

Quality Management Systems

1. The Case for Quality

In a competitive marketplace customers demand reliable and consistent products and services which fully meet their needs and expectations. Put a dozen clients from different businesses in a room and ask them to define 'Quality' and you will get a dozen different answers, may be;

- Meeting customer's needs
- Reliability,
- Consistency,
- Responsiveness to customers,
- Delivery on time,
- Within estimated costs,

All of a sudden a concept that we all think we fully understand, becomes extremely difficult to absolutely define. Sufficient to say that all the above examples are some elements of 'goodness' associated with the product or service provided, as perceived by the customer... and basically, customers can't get enough of it.

We are all customers too, every time we enter the local store or pick the milk up of the step in the morning. We don't consciously think, 'I wonder if this is a quality product' every time we buy something, we just come to expect it. We may not be able to easily define quality but we sure as hell know when we don't get it.

So much jargon has been woven around the terms quality control and quality assurance that it is hardly surprising that many business owners and managers are turned-off by the concept, instead of facing up to the challenge of implementing effective policies, objectives and strategies which will help customers distinguish his (or her) products and services from competitors.

Even the quality textbook writers have changed their concept of what quality actually means in the modern marketplace:

1960's - Meeting the specification. (The era when products and services were designed in isolation and thrown 'over the wall' to those that had to deliver them)

1970's - Meeting customer's requirements (enlightenment - recognition that companies are here to serve customers)

1980's - Meeting needs and expectations of customers (recognises that customers have implied expectations that are not always fully defined on paper, like responsiveness)

1990's - Delighting the customer (recognises that customers can become advocates if you provide more than what was expected)

So much ground was lost through lack of leadership in quality matters that Britain's share of world trade in the manufacturing industries, shrank from 13% in 1960 to 5.5% in 1986.

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Too many managers still cling to traditional outdated management styles and control systems. These weaknesses are evident in businesses that display the following characteristics:

Departmentalisation - Each department works for itself, without fully recognising their position and role within the organisation. Each department works efficiently within their role, but communication between departments is weak often leading to conflicts and inefficiencies. Departments do not work together as a team to serve the customer.

Lack of Common Purpose - The management has not defined policies, and objectives for the business. Each department does what they think is expected of them, but there is no common purpose, no defined objectives and therefore no measurement of the effectiveness of the organisation.

Some Failures are Inevitable - Employees accept that some customers are difficult and inclined to complain. Failure and delay are accepted as the norm. Management believes that some problems are inevitable and that people are not infallible. In reality all problems have causes and these causes can be identified and can be eliminated. There is an over-emphasis on fire-fighting to get the customer off our back and little or no emphasis on problem prevention.

Focus on Internal Systems not on Customers - The company focuses on internal systems and not on customer needs. Often a senior management member has defined the style of the operation and how things will be controlled. As he or she is the most forceful member of the team, this is never questioned, or re-evaluated. The system is designed to satisfy them and not customer's needs. Customer's needs vary and become more demanding over time. Systems and operating methods need to be frequently reviewed, up-dated and improved.

Lack of Planning - Sales staff concentrate on collecting orders, without recognising the constraints and information needs of those required to subsequently deliver the products and services. The company does not or cannot plan delivery of the order to meet all the customer's expectations. This will manifest itself in delays, late deliveries, complaints, costs in excess of estimates and inevitably more fire fighting.

Recognise any of these symptoms in your clients or prospects? Time to talk about change, and proper leadership. Effective companies pay attention to each of the following:

- Management of business strategy (policies objectives and policy deployment)
- Management of routine
- Management of change

