Quality Organisation Structures: Requirements in ISO 9001 and TickIT*plus*

Sue Turner

Software Quality/Business Systems Consultant,
Camberley, Surrey
bcs@turner-solutions.co.uk

Abstract

ISO 9001 and TickIT*plus* define requirements for the Top Management of a Company to demonstrate their support for the Quality Management System. To assist them in meeting these requirements, there will be a number of Quality Professionals.

This Management Summary looks at those requirements in ISO 9001:2008 and the changes in ISO 9001:2015 and at the requirements within TickIT*plus* and considers the various types of Quality Organisation Structures within Software Companies or Divisions that can support the Top Management in achieving them.

Keywords: ISO 9001, TickIT*plus*, Quality

1.0 Introduction

ISO 9001 and TickIT*plus* define requirements for the Top Management of a Company to demonstrate their support for the Quality Management System (QMS). To support them in meeting these requirements, there will be a Quality Organisation, i.e. a hierarchy of Quality Professionals.

There are many different Quality Organisation Structures that will vary with the size of the Company, the type of products and services and the experience of the people within it. This Management Summary selects four examples from Software Companies or Divisions and then considers the advantages and drawbacks of these Structures.

2.0 The Standards

ISO 9001 is the International Standard for the requirements for Quality Management Systems. ISO 9001:2008 was the current standard until late in 2015, when the new version (ISO 9001:2015) was introduced, though the former will remain valid until 2018 to allow Companies with existing Certifications time to migrate to the new Standard.

TickIT*plus* is a Scheme to enable Companies that produce software products and/or provide IT services to gain Certification to ISO 9001 and other IT-related Management Standards. Currently it is cross referenced to ISO 9001:2008, but a new version against ISO 9001:2015 will be available in early 2016.

2.1 ISO 9001:2008

ISO 9001:2008 [1], clause 5 is entitled 'Management responsibility' and contains six sub-clauses:

- Management commitment
- Customer Focus
- Quality Policy
- Planning
- Responsibility, Authority and Communication
- Management Review.

Management commitment requires Top Management to provide evidence of its commitment to the development and implementation of the QMS and to continually improve its effectiveness by communicating to the organisation the importance of meeting all requirements (customer, statutory and regulatory). Top Management must also put in place a Quality Policy and Quality Objectives, provide resources and hold Management Reviews.

Customer Focus requires them to ensure that the Customer is satisfied by determining their requirements and meeting them.

The Quality Policy sub-clause defines that the Quality Policy should be appropriate to the organisation and should commit the organisation to complying with requirements and to continually improving the effectiveness of the QMS. The Quality Policy should also provide the structure for the Quality Objectives so that they can be defined and reviewed.

Planning defines the requirements for the Quality Objectives to ensure they are measurable and consistent with the Quality Policy. It also requires that the QMS is planned and that changes to it maintain its integrity.

The sub-clause on Responsibility, Authority and Communication requires Top Management to define responsibilities and authorities. They also have to appoint a Management Representative with the responsibility and authority for the QMS, who reports to them on its performance and any need for improvement. The person usually selected as the Management Representative is the Quality Manager responsible for Process and Compliance, whatever their level in the organisation (see later sections for an explanation of the role and the hierarchy).

The final sub-clause is the Management Review where the suitability, adequacy and effectiveness of the QMS are reviewed on a regular basis.

2.2. ISO 9001:2015

ISO 9001 went through a massive change in 2015 with the introduction of a new version. ISO 9001:2015 [2] has been written to meet Annex SL [3], which has been and will be used for all ISO Management System Standards to give them the same look and feel. Most clauses are common to all the ISO Management System Standards and only clause 8 (Operation) will differ substantially between the different standards.

ISO 9001:2015, clause 5 uses the term 'Leadership' instead of 'Management responsibility'. This change is to ensure that the Top Management are actively involved in the QMS rather than just ensuring that the activities happen [4].

There are three sub-clauses:

- Leadership and commitment
- Policy
- Organizational roles, responsibilities and authorities.

The sub-clause on Leadership and Commitment has a list of activities that the Top Management must do to demonstrate their leadership and commitment to the QMS. These include taking accountability for the effectiveness of the QMS and promoting the use of a process-based approach, risk-based thinking and improvement. They have to communicate the importance of effective quality management and of conforming to the QMS requirements.

As previously Top Management have to set up the Quality Policy and Objectives, but they must also ensure that the Objectives meet not just the Quality Policy but also the strategic direction of the Company.

Top Management are responsible for resources for the QMS being available and must also support the persons contributing to the effectiveness of the QMS. The QMS requirements must be integrated into the company's business processes and the QMS must achieve its intended results.

This sub-clause also encompasses the demonstration of leadership and commitment to the Customer. It goes beyond the ISO 9001:2008 requirement of determining customer requirements and ensuring customer satisfaction, to include considering the risk and opportunities that can affect the products and services and hence customer satisfaction.

