CASE STUDY

TRANSITION PLANNING

PAKISTAN INSTITUTE OF QUALITY CONTROL
304, 3rd Floor, Eden Centre, 43 Jail Road
Lahore – Pakistan
Ph: (+92 42) 7563645-7562260 Fax: 7552656
E-mail: piqc@brain.net.pk; Web Site: http://www.piqc.com.pk

© Pakistan Institute of Quality Control – (ICQI’2000)
TRANSITION PLANNING

by

Engr. Muhammad Amjad
Manager Quality Assurance
Newage Cables (Pvt) Limited

BACKGROUND

The first version of ISO 9000 was released in 1987. It was revised in 1994. There were only some minor changes in it. The third version of ISO 9000 series standard ISO 9001:2000 is going to be released before the end of this year. The final draft international standard FDIS has already been released and there seems to be some major changes coming up in this version. The voting on this draft international standard has been completed and if approved by at least 75% member bodies the ISO 9001:2000 standard will be released. Certificates issued to 1994 edition of ISO 9001, ISO 9002 and ISO 9003 will have a maximum validity of 3-years from the date of publication of ISO 9001:2000 as decided in the ISO/CASCO (Ref. No.1) joint session on transition planning for the year 2000 ISO 9000 standards.

INTRODUCTION

Throughout this paper reference is made to "ISO 9001:2000", instead of ISO/FDIS 9001: 2000", since the publication of this module is scheduled to coincide with the publication of the International Standard.

The new ISO 9001:2000 Standard has a process oriented structure. Its language is user friendly. It doesn't force the organization to modify their Quality Management System to match the structure of this international Standard. It encourages the adoption of the process approach for the management of the organization and its process as a means to readily identify the opportunities for improvement.

Although the customer of the ISO 9000 family includes consultants/trainers, National Standard Bodies, and Certification Agencies, this paper will focus mainly on the organizations implementing it. The nature of changes has been categorized into Major & Minor ones. The Major changes have been discussed in detail while the Minor in brief. A seven-step action plan is provided for the project management of these changes. The benefits of these changes, the concerns and the conclusions are also given in this paper.
NATURE OF CHANGES

MAJOR CHANGES

1) UNIFICATION OF STANDARD WITH PERMISSIBLE EXCLUSIONS

One of the Major changes of the year 2000 version is that the ISO 9000 family of standards has been reduced. In this connection the existing ISO 9001:94, ISO 9002:94 and ISO 9003:94 have been replaced by a single Quality Management System requirement standard ISO 9001:2000. However it is recognized that not all the requirements of this new standard will be necessarily relevant to all the organizations under certain circumstances. An organization may be able to justify the exclusion of some specific ISO 9001:2000 requirements from its QMS. A guidance document (Ref. No.2) has been developed by ISO Technical Committee TC 176 to provide its users with information regarding the permissible exclusions to ISO 9001:2000 including some typical examples of its use in practical situations.

The summary of some key points of this document is as follows

GUIDANCE ON ISO 9001:2000 CLAUSE 1.2

(i) JUSTIFICATION OF EXCLUSIONS

Where an organization finds that it is necessary to limit the application of the requirements of ISO 9001:2000, this must be defined and justified in the organization's Quality Manual.

(ii) MOST LIKELY EXCLUSIONS

Within clause 7 ("Product realization"), the following are the most likely requirements (though not the only ones) that could be considered as not being applicable in certain circumstances.

7.3 ("Design and development")
Where the organization has no responsibility for the design and development of the product it provides.

7.5.3 ("Identification and traceability")
This clause would only be partially applicable where there is no specific traceability requirement for the organization's products.

7.5.4 ("Customer property")
Where the organization uses no customer property in its product realization processes.

7.6 ("Control of monitoring and measuring devices")
Where the organization needs no monitoring or measuring devices. This may be the case for some service organizations.

(iii) REQUIREMENTS THAT MAY NOT BE EXCLUDED, AND CLAIMS OF CONFORMITY

Conformity to ISO 9001:2000 may not be claimed in the following situations:
Where an organization fails to comply with the requirement in clause 4.2.2 (a), ("Quality Manual") to provide justification for the exclusion of specific clause 7 ("Product realization") requirements.

Where an organization decides not to apply a requirement in clause 7 based only on the justification that this was not a requirement of either ISO 9001:1994, ISO 9002:1994 or ISO 9003:1994 and had not been previously included in the organization's QMS.

Where requirements in clause 7 have been excluded because they are not required by regulatory bodies, but this affects the organization's ability to meet customer requirements.

(iv) CERTIFICATION / REGISTRATION

Certification / Registration Bodies will need to take particular care in defining the scope of certificates issued to ISO 9001:2000, and permissible exclusions to the requirements of that standard.