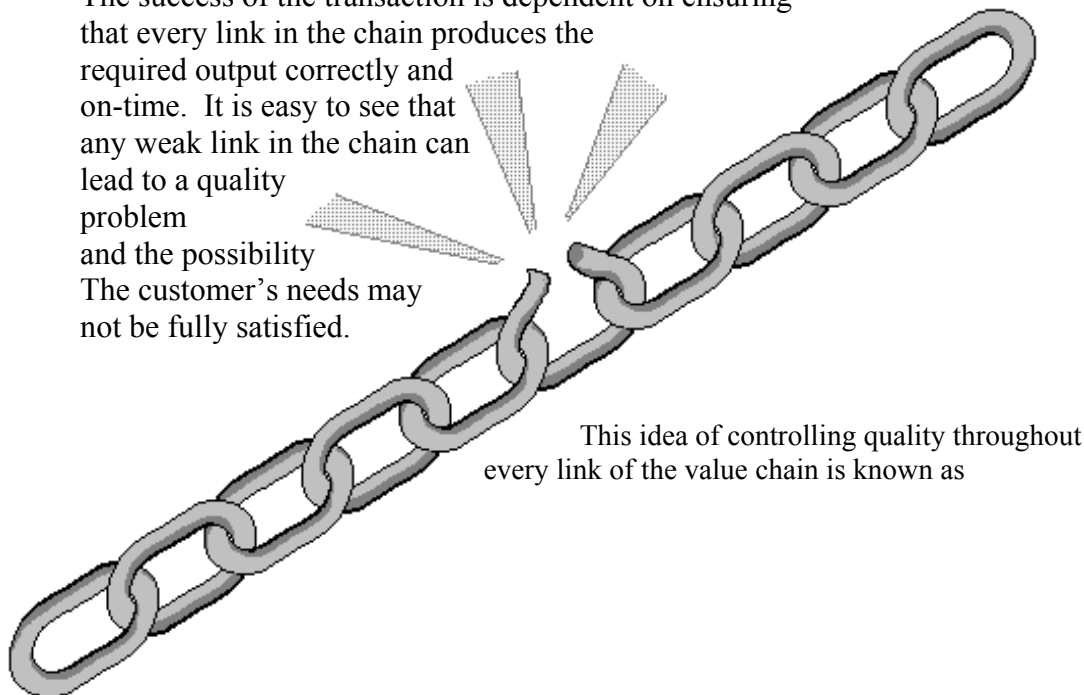
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2. The Quality Management Systems Approach

All business transactions can be seen as a chain of events (or a series of interconnected processes) from initial customer contact to after sales service. We can call this chain the 'value chain'. The links in the chain might be made up of:

- Accepting an enquiry
- Preparing a quotation
- Receiving an order
- Planning (and may be designing) the job
- Purchasing supplies
- Making a product or providing a service
- Delivery
- After sales service

The success of the transaction is dependent on ensuring that every link in the chain produces the required output correctly and on-time. It is easy to see that any weak link in the chain can lead to a quality problem and the possibility The customer's needs may not be fully satisfied.



This idea of controlling quality throughout every link of the value chain is known as

During the 2nd world war a large proportion of British industry was engaged in the manufacture of munitions. The component parts for munitions would be typically made by machine operators and then submitted to an inspection department to check if the parts were acceptable to specified drawings or blueprints. The inspectors would sort the good parts from the bad, which would then be scrapped or re-worked. This is a very inefficient form of production and inevitably leads to waste. As weapons became more sophisticated it became impractical and very expensive to rely on sorting good parts from bad after they were made.

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A more practical approach was to ensure that products were designed, planned and manufactured correctly in the first place. The motto became:

'Right First Time, Every Time'

To enforce the new concept, the ministry of defence issued a specification to all suppliers and subcontractors that defined requirements for a Quality Management System.

The concept was adopted by other major purchasing organisations, which also prepared their own specifications. All had the same basic concept:

1. Requirements for managing quality in the various links of the value chain
2. Requirements for documenting what should be done
3. Requirements for maintaining records
4. Additional requirements for managing the system

Customers evaluated suppliers to their own Quality Management System requirements. Although this gave assurance to the purchaser, for the supplier it became intrusive as each customer had slightly different requirements and these were assessed independently via a customer visit. The British government recognised a need for one national standard, which would be accepted by all and the British Standards Institute (BSI) was commissioned to write such a standard. The result was BS5750, first published in 1979.

This was not only used in a contractual arrangement between purchaser and supplier but was also supported by a third party assessment and registration scheme. This meant that an independent assessment body could assess a company against the standard and if successful would issue a certificate of registration, which would be recognised by existing and future potential customers.

