

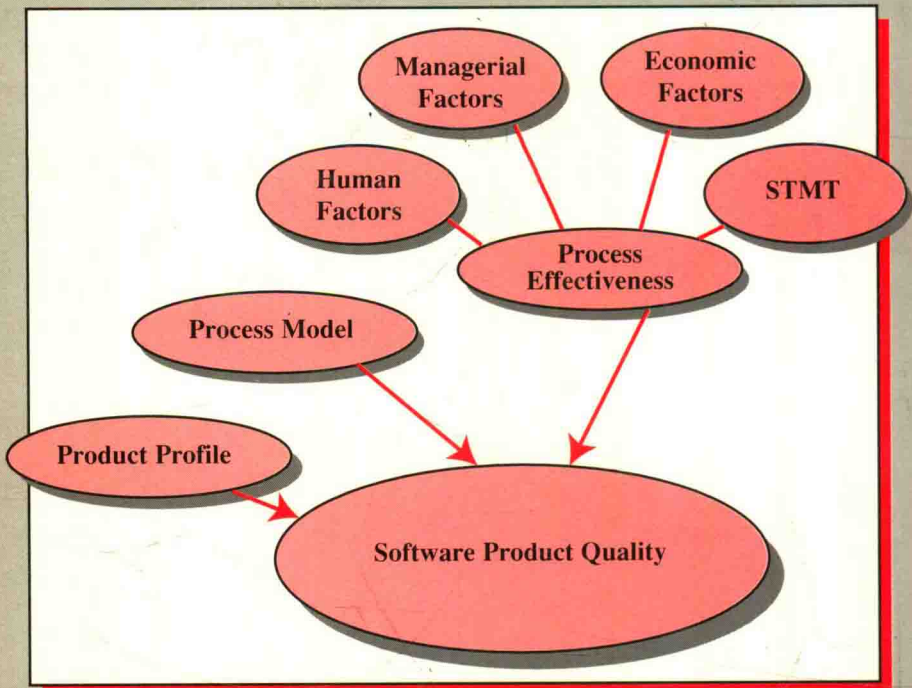
Software Quality Management IV

Improving Quality

Editors: M Bray, M Ross, and G Staples



SQM



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IMPROVING QUALITY

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PREFACE

The Quality Special Interest Group of the British Computer Society presents the edited proceedings of the fourth International Conference on Software Quality Management (SQM'96) held in April 1996 at Queens' College, Cambridge, UK

The objective of this series of annual conferences is to promote international co-operation among those concerned with software quality and process improvement, by creating a greater understanding of software quality issues and by sharing current research and industrial experience.

The papers cover a broad spectrum of practical experience and research. The topic areas include setting up and maintaining a quality management system, process improvement, quality metrics, human factors, project management issues, software tools and approaches to systems development.

The organisers would like to thank Oracle UK for their sponsorship of the proceedings and the conference. They also wish to thank Triad Special Systems, ESPITI and the European Software Institute for their sponsorship of the conference. The editors are indebted to the members of the International Advisory Committee for their support and for refereeing the abstracts and the final papers, as well as to the Conference Secretariat for their support and to the authors who have contributed to the success of this conference.

The Editors.

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SECTION 1

**SETTING UP AND MAINTAINING
A QUALITY MANAGEMENT SYSTEM**

TickIT awards – a winner's perspective

A M FULTON and B M MYERS

Triad Special Systems Limited, Surrey, UK

ABSTRACT

The TickIT Awards were launched by the Department of Trade and Industry in January 1993 inviting those organisations which had TickIT certification to enter the competition. An Awards Application Pack was sent out with the letter together with Guidance Notes on how the award will operate. The Awards were not run in 1994 due to sponsorship difficulties but were run in 1995 with the Computing Services and Systems Association as one of the sponsors. It is hoped that the sponsorship difficulties have been overcome and that the Awards will be a major annual event.

A description of the rules and regulations is given as background to the reasons and rationale behind entering the competition from Triad's perspective.

This paper details Triad's approach to producing the submission, what it has meant in terms of effort, resultant benefits to the staff and to Triad's Clients and Suppliers.

Triad was one of the runners up in the 1993 Awards and the winner of the 1995 Awards in the category for companies with between 50 - 150 staff in which most of the 850 TickIT certified companies eligible to enter the Awards lie. Entrants must have been fully TickIT certificated by 31 December 1994.

A brief comparison is made with other Awards such as the European Quality Award.

The paper concludes by describing how winning the award has had an impact on quality from junior staff up to the managing director himself.

1. TickIT Scheme

In the light of the UK Department of Trade and Industry's (DTI) success in making purchasers of IT aware of the benefits of using a company which has a Quality Management System (QMS), the Quality Manager recommended that assessment should be made against the DTI's TickIT scheme. This recommendation was endorsed by senior managers. There are two main reasons why Triad chose to apply for certification under this scheme.

