been a programme over many years of building bypasses to take trunk roads around villages and towns which have previously been bottlenecks for long distance travellers, and have created safety hazards for the local population.

Now, however, local councils are allowing developers to build massive housing estates on either side of dual carriageways which are already under pressure at peak times. Worse, they are building roundabouts where they have built industrial estates on either side of trunk roads, which heavy lorries often find it difficult to negotiate.

Cycle lanes are signposted in towns and cities, and local councils make great play of their existence, but some of these are even marked on busy dual carriageways, others start and stop every few yards and some are only "advisory", which means that anyone can park on them. Traffic islands are built at bus stops, so that some (irresponsible) drivers even pass on the wrong side of the road to avoid the resultant tailback.

Traffic management seems to have overtaken road safety concerns in these situations, yet "improving" road safety has meant that speed humps can now damage car suspensions and 20mph speed limits are being imposed in residential areas which have no significant record of accidents - and where there is no likelihood of the limits being enforced.

Recent examples in the UK Parliament would appear to have sent the wrong message to the general public and to business leaders. The European parliament would appear to be no better. Claiming expenses for costs not incurred and for work not done would not be tolerated in the private sector. Deciding on your own salary is an alien concept to most employees. Yet it is not only done but defended by our "leaders".

The implementation of a policy decision can be affected by unrelated objectives (some might even say "ulterior motives") which at once make it less likely that the results will be successful or that the policy will be well accepted, and that the original or required objectives are all but ignored. Local and national government exists to provide a service to the public – that is its "product". Cynicism and low future expectations can sometimes be an undesirable outcome of its delivery.

Assuredly not thinking of the system

John Seddon of Vanguard Consulting is a well-known critic of what recent UK Governments have achieved (or failed to achieve) in delivering public services. He advocates a systems thinking approach where "*individuals come first, waste is reduced and responsibility replaces blame*". He believes that waste has been "designed in" to ways of working, and that much of the resultant work is in fact dealing with the failure of the system at an earlier stage.

Seddon is a strong advocate of the views of W Edwards Deming, whose "System of Profound Knowledge" (SoPK) is at once a less than helpful title but at the same time an essential basis for understanding how problems can be addressed and resolved. The following is an excerpt from Chapter 4 of Deming's *The New Economics:*

"The prevailing style of management must undergo transformation. A system cannot understand itself. The transformation requires a view from outside. The aim of this chapter is to provide an outside view - a lens - that I call a system of profound knowledge. It provides a map of theory by which to understand the organizations that we work in.

The first step is transformation of the individual. This transformation is discontinuous. It comes from understanding of the system of profound knowledge. The individual, transformed, will perceive new meaning to his life, to events, to numbers, to interactions between people.

Once the individual understands the system of profound knowledge, he will apply its principles in every kind of relationship with other people. He will have a basis for judgment of his own decisions and for transformation of the organizations that he belongs to. The individual, once transformed, will:

- *set an example*
- *be a good listener, but will not compromise*
- *continually teach other people*
- *help people to pull away from their current practice and beliefs and move into the new philosophy without a feeling of guilt about the past.*"

How the elements work together

"*The layout of profound knowledge appears here in four parts, all related to each other:*

- *appreciation for a system*
- *knowledge about variation*
- *theory of knowledge*
- *psychology.*

One need not be eminent in any part nor in all four parts in order to understand it and to apply it. The various segments of the system of profound knowledge proposed here cannot be separated. They interact with each other. Thus, knowledge of psychology is incomplete without knowledge of variation.

A manager of people needs to understand that all people are different. He needs to understand that the performance of anyone is governed largely by the system that he works in, the responsibility of management…

A leader of transformation, and managers involved, need to learn the psychology of individuals, the psychology of a group, the psychology of society, and the psychology of change.

Some understanding of variation, including appreciation of a stable system, and some understanding of special causes and common causes of variation, are essential for management of a system, including management of people."

He also said: *"Put a good person in a bad system, the system wins every time*" to reinforce his opinion that people are at the mercy of the system(s) within which they work - and that management (and especially leaders) have a responsibility to change and improve the system if they want performance to improve.

As Deming put it: "*People would rather do a good job than a bad job. But if you pay them to do a bad job, they'll do a bad job.*"

The origin of the term

Peter Senge introduced the term "systems thinking" in his book **The Fifth Discipline**. The five dimensions that Senge identifies are:

- Systems thinking
- Personal mastery
- Mental models
- Building shared vision
- Team learning.

Mental models are "*deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action. Entrenched mental models… thwart changes that could come from systems thinking.*"

Systems thinking is the concept at the heart of his approach. It is the discipline that integrates the others into a coherent body of theory and practice. Some key quotes from Senge include:

"*I see systems thinking as a way of seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots."*

"The key to seeing reality systemically is seeing circles of influence rather than straight lines. This is the first step to breaking out of the reactive mindset that comes inevitably from "linear" thinking. Every circle tells a story. By tracing the flows of influence, you can see patterns that repeat themselves, time after time, making situations better or worse".