Other countries, also adopted the idea of assuring quality by specifying requirements for a Quality Management System. The International Standards Organisation (ISO) led by Canada, was set up to develop an international standard, which would be recognised by different nations. This drew inspiration from BS5750 and other defence standards and was published as ISO9000 in 1987, revised in 1994 and subsequently re-written and re-issued in December 2000. To understand the current status of ISO9000 registration we need to discuss both the 1994 and the new 2000 versions of the standard

ISO9000: 1994 is a generic standard in several parts:

ISO9001: Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation and Servicing.

ISO9002: Quality Systems - Model for Quality Assurance in Production, Installation and Servicing.

ISO9003 - Quality Systems - Model for Quality Assurance in Final Inspection & Test

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These are the three standards against which a company may be assessed and registered by a third party assessment body. Points to note:

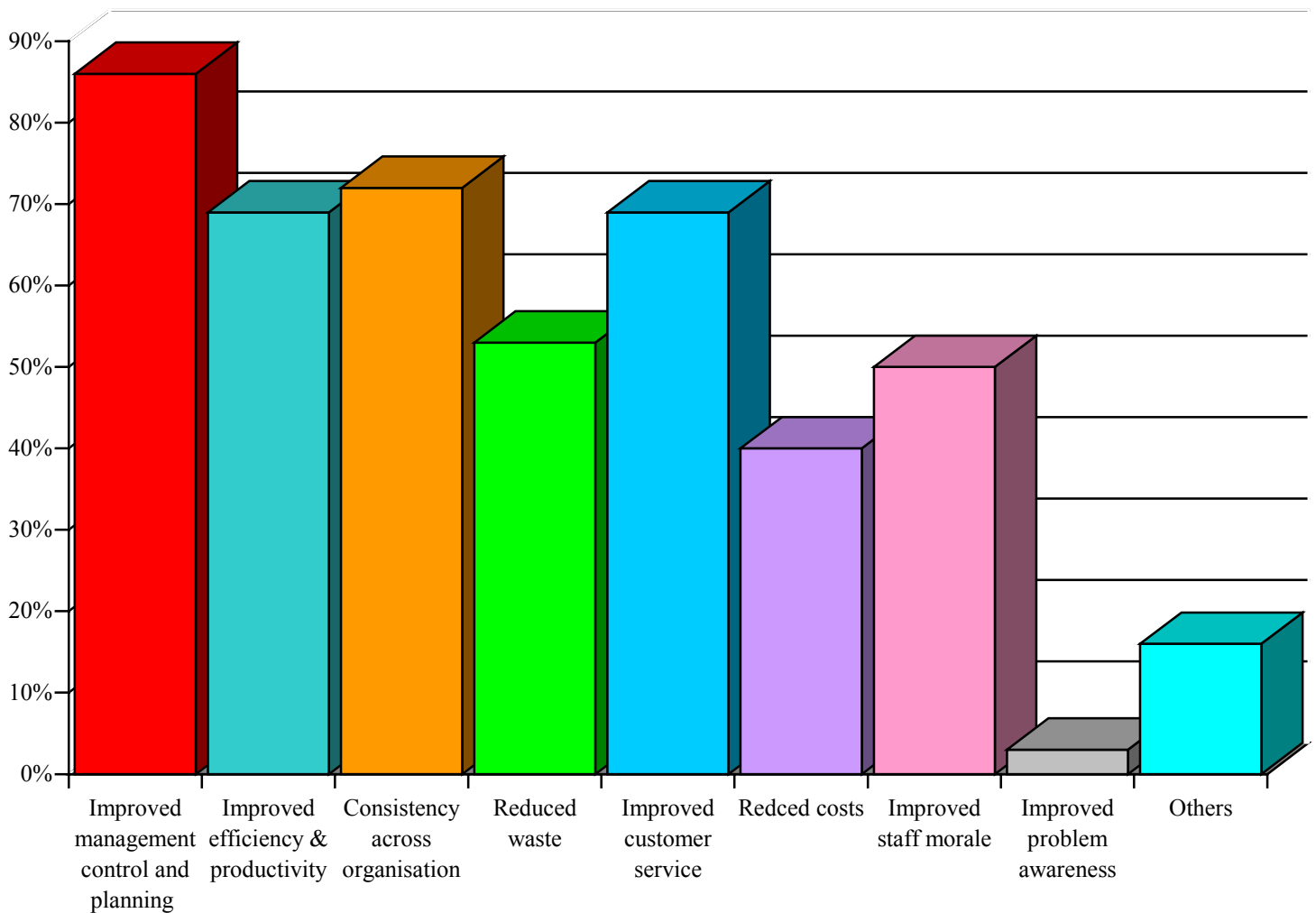
- They differ in scope only. ISO9002: 1994 should not be considered a lesser standard than ISO9001: 1994.
- ISO9001: 1994 shows the requirements broken down into 20 key requirements or clauses.
- ISO9001:1994 incorporates all the requirements of ISO9002 plus additional requirements for product design. ISO9002 uses the same clause numbers as ISO9001 but under the clause headed: 'design control' states that this does not apply.
- The majority of registered UK companies have been assessed to ISO9002: 1994.
- ISO9003: 1994 is rarely applied and is used mainly by stockists, ie companies who buy and supply goods without adding any value.
- All companies currently certified to one of the ISO9000: 1994 series of standards must up-grade their quality system to address the requirements of the year 2000 edition within the next three years ie by December 2003, or they will lose their registration.
- Very few organisations have up-graded to ISO9000: 2000 yet, because:
 1. The new standard was only released in December 2000
 2. The changes must be fully implemented and supported by 3 to 6 months records for successful certification.

