

Proceedings of the Institute of Acoustics

QUALITY ASSURANCE - A SOUND SYSTEM OF MANAGEMENT

M E LUKEY

BSI QUALITY ASSURANCE, MILTON KEYNES

First of all lets make sure we all understand what I mean by Quality. Quality is not a luxury, it does not mean expense, it means fitness for purpose, things that satisfy the specification to which they are made. The most expensive objects can lack quality, the cheapest can have quality.

If that's what quality is then Quality Assurance must be the means by which Quality is achieved. But more than that it is the means by which Quality is attained first time and every time.

For many years people in the manufacturing industries have practised quality control. You know the process by which you make something, inspect and test it, and throw away the ones that are no good. Quality Assurance take a different approach, the object is to start by knowing exactly what you want, using only ingredients that you know are satisfactory, and using procedures that you know will give you the right results. In that way the end product or service is bound to be correct and fit for it's purpose. That's Quality Assurance.

But how does BSI fit into the picture?

BSI is a non-profit making organisation set up under a Royal Charter and although the publication of standards is partly funded by government on a £ for £ basis it is an organisation which is totally independent of government, public authorities, commercial or industrial influence.

The history of BSI as a standards publishing body goes back a long time, to the early years of the century in fact.

As a standards publishing body its work continues with increasing demand. With the increasing internationalisation of trade much work is now being concentrated in the development of international and European standards.

In the 1920's the Kitemark symbol was introduced and this I am sure is familiar to you all. The Kitemark is a registered trademark of BSI and for a firm to obtain a licence to use the mark on it's products it must first make a product to a British Standard. It must also operate a Quality Management system which satisfies BS 5750 and there must be objective evidence that the product meets the requirements of the British Standard to which it is made.

The Kitemark scheme brings into play the British Standard 5750, Quality Systems. This standard was first published in 1979 but it owes its origins in the MOD and NATO procurement standards which have been in use since the 1950's.

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With the publication of BS 5750 in 1979, the UK established a world lead in quality management standards and work started on the ISO International Standard using BS 5750 as the first working draft. I am pleased to say that the ISO standard, comprising ISO 9000 to ISO 9004 was published in March last year. There has been some rewording of BS 5750 but much of it remains. The UK are committed to the wider recognition of quality management systems internationally and as a result BS 5750 was amended and issued in May last year. In its new form it is identical with the ISO series and what is more it has now also been adopted in Europe as a Euro Norm 29000.

The requirements of BS 5750 are contained in Parts 1, 2 and 3 which are identical to ISO 9001, 9002 and 9003. The ISO 9000 guidance to selection and use is published as BS 5750: Part 0 Section 0.1. The ISO 9004 guidance notes are published as BS 5750: Part 0 Section 0.2.

BS 5750 is essentially common sense but is provided in a structured form that allows individual systems to be compared against the requirements and their effectiveness evaluated. The requirements are written in general terms and thus are applicable to all industries. They do not compete in any way with the Professional Institutions who are the guardians of professional and technical competence.

The government launched its quality campaign in 1982 using BS 5750 as a corner stone of its approach to improve and enhance the UK industry's reputation for quality in an increasingly competitive international market place. This campaign has resulted in a dramatic increase in awareness of BS 5750 among both manufactures and purchasers, with the result that BS 5750 is now used by many major public sector purchasing organisations as the basis for assessing a suppliers ability to produce satisfactory goods and services.

And that's where BSI Quality Assurance comes in. Any firm can establish a quality system which satisfies BS 5750 but how will anyone know. The firm can tell its customers that it has an effective BS 5750 system, but then it would, wouldn't it. That's self certification.

How then can the customer be sure? They could carry out their own assessment but that can be a time consuming procedure especially for the firm if several customers want to carry out their own assessment. That's second party assurance.

Then the firm could have their system assessed by an independent organisation such as BSI and in that way all customers can be assured that the firm have an effective system. That's third party certification.

BSI are a firm of third party assessors and all firms assessed and registered by BSI under it's Registered Firms of Assessed Capability scheme can use the BSI symbol for the scheme.