(v) EXAMPLES

Given below are a number of examples where the requirements in clause 7 of ISO 9001:2000 may or may not be applicable to an organization. It is stressed that these are only hypothetical examples, and that each example should be analyzed carefully. Situations will occur in which organizations may justifiably exclude other ISO 9001:2000 requirements from clause 7 from their QMS, either wholly or partially.

a) ABC Bank provides a variety of services to its customers, but chooses to implement a QMS only for its on-line internet banking services. This is acceptable, provided that any associated documentation (Quality Manual, any eventual QMS Certification and promotional material) makes it clear which services are covered by the QMS. The bank applies all the requirements of ISO 9001:2000 for the realization of its internet banking service, without any exclusions. Initially the bank had excluded Clause 7.5.3 from its QMS, but then realized that its customers do indeed provide important personal information in confidence, when signing up for the service, and that this constitutes "Customer Property".

b) HIJ & Partners is a firm of international lawyers that has implemented a QMS based on ISO 9001:2000. The QMS includes the design and development of new services such as international tax planning, as well as changes to the design of existing services to take advantage of worldwide electronic databases of applicable legislation. HIJ also designs and develops customised services to meet specific customer requirements. Purchasing control includes the selection of computer hardware and software, as well as the subcontracting of specialist lawyers as needed. The only exclusion to ISO 9001:2000 (justified in the Quality Manual) relates to Clause 7.6 ("Control of measuring and monitoring devices"), since this specific law firm does not use measuring or monitoring devices in carrying out its business realization processes.
c) KML Medical designs and produces medical devices according to strict product codes and regulations. KML Medical has a QMS that was originally certified/registered according to ISO 9002:1994 because the regulations did not require the QMS to include design for the risk class of devices KML produces. The regulatory authority has not yet revised its rules to take into account the new ISO 9001:2000, but has confirmed that it will continue not to require the QMS to include the design activity for this risk class of devices. KML Medical decides not to exclude Clause 7.3 (“Design and development”) from its QMS, because it does in fact carry out this activity and the activity does affect its ability to meet customer requirements. Also, KML wants to be able to claim conformity with ISO 9001:2000, and the exclusion of the design and development activity would not allow it to do so.

d) AKP Corp. is a factory that manufactures electric motors. Traceability of the component parts of the product is not an internal requirement of this company. For a specific type of electric motor, however, one of their customers requires full traceability. In this specific case, AKP Corp’s quality management system has to apply the full requirements of sub-clause 7.5.2 (Identification and traceability).

2) PROCESS APPROACH FOR CONTINUOUS IMPROVEMENT

Any activity or operation, which receives inputs and converts them to outputs, can be considered a process. Often the output of one process will directly form the input of the next process. The systematic identification and management of the various processes employed within an organization and particularly the interactions between such processes may be referred to as the process approach.

The new International Standard has been based on the process approach. The 20 clauses of ISO 9001:1994 have been merged into one general documentation requirement clause 4.2.1 and four main Quality Management System requirement clauses (5 to 8).

The figure given below provides the conceptual view of this international standard as a process model.

The model illustrates that customers play a significant role in defining the requirements as inputs. Monitoring of customer satisfaction requires the evaluation of information relating to customer’s perception of whether or not the organization has met the customer requirements.

This model covers all the requirements of this international standard but doesn't show the processes. Each organization has to identify their own unique processes. This way each organization can apply this model to improve its specific management processes.

The PDCA model methodology can be applied to all processes.
PLAN: Identify the processes necessary to deliver the results in accordance with the customer requirements and the organizations policies and objectives.

DO: Implement and operate these processes.

CHECK: Monitor and measure the processes against the requirements.

ACT: Based on the results and reports improve the performance of the processes for continuous improvement.

The most important part of this cycle is to improve the performance of all key processes. The question is how to improve the performance of the process? For this, we need to enhance the skills and competency of the workforce, improve equipment and measuring tools and adopt better technology (if possible).

To enhance the skill and competency, a very effective training system is required. For the improvement of equipment & measuring tools the resources are required. The best time for companies to utilize their resources is when the organization is strong and not when the disaster is imminent.

3) QUALITY OBJECTIVES AT ALL LEVELS AND FUNCTIONS

ISO 9001:2000 requires the Quality Objectives to be established at relevant functions and levels within the organizations and these Quality Objectives shall be measurable and consistent with the Quality Policy including the commitment to continual improvement.

Presently the organizations which have implemented ISO 9000 series standards don't necessarily define such objectives for each function and level. For example, in a manufacturing unit, normally the Quality Objectives are defined for production departments only. The Quality Objectives for other departments like Marketing, Purchasing, Stores, Administration, Maintenance and Testing are not defined. Similarly the Quality Objective at different levels like Workers, Supervisors, Managers and Senior Executives are usually not defined. These Objectives should lead the organization towards the achievement of its Quality Policy. Organizations should also device a method to measure the results of these Objectives and then revise these targets periodically for continuous improvement. Such objectives would drive each department for improvement of their own quality of processes and outputs.