Firstly, TickIT accreditation is carried out by professionals trained in the application of quality to software who also understand the IT business. It is reassuring to Triad's customers to know that the TickIT scheme introduced accreditation of assessors and demands high performance standards in software related activities.

Secondly, clear guidance on the requirements is published in the TickIT documentation "Guide to software QMS construction using ISO 9001/EN 29001/BS5750 Part

1". This not only incorporates guidance from the software industry and its customers but also serves as an excellent primer on software quality management. The Quality Manager was able to use the TickIT guide as a basis for formulating the QMS and for guidance on introducing and training staff in basic software quality concepts.

2. Introduction to the TickIT Awards

The TickIT Awards were launched by the Department of Trade and Industry in January 1993 inviting those organisations which had TickIT certification to enter the competition. An Awards Application Pack was sent out with the letter together with Guidance Notes on how the award will operate. The Awards were not run in 1994 due to sponsorship difficulties but were run in 1995 with the Computing Services and Systems Association being one of the sponsors. It is hoped that the sponsorship difficulties have been overcome and that the Awards will be a major national annual event.

Triad was one of the runners up in the 1993 Awards and the winner of the 1995 Award in the category for companies with between 50 - 150 staff. Most of the 850 TickIT certified companies eligible to enter the Awards fall in this category.

3. Triad Background

Triad Special Systems Ltd provides consultancy services, software development and support. Its objective is to make best use of IT on behalf of its customers by providing reliable and cost effective solutions to their problems. Triad's approach is to work closely with customers, starting as early as possible in the lifecycle, by carrying out strategic and feasibility studies, through to supporting software which may not have been produced by Triad. Clients include Local and Central Government and related agencies, commercial and industrial companies.

Triad Special Systems started with a nucleus of experienced professional staff and has grown from the mid thirties to over one hundred and fifty staff in seven years. The company has consistently continued to increase profit and expand in spite of the economic climate. The company introduced the QMS in July 1992 and was awarded the TickIT certificate in December 1992. It is now over 3 years since the introduction of the QMS and many benefits have already been realised.

4. The rationale behind Triad's entry

Triad's management staff enthusiasm for their Quality Management System is reflected by the fact that in a recent major revision, after we had won the TickIT Award, the title was changed from TQMS (Triad's Quality Management System) to TMS (Triad's Management System). No this does not mean that Triad has dropped "Quality" but merely the "word Quality". We did this to demonstrate and reinforce the culture that quality is an inherent part of the way in which work is carried out.

When Triad first heard about the competition at the start of 1993 there was some reservation about entering the competition as TickIT certification had not long been achieved. However, we decided to enter as the QMS had been in operation for several months before certification and many benefits had been realised over this period. The competition was open to those organisations who were fully TickIT certificated by the end of February 1993 and having made the closing date we decided to enter.

The assessment was based on written submissions, accompanied by relevant business

or product literature and other in-house and external publications that relate to the submission. The reason for entering was to gain experience in producing a submission and getting objective feedback on just how good our QMS was perceived from the outside. Triad was delighted at being shortlisted and this provided a boost to staff morale and enhanced our reputation with the marketplace.

When the next competition was announced we decided to re-enter the competition as Triad had continued to be successful. We believe that this successful growth was due largely to having a productive and useful QMS. It was believed that there was a good prospect of being short listed again and Triad and its staff would have been delighted to reach the short listed stage. Naturally there was considerable rejoicing and celebration at having achieved a winning entry.

5. Submission details

Submissions for the TickIT competitions are restricted to just 12 sides (6 sheets) of A4 with the judging criteria to be separately addressed including evidence of quality achievements. This meant that we had to consider carefully what was to be put in and what would have to be left out. Relevant business or product literature should also be included and the submission was to carry an endorsement by a senior manager.

Applicants also had the option to include additional details which they felt relevant. To guide applicants a submissions pack was available and further information, if necessary, was available from the organisers. To date the organisers have been the UK company, IT World Consultants. Finally a nominal charge of submission, as illustrated below and varied according to the category entered, was payable on submission.

Category 1	up to 24 employees	£50 + VAT
Category 2	25-50 employees	£100 + VAT
Category 3	51-150 employees	£150 + VAT
Category 4	over 150 employees	£200 + VAT

6. Producing the entry

Notification for entry to the competition, on each occasion, allowed less than two months, to produce the entry.

Our approach to producing the entry was firstly to put a plan together quickly on how the submission was to be tackled. The tasks identified were collecting relevant data, writing the submission, reviewing and making modifications in the light of received comments. In view of the relatively short timescales for making the submission only two versions of the submission were scheduled. The first review was to take place prior to receiving confirmation from clients on their agreement to wording which could be used for services which they had received and the second after client confirmation was obtained.