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The options within BSI's Registered Firms scheme are Single Firm Registration and Sector Based Registration.

Single Firm Registration requires compliance with the relevant Part of BS 5750.

Sector Based Registration schemes additionally require compliance with a Quality Assessment Schedule.

Quality Assessment Schedules or QAS's are developed by BSI in conjunction with Trade Associations, major purchasers and similar groups to establish particular interpretations of BS 5750 when considering a specific industrial sector.

A QAS serves to:

- Establish particular interpretation of BS 5750 and expresses the requirements in terms the industry understand
- Provide amplification of the standard where this is considered appropriate
- Establish technical criteria which both the customers and the providers both agree are essential good practice
- Provide a common identity for firms in the same line of business.

In 1985 the National Accreditation Council for Certifying Bodies was established. This has very positively enhanced the status of registration with BSI as BSI are now themselves accredited across a wide range of sectors of industries. It is a policy that all sectors in which BSI carry out assessment and registration shall be accredited by NACCB.

From its history BS 5750 has a distinctly engineering flavour in its terminology. It is however, applicable to all industries be they engineering, electrical or chemical, manufacturing or service. The means of achieving compliance with BS 5750 may differ, with each industry having its own way of expressing its requirements, but the underlying principles and objectives of these systems will be the same.

I must stress that BS 5750 is concerned with quality management systems. It is not a product standard, nor does it attempt to establish a level of quality for a product. It does however, identify the disciplines needed to ensure that the product or service consistently lives up to a customers expectations.

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To meet the requirements of BS 5750 a company is required to operate a documented quality management system which most companies prepare as a **QUALITY MANUAL**. This document has to set out the quality objectives of the company and the organisation involved in how the firm assign responsibilities to ensure that the requirements of BS 5750 are met.

So what is required in a system which will satisfy BS 5750?

QUALITY POLICY

The policy a firm adopts with regard to quality and the need to satisfy its clients and customers should be clearly understood by everyone.

MANAGEMENT RESPONSIBILITY

It is important to know who does what, who has the responsibility and authority to make decisions especially when things have gone wrong. How are decisions communicated.

QUALITY SYSTEM

A documented system is the only way a firm can be sure that the management system adopted is known about by all the staff, and anybody outside the firm who needs to know.

CONTRACT REVIEW

How does a firm get its work or commissions. Are the requirements understood so that the firm knows what to produce; and does the client know what he is going to receive; and are these the same thing.

DESIGN CONTROL

First we must be clear about what is meant by design. Our definition of design is

Design: The process of task recognition and problem solving with the object of fulfilling needs by the creation of products or service.

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So you see design is a much broader concept than just sitting at a drawing board designing new products. The thing that is important is that the standard is non technical. This cannot be said too often. The design control clauses of the standard do not serve to say how design should be done but it does require that it should be done in a planned and systematic manner. Design should only be entrusted to someone with the right ability. The design input requirements should be identified and the completed design should satisfy these requirements in every way.

DOCUMENT CONTROL

Because the quality management system is a documented system document control is very important. Documents with authority should be seen to have authority and the appropriate documents should be in the right place at the right time.

PURCHASING

Almost without exception firms buy in some of the ingredients of their product or service. This may be in the form of raw materials, partial assemblies or subcontract services. Make sure purchases are only from sources which have been assessed to be sure they can supply to the standard required, and make sure purchase orders are clear and precise so that the wrong thing cannot be supplied because of misunderstanding.

PURCHASER SUPPLIED PRODUCT

If your customer gives you something to include in the work, treat it properly and if it is no good, tell him so.

PRODUCT IDENTIFICATION AND TRACEABILITY

It should always be possible to identify the product or service against its specification or design. Sometimes it is important to know the date and time when something was made or done. With some manufactured products it can even be necessary to trace the process through to raw materials.

PROCESS CONTROL

The means by which a product or service is produced are important. There should be no doubt in the minds of those doing the work as to what procedures should be followed and unless there is no effect on the quality of the end result then these procedures should be documented. But it's not just procedures that are important, the environment and the equipment can have a bearing on the end result.