The Policy sub-clause is similar to that of ISO 9001:2008 and reiterates the relevant parts of the Leadership and Commitment section.

Organisational roles, responsibilities and authorities does not include the appointment of a Management Representative, but requires Top Management to assign the responsibility and authority for compliance to this Standard, reporting on performance of the QMS and of opportunities for improvement to Top Management and ensuring the integrity of the QMS when changes are made. While the assignee could be the erstwhile Management Representative, the division of responsibilities has changed, notably with the responsibility for establishing, implementing and maintaining the QMS being with Top Management.

The chief change between these two versions of the Standard should be the improved support that should be available to the Quality Professionals from Top Management. It will also make the Top Management visible to the external Assessors, where previously only the Management Representative would have been seen.

2.3. TickIT*plus*

TickIT*plus* [5,6] does not use clauses, but has a set of 40 Base Processes, from which a subset is selected to be met depending upon the type of Products and Services the Company provides and the Management System standard to which the Company requires Certification. A case study of how a small software Company selected the TickIT*plus* Base Processes can be found in TickIT*plus* and the revitalisation of a Management System [7].

The Base Process 'ORG.3 Corporate Management and Legal' covers the requirements for Top Management. It comprises five Base Practices:

- BP.1 Identify Business Needs and Objectives
- BP.2 Establish Business Plan
- BP.3 Establish the Management Framework
- BP.4 Manage the Organization
- BP.5 Manage Business Performance.

TickIT*plus* requires the Business Needs and Objectives to be identified and stated in a Business Plan and a Management Framework to be established. The latter includes the 'soft' side of the Company, including culture, ethos, ethics, social

responsibility as well as the QMS. TickIT*plus* expects these to be done by 'the Organisation'; ISO 9001 assumes they are already in place.

Top Management are mentioned in BP.4 where they ensure that all the financial, material and human resources are available to meet the requirements of the Business Plan and that activities are undertaken in accordance with the Integrated Management System (IMS) (TickIT*plus* uses this term as there may be more than one certified Management System, e.g. Quality (ISO 9001), IT Service Management (ISO 20000), etc.).

In BP.5, again Top Management have a requirement to monitor the performance of the Management Framework and the effectiveness of the IMS and to plan actions where performance or effectiveness is inadequate.

3.0 Top Management

But what is Top Management?

Top Management will be the top of the Organisation that has or wants the ISO 9001 and/or TickIT*plus* certification whether at a small company, division of a larger company or the UK level of a multinational company.

Top Management will have a Board and there will be some representation for Quality. This may be where the (single) Quality Manager sits on the Board, through to a Quality Director on the Board, who has several Quality Managers reporting to him. Some Companies have the Quality Manager(s) reporting to the Board through a non-Quality function, for example, via Finance or Operations.

4.0 Quality Organisations

Quality Organisations within Software Companies and Divisions are generally tasked in three main areas:

- Process and Compliance
- Auditing
- Support

Process and Compliance is about maintaining the QMS processes and ensuring the compliance to the International Standards and Schemes. Those involved in Process and Compliance now have more of a co-ordinating role as the responsibility for the QMS processes has usually been delegated to the relevant parts of the Company.

Auditing can be at a QMS level, i.e. one or more processes against one or more projects or products, at a Project Level – all processes on a single project – or on the basis of Business Risk (part of a process against several projects).

Support can vary from advice for a development project to attendance at the formal testing of the product.

Depending on the size or complexity of the Company, these tasks may be divided across the Company in many ways. Here I have selected four variants.

A small company may have a single Quality Team consisting of a Quality Manager and a number of Quality Engineers. They are responsible for the Processes and Compliance to the Certification Standards. They perform QMS level, project and Business Risk audits. The team provides advice and guidance to the projects when required, but does not assign individuals to specific projects. The Quality Manager reports directly to the Board or through another function.

An Autonomous division of a large company may have its own QMS and its own ISO 9001 and TickIT*plus* Certifications. It may have a team for Process and Compliance, who also perform the QMS level Audits. The team consists of a Quality Manager (Process and Compliance), Process Quality Engineers and Auditors. With a small number of large projects, and a sufficient number of Quality Engineers, the latter can be embedded in Projects and also be responsible for auditing their own projects. The Process and Compliance Manager may report to the Overall Quality Manager; these Project Quality Engineers may report direct to the Overall Quality Manager, or to a Quality Manager (Projects) or perhaps to the Operations Manager.

A Large Company may decide to have a UK wide QMS and ISO 9001 Certification and thus have the Process and Compliance Team at the UK level. They would also be responsible for the audits against the QMS, sampling projects across all divisions. Medium-sized divisions of such a Company with large projects and many Quality Engineers may embed them within the projects, have them audit their own projects and perform Business Risk audits against other projects. A small division of the company may have many small projects and decide to maintain a Central Quality Team to service all projects and to perform project and Business Risk audits. In both cases, the Process and Compliance Manager is likely to report to the Quality Director, owing to the greater responsibility from the large QMS. The Divisions will have their own Quality Managers who would report to their Division's Top Management and also through the Company's Quality Management hierarchy.