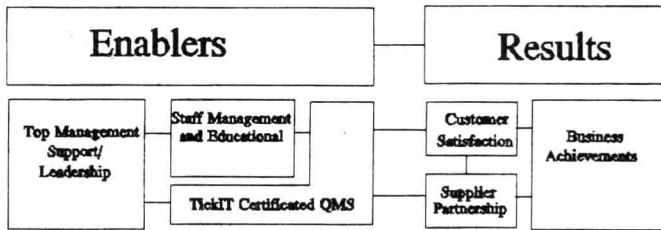
This submission had to be scheduled in with existing work and hence it was with difficulty that the estimated 10 days effort was found. The Quality Manager wrote most of the submission with input from the senior consultants. Final review and comment was made by the Managing Director.

In producing the entry for each of the enabler criteria it was considered key to provide details on how the criterion was approached and the extent to which the approach was deployed, giving precise and factual information about each one and not slip into sales jargon.

7. Judging Criteria

Submissions had to identify how a TickIT certified QMS influenced the way in which applicants managed software development tasks and relationships with customers and suppliers. In particular, they were looking for examples of the influence of the QMS on the use of effective software development processes and the development of quality relationships with customers and suppliers. The winners were those applicants who were best able to demonstrate that their excellence in quality management had led to business success using the model illustrated below:

TickIT Award Model



This model comprises two parts: Enablers and Results. The results criteria are concerned with what the company has achieved and is achieving whilst the Enablers criteria are concerned with how the company achievements are being made.

8. Top Management Support/Leadership

Under this heading the Quality Manager decided it was necessary to

- (a) describe how the staff are inspired to drive for continuous improvement;
- (b) provide evidence of how this is communicated, that appropriate policies and strategy are regularly reviewed and improved.

Leadership also entails recognising the efforts of others and appreciating their successes. It entails the active promotion of quality outside of Triad including involvement with customers and suppliers. Our approach is now described.

At each monthly management meeting the outstanding problem reports on the QMS and suggestions for improvement are reviewed by the senior management team. A key

aspect is the consideration of preventive action as well as corrective action. As for normal software projects resources are allocated at the management meetings and progress on actions taken is monitored.

The Quality Manager produces a six monthly report on the QMS as a whole which is presented to the Managing Director and appropriate senior management for review. Whilst there are several documented review criteria the key one is to ensure that the QMS still meets the business needs of an enlarged Triad.

Triad's Board is quality conscious and keen to promote the TickIT scheme in general by giving full support to the Managing Director who has been a co-author and presenter at conferences on Quality. He recently led a Computer Services and Systems Association working group on fixed price projects which involved close liaison with customers and suppliers in general.

9. Excellence of Staff Management and Education

Under this heading Triad's Quality Manager believes it is vital to show how the company maximises the full potential of its staff to improve its business continuously.

Triad takes pride in its Career Development Councillor (CDC) system. Triad's CDC system is one in which each member of staff has a Career Development Councillor who regularly meets with allocated staff to discuss, monitor, review and guide an individual's career. On a formal basis each member of staff has an annual appraisal with their CDC. Performance targets, training needs and other personnel matters are discussed, reviewed and agreed by staff. These appraisals are in addition to normal project appraisals which take place at the end of a project or every six months whichever comes earlier.

Triad's culture encourages staff to give constructive criticism. Hence we have a large number of suggestion for improvements on the QMS by virtually all staff from the receptionist to the Managing Director. This was described to illustrate how staff are empowered to take appropriate action for continuous improvement.

For Effective Relationship with Customers evidence was provided on the success in satisfying the needs and expectations of customers. The submission was carefully reviewed to ensure that the perception of our customers was objectively sought and analyzed.

10. Coping with change

Triad is a growing company. Since certification Triad has recruited close on a hundred new staff and is keen to maintain the company culture.

Triad makes use of rapidly changing technologies. It is relatively easy to train staff in a particular skill or technology but it is more difficult to instil quality attitudes in staff who are unaware of the concepts.

All staff are encouraged to think of quality improvement. The formal mechanism is the raising of problem reports and suggestions, based on their practical experience of using the QMS. The QMS and suggestions for its improvement are reviewed regularly by Triad management to ensure that the QMS continues to meet the company's changing needs.

Triad's business has changed over the years. Staff have had to adapt to the changing nature of the business and working environments. The variety of technologies, customers, working locations and contract types has led to a greater need for common quality approaches across a wide range of projects. Hence Triad's QMS has not stood still and continues to improve. Where new technologies, methods etc. are to be used Triad staff play a key role in drafting the procedures and standards, which are then incorporated into projects, once