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Total Quality Management (TQM) has been one of the most influential methods used in managing business processes over the last 30 years. It has been incorporated as a vital component, in the management systems of some of the world's most successful enterprises.

In trying to define TQM it is well worth considering the relevance and meaning of the three words in its title.

Total - The responsibility for achieving Quality rests with everyone in a business no matter what their function. It recognises the necessity to develop processes across the business, that together lead to the reliable delivery of exact, agreed customer requirements. This will achieve the most competitive cost position and a higher return on investment.

Quality - The prime task of any business is to understand the needs of the customer, then deliver the product or service at the agreed time, place and price, on every occasion. This will retain current customers, assist in acquiring new ones and lead to a subsequent increase in market share.

Management - Top management lead the drive to achieve quality for customers, by communicating the business vision and values to all employees; ensuring the right business processes are in place; introducing and maintaining a continuous improvement culture.

To gain an understanding of TQM, it is worth looking at how it developed and the impact of some of the main management "gurus" over the years.

The History of TQM

Along with many other modern management practices TQM originated and was developed within Japanese industry after the Second World War.

Japan was a defeated nation with few natural resources and an inability to feed a population of 90 million, by itself. The future lay in successfully exporting consumer products across the world market, yet it had a reputation for shoddy goods and management systems that were described as "feudal" and "despotic".

General Douglas MacArthur realised the need for radical change and was responsible for the re-generation of the Japanese economy. Key to this was the dismissal of the old management and their systems, replacing them with younger men capable of making the changes needed to develop their economy.

As a result the Union of Japanese Scientists and Engineers (JUSE) was formed, one of their first actions was to invite a well-known American statistician Dr. W. Edwards Deming, to present his ideas to them. Deming addressed the top business leaders in Japan, including managers from Companies which are now household names, Sony, Nissan, Mitsubishi and Toyota. They introduced new management methods, TQM being a key one. This led to Japan being the world leader in quality and productivity.

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Deming had made a highly significant contribution during the war in increasing America's industrial efficiency.

After the war was won, although well received by engineers and scientists, top management did not respond to his ideas. Industry went back to the old established ways of trying to meet consumer market opportunities.

In Japan however Deming found a much more receptive audience, his ideas once implemented led during the 80s, to American business being battered by Japan's superior industrial practices.

In order to compete and survive, the rest of the world were forced to take his ideas seriously, adopting "Japanese methods" such as TQM and Lean Manufacturing.

The Quality Gurus

TQM evolved and it is worth considering the beliefs of the main quality gurus who have added to the mix, starting with Deming himself.

Edward Deming

Deming's concepts of process management began with the use of statistical quality control. His real contribution was his ability to cut through academic theory and present ideas in a simple way that was meaningful and practical right down to the shopfloor.

He interpreted quality in terms of reliability, dependability, predictability and consistency of product and service.

He saw quality improvement as being analogous to reduction in process variation. By reducing this with the help of statistical control methods, variation in product quality is also reduced. The fact that processes are now under better control also means lower cost and improved productivity.

Deming's approach started with understanding the causes of two types of variation,

1. External influences on the process which he described as uncontrolled variation due to "special causes". Examples are changes of operation, procedures, raw materials. All these interrupt the normal pattern of operation.
2. Controlled variations which are due to chance, random, or "common causes". All of these by definition are due to the process itself, it's design or installation.

For Deming, quality improvement must begin with identification of the two types of variation. The next stage is to eliminate the "special causes" and only then work on the "common causes".

Identification and elimination of these is assisted by the use of Statistical Process Control (SPC) and various forms of simple control charts designed to be used on a shopfloor environment.

Management improves the process by re-designing it to improve it's capability to meet customer needs.

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Deming also stressed the crucial importance of the need for a deep understanding of businesses work processes. Without this, true progress will not be made.

Over the years Deming thoughts expanded, to cover issues of managing people, leadership and training in order to achieve quality goals

Joseph Juran

Juran published "The Quality Control Handbook" in 1950 which became the standard reference book on quality world-wide.

Juran developed his TQM philosophy around his "quality trilogy"

- Quality planning: the process for preparing to meet the quality goals
- Quality control: the process for meeting quality goals through operations
- Quality improvement: the process for break through levels of performance

Both he and Deming correctly stressed the need to involve people throughout the organisation in quality improvement but in particular that most quality issues are down to management dealing with systems. The emphasis is on getting the system correct rather than blaming failure on operator error. Juran particularly emphasised the use of quality teams and training them in measurement and problem solving.

Kaoru Ishikawa

Ishikawa is regarded as the father of the quality circle approach which was involved building shopfloor teams. His legacy is more directly linked to hands on, practical techniques and promoted many of the tools and techniques of measurement, analysis and problem solving commonly used as part of the TQM armoury.