Each of the tasks listed above can be considered in the context of these variants. There are also other areas to consider, which may differ – funding of the Quality Organisation, the role of the Quality Manager and recruitment into the Quality Organisation.

4.1 Process and Compliance

Having the QMS and the Process and Compliance teams locally means that the processes in the QMS are more likely to reflect the actual practices of the projects and any changes (from audit findings and improvement suggestions) can be made quickly. The Local Certification would be unaffected by problems in other Divisions.

On the other hand, having a company-wide QMS means that when someone moves from one Division to another they do not need to learn a new set of processes. With a large QMS and having the Process and Compliance Team remote from most of the Divisions means that the changes happen slower and have to be agreed by more people. For a Large Company with a diverse Company profile, e.g. from large hardware manufacturers down to small software producers, the one size QMS may not fit all the Divisions and will require tailoring of the QMS, which will also need to be managed. The UK-wide Certification will reduce the overall costs with the Certification body, but may spread out the period of the assessment.

4.2 Auditing

While the QMS Audits will be performed by the Process and Compliance Team, local or remote, the project and business risk audits will be done at a local level. The auditors in a Central Quality Team may be considered as more independent and will be more able to compare the practices of different projects.

Where project audits are conducted by the Project Quality Engineers on their own projects, there can be an advantage as they are more familiar with the processes as performed by the project and any changes suggested are more likely to be accepted by the project. In contrast, raising non-conformances may be difficult as it would reveal failures to people outside the project.

4.3 Support

The Quality Engineers in the Central Quality Team may be available to any project that requests assistance or may be allocated a number of projects, but they would sit together, usually with or near the Quality Manager, rather than be located within any project. The benefits are that the team can collectively find solutions to problems that Quality Engineers assigned to projects would not be aware of. They can assist in suggesting improvements with the Quality Manager that can be offered to the Division or the Company.

Project Quality Engineers will gain a greater understanding of the needs of, and planning, within the project. They may, though, face pressure from the project to do work which is outside the Quality remit - they are seen as another pair of hands rather than a resource with a specific role. They may also face resentment from the project when they have to do work outside the project, e.g. support to their other projects or performing Business Risk audits.

4.4 Funding

Process and Compliance teams will usually be funded from a central budget or from overheads, but Project Quality Engineers will be funded by their projects.

A Central Quality Team may be funded from the Central Budget/overheads which makes them free as far as the project is concerned, so are more likely to be consulted. Alternatively they may be funded by projects when they ask for support but that means that projects may be reluctant to ask if there is little money left in the budget. Projects may also be only willing to pay for what is of value to them and not everything that the Quality Team or Quality Engineers believe they need, e.g. audits, checking delivery paperwork.

4.5 Role of the Quality Manager

In all the variants, the Quality Manager will communicate the Company's Quality Policy and Objectives and Business Strategy down to his Quality Engineers. In the small company and the autonomous division, the Quality Manager may have been involved in the setting of the Quality Policy and Objectives. In the Large Company, the decisions will have been made at a higher level.

With a Central Quality Team, the Quality Manager is more involved with the team, sorting any resource issues, including conflicting project requirements and providing an escalation path to the Senior and Top Management in the Company.

Project Quality Engineers may have less interaction with their Quality Manager on a day-to-day basis and more planning will be required if additional resources are required for the project. They may need more support if the demands by the project become excessive.

4.6 Recruitment

The Quality Organisation Structure is affected by the knowledge and experience of its Quality Managers and Quality Engineers. Their recruitment and retention can be difficult. In small companies with a single Quality Manager, the vacancy may only occur on the Manager's retirement; in larger companies, promotion may require a sideways movement into a related Quality discipline.

However there is also the possibility that a non-Quality Professional is chosen for the Senior Quality Management position, rather than a Quality professional. This could be because of a desire to give Senior Managers a broader view across the business or because the Quality Professionals are seen as closer to the Product than the Business. The non-Quality Professionals often have a greater knowledge of the Business processes, but they may not appreciate the usefulness to the Company of the accumulated knowledge of their Quality staff.

Promoting a Quality Engineer to Quality Manager also has advantages, as they will often have a broader understanding of the product side of the Business and it may not be difficult to attain the required Business skills. They may also have the support of the other Quality Professionals and can help to improve efficiency.

At a lower level, recruitment of Quality Engineers at a graduate or apprentice level can be difficult owing to the lack of people willing to start in Quality. So recruitment of experienced Hardware and Software Engineers into the Quality Teams can fill that gap and bring an understanding of these disciplines.

5.0 Conclusion

It is difficult to produce a definitive conclusion as the type of Quality Organisation Structure that a Company needs is dependent upon the size and type of the Company and its products and services. The advantages and drawbacks in section 4 show that what one Company may see as a drawback, may be an advantage to another.

6.0 References

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