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INSPECTION & TESTING

By using ingredients of known quality and proven methods it should be possible to keep the degree of inspection and testing of a product or service to the minimum necessary to demonstrate compliance.

INSPECTION & MEASURING EQUIPMENT

It is important when inspection is necessary to know what has been inspected and what has not. It is also important to know what has passed inspection and what has not and that non-conforming work is identified so that it cannot be inadvertently used.

CONTROL OF NON CONFORMING PRODUCT

If anything goes wrong with a product or service then clearly there is a need to put it right. However that is not really enough. It is also important to know what the defects are, how frequently they occur and what remedial actions are necessary. This naturally leads onto the next clause.

CORRECTIVE ACTION

If things go wrong find out why they go wrong and do something about curing the cause. Analysis of remedial actions and customer complaints can be very useful.

RECORDS

Just as documented procedures are essential to know how things are done so too are the records that show that things have been done. Consciously decide what records to keep and for how long.

INTERNAL QUALITY AUDITS

Having established a system it is necessary to know that it is being used and is effective. For this reason the standard requires a firm to audit the system, and take action where required.

TRAINING

Simply to know what skills are required for each task and to be sure that the people doing the work have the necessary skills. If not then training is needed.

SERVICING

This can be important in some operations but not in others.

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STATISTICAL TECHNIQUES

Statistical techniques can be very useful in certain operations. Procedures adopted should be soundly based and the results significant.

ADDITIONAL REQUIREMENTS OF A QUALITY ASSESSMENT SCHEDULE

These vary from scheme to scheme but it should be recognised that the requirements are those considered by a working party made up of providers of the service as well as users of the service to be the ingredients which are considered good practice and therefore any firm providing a quality product or service should have already taken them into account.

Now how does a firm go about getting registered?

An involvement with a firm is triggered by the completion of a questionnaire by the company outlining the scope of activity, product or service facilities and size of the operation in terms of personnel employed.

In response BSI will where necessary arrange a preliminary visit to a company to discuss the registration process, look at the company's documentation, discuss with the company the scope of registration that will be covered by the assessment, and by an examination of the site where the assessment will be undertaken will form an estimate of the likely duration of the assessment and the disciplines that will be required by the assessment team.

The next stage is to formally apply to BSI, following the provision of an estimate of costs, and confirmation of the scope, that is provided by our headquarters staff based at Milton Keynes.

THEN COMES THE ASSESSMENT

The assessment of all firms by BSI is essentially a four stage process.

Firstly, the documented quality system or quality manual is assessed at our offices to ensure that its procedures embody all the requirements of the relevant part of BS 5750.

Secondly, these procedures are assessed in operation by BSI's experienced and qualified assessors. Assessors who are registered under the IQA scheme for Assessors and Lead Assessors. The assessment is very much a show me exercise to test that the system is actually working in practice and producing the necessary records.

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Once any discrepancies raised during these first two stages are satisfactorily cleared then formal registration is offered as a third stage of the process.

But the story does not end there. The fourth stage is a programme of routine surveillance inspections by BSI to ensure continuing compliance for the quality system, ensuring that commitment is maintained within all areas of the company.

The base number of visits is two a year but with many sector schemes and the more complex manufacturing and service operations the initial rate is four a year. But this can rapidly be reduced to two after a number of satisfactory visits.

WHAT ARE THE ADVANTAGES?

Adopting BS 5750 will provide a cost effective management system.

It increases awareness of quality related activities within a firm and provides the ideal environment for staff to fulfil their roles in the quality team.

It is a first class marketing tool with National and International recognition.

It demonstrates an attitude to quality and attracts new business. It will reduce or even eliminate multiple second party assessments because BSI registration is so widely accepted.

Registered firms will be listed in the BSI Buyers Guide.

What are the benefits of registration to the purchaser? Essentially it provides an assurance that quality needs are being met by the supplier.

It gives confidence in the continuing capability of a supplier in the knowledge that BSI maintain a routine surveillance programme.

It eliminates the need to carry out separate assessments.

A client, therefore, can be sure to receive the product or service expected because the firm have a satisfactory management system that satisfies all the element of BS 5750. In a word Quality Assurance.

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