These include:

Pareto analysis
Fishbone diagram (otherwise known as an Ishikawa diagram)
Stratification
Histograms
Control Charts
Scatter diagrams

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Philip Crosby

Crosby did much to popularise the use of TQM. He first designed a highly successful programme for ITT for whom he worked before setting up his own quality college and consultancy firm. His training programme has been widely used by a large number of US. and U.K. companies. Again, like other practitioners, his training is targeted at the Management team as a whole and not just quality control specialists. Crosby presented his "4 Absolutes Of Quality" as the cornerstones of his approach

1. Quality is defined as conformance to requirements, not just as goodness
2. Quality is achieved through prevention not appraisal
3. The quality performance standard is "zero defects" and is not defined by AQLs which allow and build in acceptable levels of errors and inefficiencies
4. Quality is measured by the price of non-conformance

Crosby spread the word that, as in the title of his most popular book, "Quality is Free". He believes that by setting up processes that are designed to prevent errors, by having people trained and motivated to operate them as designed, not only will quality improve, the costs of production will be reduced.

TQM in practice

In the 80's and 90's TQM was promoted in the U.S.A. through the "Baldrige Award" and in Europe through the European Quality Award. The main elements in the practice of TQM can be highlighted by the principles they used for auditing companies.

These can be summed up as follows:

- The customer defines quality and this is the start point
- The senior management team is responsible for taking the lead in setting the company strategy, values and culture with regard to quality
- Quality depends upon the design and execution of systems and processes to a high standard
- A key part of the philosophy is that of the need for continuous improvement and the need to reach for continually higher standards.
- Leadership in quality can only be achieved through management setting clear goals and forming the strategic and operational plans to achieve them.
- Understand the processes that drive your business and base your decisions on facts
- Involve employees at all levels in quality improvement activities through appropriate education, training and communication
- Key parts of quality systems include designing quality into processes and error prevention
- The shortening of response times for all processes is an objective of improvement efforts

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- Companies should communicate with and involve their suppliers in achieving their quality targets

TQM programmes adopt a similar approach to that below

1. Gain top level commitment in the business
2. Create the awareness of the need and opportunity for quality improvement and set goals
3. Organise to achieve these goals, for example establishing a quality council, quality improvement teams or project teams.
4. Train everyone in the organisation, starting with the management team on the philosophy and tools and techniques
5. Put the resources behind applying them

Quality programmes typically include:

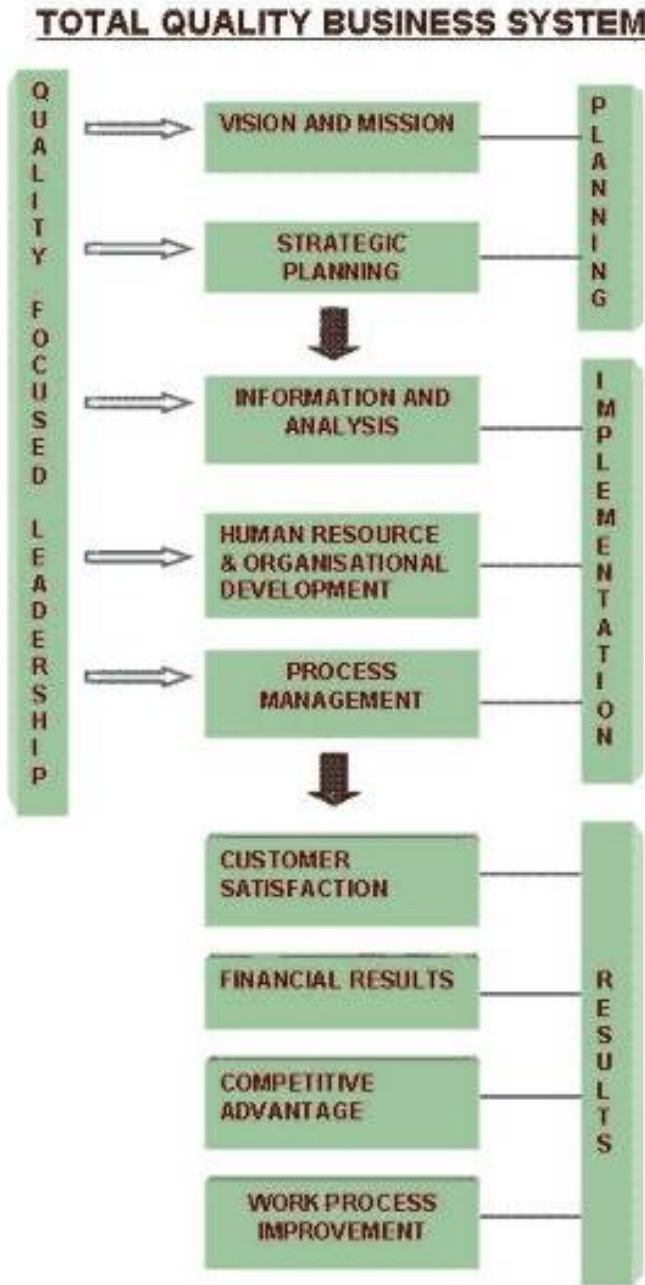
- Identifying and confirming customer requirements and identifying problems and opportunities in meeting these. Gain understanding in the concept of the internal customer and meeting their requirements.
- Tools for understanding processes. For example, process modelling tools. How to build error prevention into work processes
- Measurement tools, including check sheets, run charts, sampling and data collection. The use of discrete or continuous data
- Calculating the "cost of quality" or "price of non-conformance" which defines the cost saving opportunity
- Information analysis techniques such as run charts, Pareto charts, cause and effect diagrams, flow charts
- Problem solving techniques such as brainstorming, tree diagrams
- Improvement Planning through teams and planning tools such as Gantt charts and other project planning techniques.
- Controlling the work processes. The use of simple Statistical Process Control techniques and control charts which can be used by shopfloor personnel
- Communicate the results, recognise people who have been involved in success and incorporate improvements into the companies processes and systems
- Maintain the commitment to continuous improvement. After each success, go back and look for more!