There are a number of other parts of the ISO9000: 1994 suite of specifications and these are published for guidance and interpretation only e.g. ISO9004 - Quality Management and Quality System Elements Guidelines.

3. Benefits of Implementing A Quality Management System

The benefits of implementing Quality Management Systems to ISO9000:1994 have been so hotly debated that it often seems that everybody and his dog has some opinion about it. It is significant to note that many of the criticisms have been made by academics, wishing to promote a different (ie their own) approach to Quality Management or by organisations that have balked against the changes required and not actually attempted to implement the requirements. Illustrated here are the benefits reported by organisations that have been successfully registered to the standard:

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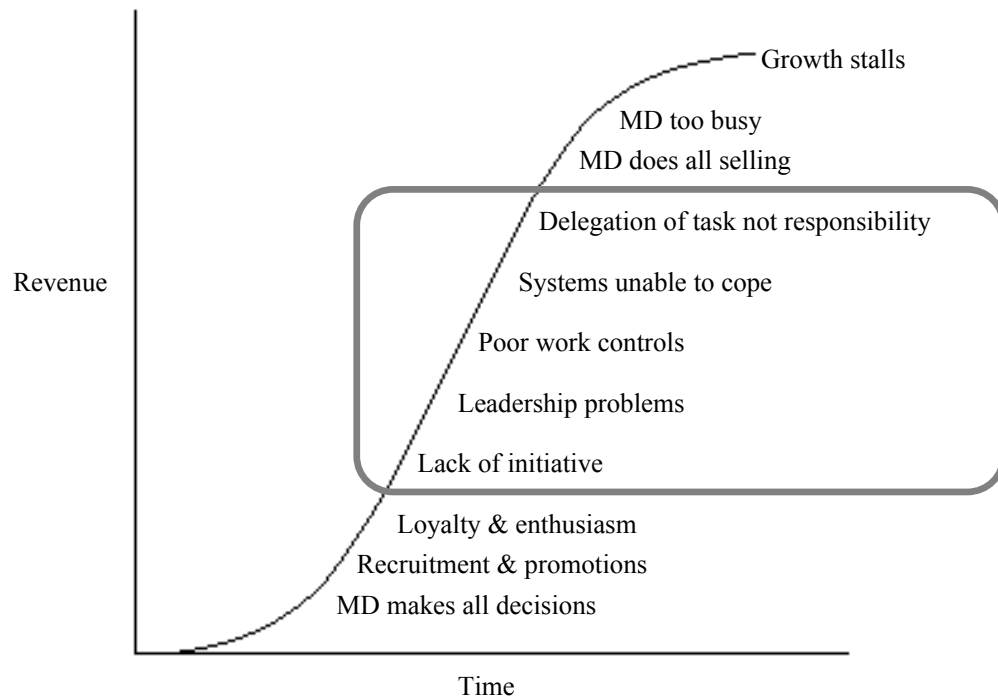
Benefits of Implementing ISO9000
(Survey of ISO9000 registered companies LRQA 1993)

4. ISO9000 - Is Just Good Management Practice

The requirements of ISO9000 are not alien to a well run business, they are in fact a good common sense approach to controlling order processing, value adding activities and ensuring that systems and output are properly measured and managed.