"The essence of mastering systems thinking as a management discipline lies in seeing patterns where others only see events and forces to react to".

"If managers "believe" their world views are facts rather than sets of assumptions, they will not be open to challenging those world views".

"At its simplest level, a shared vision is the answer to the question "what are we trying to create?" ...shared vision is vital for the learning organisation because it provides the focus and energy for learning".

"It is our experience that, 90% of the time, what passes for commitment is compliance".

Senge argues that one of the key problems with much that is written about management is that rather simplistic frameworks are applied to what are complex systems. We tend to focus on the parts rather than seeing the whole, and to fail to see organization as a dynamic process.

He argues that people think that cause and effect will be relatively close to one another. Thus, when faced with a problem, the "solutions" that are close by are what we focus on. Classically we look to actions that produce improvements in a relatively short time span. However, when viewed in systems terms, short-term improvements often involve very significant long-term costs.

For example, cutting back on research and design can bring very quick cost savings, but can severely damage the long-term viability of an organization. Part of the problem is the nature of the feedback we receive. Some of the feedback will be reinforcing (or amplifying) – with small changes building on themselves.

"*Whatever movement occurs is amplified, producing more movement in the same direction. A small action snowballs, with more and more and still more of the same, resembling compound interest. Thus, we may cut our advertising budgets, see the benefits in terms of cost savings, and in turn further trim spending in this area.*"

In the short run there may be little impact on people's demands for our goods and services, but longer term the decline in visibility may have severe penalties. An appreciation of systems will lead to recognition of the use of, and problems with, such reinforcing feedback, and also an understanding of the place of balancing (or stabilizing) feedback. A further key aspect of systems is the extent to which they inevitably involve delays – "*interruptions in the flow of influence which make the consequences of an action occur gradually*".

An emergency or an accident?

The journalist **Simon Caulkin** gave a very clear example of a lack of "systems thinking" in the **Observer** on Sunday November 25 2007:

"*The real British disease is the unerring talent for putting together entities that are less than the sum of their parts. The comical inability to think in systems terms - call it management dyslexia - was on dazzling display last week, all over the front and back pages.*

Last week's … outbreak of British anti-synergy syndrome centred on Norfolk and Norwich Hospital. On Wednesday, the hospital went into "major incident" alert because it was "chocker". At one stage, 10 ambulances (nearly half Norfolk's total) were immobilised waiting to unload their patients.

Why was the hospital full? Because of high demand, coupled with high bed-occupancy rates. Why are bed rates so high? Partly because the hospital is 'efficient', operating at occupancy rates of more than 90 per cent. But also because 60 beds are occupied by patients who have finished treatment but can't be discharged. Because, for financial reasons, the Norfolk Primary Care Trust is busy closing down the community hospitals that would traditionally have taken recovering patients, and social care, as almost everywhere in the country, is utterly inadequate to cope.

And why is demand so high?…The extra demand comes from within. It is largely generated by NHS Direct which, terrified of making mistakes, routinely directs callers to A&E or their GP - but since GPs are no longer available out of hours, as a result of the government-imposed contracts, that means A&E.

In other words, the Norfolk NHS crisis… was self-generated, the result of complete and continuing system-blindness. "Problems in organisations," points out Russell Ackoff, one of the first and best systems thinkers, "are almost always the product of interactions of parts, never the action of a single part." Treating a single part destabilises the whole and demands more fruitless management intervention; management becomes a consumer of energy, rather than a creator.

Unfortunately, that's the hallmark of 21st century UK management. As last week demonstrated, it still shows no sign of recognising it."

Thinking of a system?

Even now, many managers have yet to show that they have a real appreciation of an individual "process", never mind taking a real "systems" view of their operations. When describing a single process, there is still a widespread belief that drawing a 1-page flowchart (in the traditional "words in boxes" style) and adding it to the back of your narrative "procedure" is sufficient.

One of the key lessons from Deming's philosophy and the TQM approach is the intrinsic relationship between quality and process, and that all activities are part of a process. Managing the processes in an organisation is crucial to assuring quality. Deming said: *"If you can't describe what you are doing as a process, you don't know what you're doing."*

Identifying the objectives of a process, and how it fits into the overall plan to meet the top level objectives of the organisation, is an essential first step. Drawing a flowchart is one method towards understanding and managing the process. Someone reading a purely narrative description of the same process might not understand subtle interactions amongst the components. Making the process visible makes it easier to manage and improve.

Defining or mapping a process is also an essential step when changing how things are done. For example, many CRM (Customer Relationship Management) projects fail because no-one defined the required processes before implementing the software.