Over time the use of benchmarking and balanced scorecard has also been incorporated into TQM programmes by a number of companies.

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Business Systems

Many of the practitioners of TQM have successfully incorporated it into their culture, business systems and processes. It has provided a means of planning and controlling their business and auditing its performance. Below is an example of how such a business system might look.



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Evaluating TQM

Evidence and reports of the success of TQM over the years have been mixed. After the strong uptake in the USA during the second half of the 80's and the early 90's there were signs of discontent and waning of interest. This may have been a result of what was perceived as the poor fit between TQM and the new industrial imperatives of the 1990's. An article in the Economist observes

"The most ardent adherents of quality are finding that TQM does not readily blend with wave after wave of restructuring, downsizing and re-engineering. And the challenge of developing products and bringing them, to market even more swiftly, especially in industries where prices are tumbling, such as computers, adds to the strain on TQM"

The experience of downsizing, business re-engineering undoubtedly created job insecurity and demotivation amongst employees, thereby undermining the employee involvement essential to any successful TQM programme. The experience of companies such as Xerox and BA who both were regarded as having successful TQM programmes found it difficult to maintain the level of commitment from their staff which is one of the pre-requisites of continuing its TQM programme.

Many companies found themselves in a position where they believed it necessary to make major structural changes to their organisations in a relatively short space of time. IBM, for example halved their workforce in a period of ten years. The comparison between re-engineering/downsizing/de-layering on the one hand and TQM on the other is an interesting one. Both types of process are aimed at meeting customer requirements in a cost effective manner. Both concentrate on the processes necessary to deliver the outputs to customers. They strongly diverge however in their strategies for change with TQM adopting the continuous improvement route and re-engineering utilising immediate, radical, mega-change.

There have been debates about the success or otherwise of TQM programmes over the years. Studies have been carried out, for example by the by the US General Accounts Office covering American companies and in the UK by The Bradford Management Centre. These have found that companies that had fully adopted Total Quality Management programmes produced significantly better bottom line results than comparable companies who had not taken that approach. A number of studies by academics and consultants also identified that a common cause of failure of Total Quality Management programmes was simply down to either poor management or a lack of commitment to quality. There were, and still are, a large number of company directors who believe that "quality is not their responsibility".

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Total Quality Management today

Whilst the number of companies today who are openly practicing major programmes under the banner of Total Quality Management has greatly declined from the late 80's and early 90's, it's philosophy and management tools it utilises are just as evident. To many companies, it has become the way they manage and not "an external programme" which was one of the objectives and measure of it's success. Likewise, companies recognising the need to improve their business performance are customising Total Quality Management principles and practices to suit their own particular needs and circumstances and building their own internal programmes. This has avoided the potential dangers of the "grand programme" and jargon that can alienate the employees. Alongside this is the success of 6 Sigma programmes which bear great similarity in terms of their objectives, people involvement and the tools and techniques used. In fact, some believe 6 Sigma to be a form of Total Quality Management.

The principles of Total Quality Management are as relevant to work process management today as they have ever been, particularly when considered alongside learnings from other techniques such as lean manufacturing. It is essential that programmes are structured to meet the needs and situations of individual companies. Whilst some may benefit from a fully integrated programme, others have realised that there are significant payoffs to be gained from a more modest or tailored approach designed to solve specific problems or achieve defined, targeted improvements. The scope and scale are up to the client company to choose.

~ Dave Sowerbutts ~