As an accredited business adviser of the IIB you will be discussing business with numerous Managing Directors of small to medium sized enterprises. You will probably find, that many businesses experience difficulties climbing the growth curve due to the problems highlighted in the box below.

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The Business Growth Curve

One of the most effective tools for addressing these problems is the application of the Quality Management Standard, ISO9000. The most common reason for seeking approval amongst SMEs has been customer pressure and not as an aid to future growth. Yet it is well recognised that without sound operating procedures and delegation of authority and responsibility the company's growth may be severely restricted.

5. Third Party Certification

Many of these benefits can be achieved by working to the requirements, however having the system independently assessed and registered gives customers confidence in the working and management of the system.

There are approximately 65 independent assessing bodies in the UK, who are themselves accredited by UKAS to carry out 3rd party assessments to ISO9000. UKAS accredited assessment bodies display the UKAS logo which is a tick, the letters UKAS with a description of the type of approval, inside a rectangle with a crown displayed on top.

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Some of the Assessing Bodies are very specialised and are accredited to provide 3rd party assessments to only one or two sectors of the marketplace. The 6 largest bodies in the UK, cover most industry sectors and are listed overleaf:

BSI - British Standards Institute

LRQA - Lloyds Register Quality Assurance (largest internationally)

NQA - National Quality Association

BVQI - Bureau Veritas Quality International

DNV - Det norske Veritas Quality Assurance

SGS Yarsley

UKAS (United Kingdom Accreditation Services) is an organisation set up by the British Government (DTI) to ensure a common standard of quality system assessment throughout the UK. Other countries subscribing to ISO9000 also have their own regulators.

Assessment fees are generally computed from the scope of operations and the number of employees. Many assessment bodies offer a special scheme for SMEs up to 40 employees. Following successful registration there is an on-going annual cost for return visits every 6, 9, or 12 months depending on the scheme and policy of the assessing body. Each body has a different pricing structure, so for direct comparison it is best to work out the total cost over 3 years. The assessing bodies are in competition with each other and it is sometimes possible to negotiate a reduction in the initial assessment fees.

There is no law requiring all assessment bodies to be regulated by UKAS and it is possible for any organisation to issue unregulated certificates declaring a company as conforming to the standard. However the issuing of a certificate for a company which has not implemented the requirements can be challenged under the trades description act and a number of successful prosecutions have been brought about. Two unaccredited organisations in the UK have issued a significant number of certificates, QMS and QAS.

This is not to suggest that all companies displaying such certificates have not implemented all the requirements of ISO9000, but clients should be made aware that if they display or advertise conformity to a standard that they do not in fact achieve that they can be challenged in the courts. If you see clients displaying ISO9000 certificates that are not endorsed with the UKAS tick and crown logo, you might like to check the extent to which they have incorporated the ISO9000 requirements into their day-to-day and management operations.

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6. Criticisms of the ISO9000: 1994 standard

Following an extensive international review of the opinions of users of ISO9000:1994. The following are the most significant shortcomings which were identified:

- The standard has a significant number of parts and supporting sections which are often confusing.
- The text of the standard is biased towards manufacturing companies and often needs interpretation for service organisations.
- The standard does not support flexibility in the approach for companies of different sizes and complexity and can be bureaucratic for SMEs.
- More recent Management System Standards (e.g. ISO14000) are a different layout and this does not aid integration of management systems.
- The standard does not promote continuous improvement.

7. ISO9000: 2000 A New Approach

The ISO9000 standard was extensively re-written and reviewed by a vast number of users via a series of committee and discussion drafts during 1999/2000. The amended standard was issued as ISO9000: 2000 in December 2000.

ISO9000: 2000 became effective from December 2000. However there is an overlap period of 3 years during which, ISO9000: 1994 and ISO9000: 2000 are both valid. Organisations seeking approval can choose to be registered to either ISO9000: 1994 or ISO9000: 2000 up to Dec 2003. (This enables companies to register, who were developing their systems to ISO9000: 1994 at the time the new standard was released.)

ALL organisations certified to ISO9000: 1994 are required to up-grade to meet the ISO9000: 2000 requirements by Dec 2003 or they will lose their registration status.