Paul Harmon, Executive Editor and Founder of Business Process Trends, wrote in 2008: "*The fact is that process change takes place on many levels. Sometimes an organization needs to step*

back and reconsider how its doing business. It needs to change its business model, create new products or adopt new ways of doing things. At other times, it finds a process that has been working well is now out of date and needs to be significantly redesigned. Anyone watching the business scene today knows that most companies are trying to figure out the best balance between doing things internally and outsourcing. The new business process models being created require entirely new ways of thinking about processes and process management.

In a survey undertaken by IBM in 2006, 765 CEOs from 20 industries were asked to suggest where their growth was coming from. The results are dramatic: They consistently claimed that they were getting growth from discontinuous business model innovations, and not from the more mundane improvements they were making in operations or in products and services.

I suspect that if we asked the new CEO of Motorola, he'd say the same. It wouldn't be that he didn't value Motorola's process improvement efforts, but process improvement only helps if the overall process is right in the first place. Making a bad process more efficient doesn't help anyone. In fact, it causes harm, since you are wasting money improving a process that isn't doing what it should do in the first place."

Is quality in your picture for the future?

Myron Tribus, a disciple of Deming and former director of the **Centre for Advanced Engineering Study at MIT**, popularized the deployment (or matrix) style of flowcharting (for the way it illustrates how people are deployed throughout the process). The deployment flowchart is a matrix, presented with job functions along the x-axis and tasks or activities down the y-axis.

Building on this style, the North Sea oil and gas industry has for years used the RACI methodology (Responsible / Accountable - or Assists / Consulted / Informed) which identifies people's involvement in each task in a process. Interestingly, the fact that this approach requires people to accept responsibility for specific tasks can itself cause problems, whether cultural (as in the Middle East) or personal (as in the case of consultants in the NHS!)

Deming drew a picture of an organisation of a system (see **The Deming Dimension** by **Henry Neave**) and ISO9001:2000 contains a "model of a process-based quality management system". Both attempt to show the interactions amongst the system components, yet neither really reflects the complexity of a business management system since the "model" would need to be multi-dimensional to reflect different perspectives, the way processes affect other processes, and how an individual occurrence of one process can affect other instances of the same process.

Yet there remains a reluctance amongst many UK managers and organisations even to define their processes, to identify roles and responsibilities, to appreciate the factors which influence their operations and to integrate "quality" into mainstream "management".

The reasons would seem to be varied – fear of what weaknesses they might find, avoidance of the lessons learned from others (eg Japanese car manufacture in the UK on the one hand, and government interference in the public sector on the other), the cushioning effect of the high oil price in 2008 (eg UK oil and gas majors), short term targets… Or perhaps they are following an inappropriate thought process (or should that be a "thought system")?

"Systems thinking" is, thanks to Senge and others, gaining much wider recognition both as a way to explain why things go wrong and to plan and manage organisations into the future. There is, however, some way to go before a real understanding of the fundamentals of process management is commonplace, and this may require a more radical change to the way in which standards are written and used.

"Conformity" thinking will in many situations need to be replaced by innovation and the management of change, but for this to be successful the interpretation of essential concepts of business process management will need to lose its traditional association with manufacturing. History suggests that the international standards "industry" may not be able to keep pace.

References

Senge, Peter (1990) "The Fifth Discipline" and "The Fifth Discipline Fieldbook" (Doubleday, 1990). (originator of the concepts of "systems thinking" and "the learning organisation")

See also http://www.infed.org/thinkers/senge.htm. The extracts above were reproduced from the encyclopaedia of informal education [www.infed.org]

Bowbrick, Peter: The Economics of Quality, Grades and Brands (Routledge 1992). www.bowbrick.eu

Seddon, John: Systems Thinking in the Public Sector (Triarchy Press 2008)

Pirsig, Robert M. Zen and the Art of Motorcycle Maintenance: An Inquiry into Values. New York: (Quill. 25th Anniversary Edition (1999))

See also http://en.wikipedia.org/wiki/Pirsig%27s_metaphysics_of_quality#Quality

Neave, Henry R: The Deming Dimension (SPC Press)

Business Process Trends: http://www.bptrends.com

de Bono, Edward: Six Thinking Hats (Penguin Books Ltd)

This is one of four modules written in 2007-2008 by Peter Fraser of MandOS for the Chartered Quality Institute (CQI)'s Body of Quality Knowledge (BoQK). The BoQK (see www.thecqi.org/knowledge) is the framework that defines the current boundaries of knowledge of the quality profession in the UK. It acts as one of the foundations that defines the quality profession and provides the basis for regulation.

The categories of the BoQK are:

- Concepts of quality, its history and development
- Customers, suppliers, other stakeholders and markets
- Interactions of organisations and people
- Technologies and techniques
- Laws, standards, models, associations and professional bodies
- Corporate strategy.

The four modules are:

- **Specifying, Designing and Developing Processes, Products and Services**
- **Management Systems**
- **Elements of Corporate Strategy**
- **Evolution of Quality Thinking Post 1970**