ISO9000: 2000 is a generic standard with different parts:

ISO9001 - This is the only part of the new standard against which an organisation can be certified. It replaces the former standards ISO9001: 1994, ISO9002: 1994, ISO9003: 1994

When assessed to the new standard the organisation's operations will be defined in a scope of approval. The assessing body will review this to ensure it reasonably represents the range of services offered to the market place. In the past it has been possible for companies to register only a small part of their overall operation to ISO9000. This will

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not be so possible under the new rules. The assessing body will be required to ensure that there is no possibility of the extent of the approval being misinterpreted.

The scope of approval will cover such operations (as appropriate)

- Manufacture
- Service Delivery
- Sales and Marketing
- Distribution
- Installation
- Product Design
- After sales servicing

The number of supporting documents to the new standard has also been reduced.

8. The Eight Guiding Principles of ISO9000: 2000

In order to lead and operate an organisation successfully, it is necessary to direct and control it in a systematic and transparent manner. Success can result from implementing and maintaining a management system that is designed to continually improve performance while addressing the needs of all interested parties. Managing an organisation encompasses quality management amongst other management disciplines.

Eight quality management principles have been identified in the new standard as a framework towards improved performance of an organisation. They are aimed at helping organisations to achieve sustained success.

Organisations depend on their customers and therefore should understand current and future customer needs, should meet customer requirements and strive to exceed customer expectations.

Leaders establish unity of purpose and direction of the organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.

People at all levels are the essence of an organisation. They should create and maintain the internal environment in which people can become fully involved in achieving the organisation's objectives.

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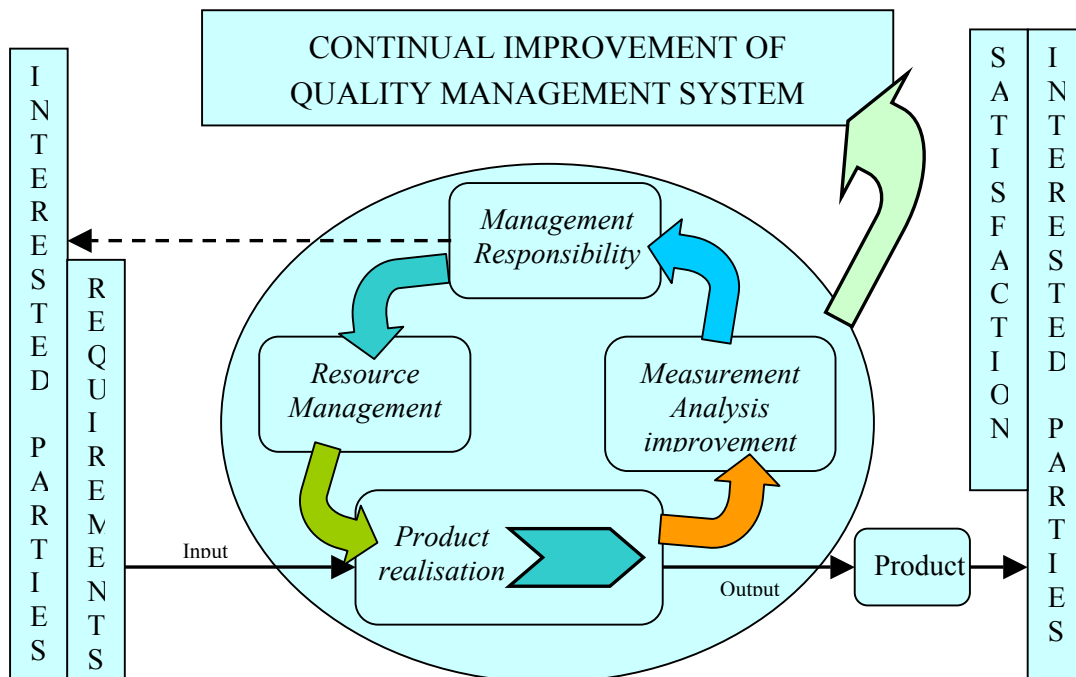
A desired result is achieved more efficiently when activities and related resources are managed as a process.

Identifying, understanding and managing interrelated processes as a system contributes to the organisation's effectiveness and efficiency in achieving its objectives.

Continual improvement of the organisation's overall performance should be a permanent objective of the organisation.

Effective decisions are based on the analysis of data and information.

An organisation and its suppliers are interdependent and a mutually beneficial relationship enhances the ability of both to create value.



Model of the process approach

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9. Advantages of the ISO9000: 2000 standard over the 1994 Edition

There is less emphasis on bureaucratic procedures and paperwork systems. More emphasis on the things that really matter:

- Policy and policy deployment
- Performance objectives
- Measurement against objectives (key performance indices or metrics)
- Continual improvement
- Customer communication and satisfaction
- Employee competence and training effectiveness
- Process planning and management
- Identifying and meeting regulatory and statutory requirements

The language of the new standard is less biased towards manufacturing and is considered more user friendly to service industries. The new standard requires only 6 requirements to be addressed with formal written procedures. The main business processes (activities in the value chain) should be identified and planned. The method of planning is not defined and may be in the form of 'Quality Plans', 'Process Maps or Flow Charts' or written 'Procedures or Work Instructions'. The new standard offers more flexibility in approach and the style of documentation that can be used.

10. The concept of Continual Improvement

The aim of continual improvement of a quality system is to increase the probability of enhancing the satisfaction of customers and other interested parties. Actions for improvement include the following:

- Analysing and evaluating the existing situation to identify areas for improvement
- Establishing the objectives for improvement
- Searching for possible solutions to achieve the objectives
- Evaluating and selecting solutions
- Implementing solutions

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- Measuring, verifying, analysing and evaluating results of the implementation to determine that the objectives have been met.
- Formalising changes

The requirement for continual improvement was added to the 2000 edition of the standard for the first time. This particular requirement may prove to be the most challenging for SMEs, particularly those companies that are essentially 'life-style' businesses, ie run for the sole purpose of providing the owner with an exceptional standard of living.

Very few SMEs have well communicated policies and measurable objectives. Even fewer have developed metrics (or KPIs*) (other than perhaps monthly sales, and cash in the bank) to measure business performance.

*KPI = Key Performance Indices: Method of measuring and tracking business performance. May include such things as:

- Sales
- Customer complaints
- Cost over estimate
- Man-hours worked
- Cost of internal failures
- Lead times

Developing a set of measurable objectives is only really the start. There is an ongoing need to track performance against these objectives and to implement actions to improve performance. Very few SMEs employ staffs that have received any training in disciplined problem solving or performance improvement techniques. Most would confine their efforts to what is commonly called 'stick and carrot', pat on the back if the target is reached, kick up the backside if its not! Such actions may bring about small improvements in performance, but to solve endemic and on-going inefficiencies, far more advanced techniques are required like cause and effect analysis, design of experiments, brainstorming etc. This presents a golden opportunity for offering training and consultancy to help clients to meet their continual improvement targets.

11. Implementing ISO9000: 2000 from scratch

The following stages would be typical in a consultancy project to implement a Quality Management System conforming to ISO9000: 2000:

1. Assist the company to define a policy for Quality Management that all employees can 'buy in' to.
2. Identify the key processes in the business and document them as process plans (maybe procedures, flow charts, work instructions or quality plans).

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3. Draft a Quality Manual showing how the company meets the 8 guiding principles of ISO9000: 2000
4. Agree a set of performance metrics or KPIs for the business and the method and frequency of measurement and review.
5. Track the performance measurements and use past history to set and document a set of improvement targets.
6. Review existing procedures (whether documented or not) and enhance as necessary to meet all requirements of ISO9000: 2000.
7. Provide no-going training in the principles of Quality Management and in performance improvement
8. Agree the controls to be applied to the 6 activities required to manage the system and document them as written procedures as required by ISO9000: 2000
 - Control of documents
 - Control of quality records
 - Internal audit
 - Control of nonconformity
 - Corrective action
 - Preventive action
8. Provide training in Quality System auditing and other disciplines as required. Help client to plan and implement a programme of quality system audits and take corrective actions and system improvements as required.
9. Help client to choose a suitable assessing body and prepare for assessment.

12. Up-grading Existing Systems to meet ISO9000: 2000

The following stages would be typical in a consultancy project to assist a client to up-grade their existing Quality Management System to meet the requirements of ISO9000: 2000:

1. Conduct a gap analysis of the existing quality management system against the new standard.
2. Review the company's policy for Quality Management against the ISO9000: 2000 requirements. Ensure that it defines the customer's commitment to meeting customer's expectations and continuous improvement.
3. Review the company's existing procedures and ensure that they are documented as a set of interrelated processes. Amend procedures as appropriate or substitute with process maps (or an alternative 'process based' form of documentation).

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4. Update the company's Quality Manual to ensure that it meets all the requirements of ISO9000: 2000
5. Agree a set of performance metrics or KPIs for the business and the method and frequency of measurement and review.
6. Track the performance measurements and use past history to set and document a set of improvement targets.
7. Provide no-going training in the principles of Quality Management and in performance improvement
8. Provide refresher training in Quality System auditing (against policies and objectives) as required. Help client to plan and implement a programme of quality system audits against the new level of documentation and take corrective actions and system improvements as required.
9. Request the client's assessing to assess the company against the new standard.

13. Integrated Management Systems

A key objective of the ISO9000: 2000 standard was to make it suitable for integration with other management systems, namely health and safety management systems and environmental management systems.

The layout of the standards: ISO9000: 2000, ISO14000 (environmental) and BS8800 (health and safety) are similar. Some requirements e.g. document control, controls of records are almost identical and one procedure could cover requirements for all three disciplines.

There are also other similarities not so obvious to the layman eg use of risk assessment. For quality this is known as FMEA (failure mode and effect analysis).. a quality planning methodology.

For environmental management aspects and impacts assessment

For health and safety.. 5 step risk assessment.

A common approach and method can be used to meet the requirements of all three disciplines.

The development of existing management systems into one integrated system offers new opportunities for consultants.

14. Opportunities for Consultants

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When talking to prospects, take the time to find out if there are any specific quality management system schemes specific to the marketplace in which they operate.

Written by Peter Stokes, the
60,000 Opportunities.

Time to get your clients to blow the dust off the old Quality Manual. ISO9000: 2000 has been published with a BRAND NEW focus.

Less emphasis on bureaucratic procedures and paperwork systems

More emphasis on the things that really matter:

- Policy and policy deployment
- Performance objectives
- Measurement against objectives (key performance indices or metrics)
- Customer communication and satisfaction
- Employee competence and training effectiveness
- Process planning and management
- Identifying and meeting regulatory and statutory requirements

If this isn't music to your ears then you're tone deaf! In the UK alone there are 85,000 registered ISO9000 organisations. At least 60,000 are SMEs. Each will need to upgrade their quality system to the new requirements and be re-approved over the next 3 years, or loose their ISO9000 status.*

Every visit, ask your ISO9000 registered clients what they are doing to meet the new requirements. I did just that with a client of 6 years standing. What transpired was the following:

The proprietor has personal objectives but has not transposed these into defined policies and objectives for the company. Not defined, means they are not communicated.

Although some functional heads have been given change projects to achieve, these have not been expressed in quantifiable terms and they are not being measured.

The company supplies services to large plcs mostly household names. Although there are few customer complaints, the company does not know why the customers buy from them nor how customers measure their performance.

A new business opportunity has necessitated changes to management roles. Requirements for the new roles are poorly defined and there is no system to measure competence.

Realising the shortfall, they have engaged me to conduct a business review, help the management team define a strategy for the business, help them to prepare a business plan, put forward a training and mentoring programme for the management team, re-draft the QA manual in line with ISO9000: 2000 requirements, re-train the audit team, and prepare

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Process maps for the key business processes. And we have at least 3 other issues still under discussion.

I'm glad I asked the question.

* All ISO9000 certificates issued from release of the new standard will state the version of ISO9000 to which they have been approved. Companies choosing to postpone upgrading their system to the last possible moment may be giving a message to the marketplace that they are somewhat indifferent about quality.

By Peter Stokes, the

Peter is a registered ISO9000/QS9000 lead auditor and a specialist in QA training and implementation of ISO9000 and ISO14000. He also works on a contract basis for LRQA and has been extensively trained on the interpretation of ISO9000: 2000 requirements.

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WHAT YOU NEED TO KNOW ABOUT:

QUALITY MANAGEMENT AND
THE NEW VERSION OF ISO9000