4) MEASURING AND ACHIEVING CUSTOMER'S SATISFACTION

ISO 9001:2000 requires to determine the customer's requirements and then fulfilling them to achieve customer satisfaction. Customer surveys are important to meet this requirement. Carefully developed questionnaires regarding the performance of the organization and its competitors should be established. Methods are required to seek customer feedback on these questionnaires. The customer's requirements should be established from the feedback received. The organizations can utilize a technique known as Quality Function Deployment (QFD) to translate these requirements into the
product characteristics and features and then base their design, processes and operations to meet the customer needs. QFD involves a matrix that presents customer requirements as rows and product or service features as columns. The cell, where the row and column intersect, shows the correlation between the individual customer requirement and the product and the product or service requirement. This matrix is sometimes called the "requirement matrix", when the requirement matrix is enhanced by showing the correlation of the columns with one another, the result is called the "house of quality". Figure 2 shows one commonly used house of quality layout.

The house of quality relates, in a simple graphical format, customer requirements, product characteristics and competitive analysis. It is crucial that this matrix be developed carefully since it becomes the basis of the entire QFD process. By using the QFD approach, the customer's demands are "developed" to the final process and product requirements. Figure 3 shows an actual QFD matrix for an aerospace firm.

Another way of analyzing the customer's requirement is to follow the KANO'S Model by first identifying what are the Basic (must be) Quality requirements? What are the Expected Quality requirements and what are the Exciting (Delighters) Quality requirements? The customers satisfaction and dissatisfaction can then be measured as given in fig. 4 KANO'S Model.

![Fig. 4 KANO MODEL](image-url)
Companies should first fill the Kano Model after identifying their products/ services attributes and classify them into "Must be", "One dimensional" and "Attractive", quality attributes. They should then look at the survey output and see the gap, which needs to be filled.

QFD and KANO Model are two important analytical tools to analyze the output of customer service with respect to company's product and process.

5) **HUMAN RESOURCE DEVELOPMENT**

ISO 9001:2000 requires the personnel performing work effecting product Quality shall be competent on the basis of appropriate education, training, skills and experience. It also requires identifying the competence needed and actions to satisfy these needs and finally evaluating the effectiveness of these actions.

To meet these requirements the organizations are required to strengthen their Human Resource Development (HRD) area. They need to hire right people for the right job. They also need to assess the competence level for each person performing work effecting Quality and the desired competence level from him to perform that job and task effectively. While identifying the training needs of each person, the following factors should also be taken into consideration:

1. What is the organization's Quality Policy and Objectives?
2. What are the critical processes in the organization and who are the people performing these processes?
3. Who are the organization's customers and what are their requirements?

Keeping in view the training needs of different employees, effective-training programs should be designed. For this the trainers must be competent, because knowledge and skill can be learnt only when the trainers are at higher competency and skill levels than the trainees. The diagram given below reflects this idea

![Diagram](https://via.placeholder.com/150)

In addition to the competency level required for that job, trainees should also be taught what are the requirements of their customers and what are their roles to achieve customer satisfaction? How can they improve the performances of their processes? For example, a receptionist of a hotel should be taught what Quality means to his/ her process. These may be service parameters like check-in time, presentations, gestures, tone, language, promptness, dresses, etc.
**MINOR CHANGES**

In addition to the above major changes, there are some minor changes in this new Standard. There are some new requirements to meet these changes. The table given below shows the new requirements and some suggestions to meet them:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>New requirement Clause No. FDIS 9001:2000</th>
<th>Suggestion to meet this requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Revising the quality policy for continuing suitability 5.3 (e)</td>
<td>This issue should be an input to the management review meeting. Discuss your quality policy &amp; revise it on the basis of new developments</td>
</tr>
<tr>
<td>2</td>
<td>Determining the regulatory requirements related to product 7.2.1 (c)</td>
<td>Look for any product regulations related to your business and make sure they are fully compiled with</td>
</tr>
<tr>
<td>3</td>
<td>Ensuring effective internal communication regarding the effectiveness of quality system 5.5.3</td>
<td>Start routine Quality meetings &amp; prepare weekly/ monthly Quality reports of all the areas. Circulate these reports. Utilize notice boards &amp; company magazine (if any) for display of these reports</td>
</tr>
<tr>
<td>4</td>
<td>Extension of management review scope 5.6.2</td>
<td>Take the management review very seriously. Add reviewing of quality policy &amp; objectives for continuing suitability of each department, results of data analysis &amp; improvement activities, process performance &amp; product conformance analysis &amp; improvement opportunities based on customer feedback</td>
</tr>
<tr>
<td>5</td>
<td>Managing the required work environment 6.4</td>
<td>Identify the physical factors needed to achieve the conformity of product and improve the work environment accordingly, e.g. work space, temp., lights, radiations, floating dusts</td>
</tr>
<tr>
<td>6</td>
<td>Communicating with the customer 7.2.3</td>
<td>Each company can develop its own methods. Some examples are utilization of information technology and Electronic media</td>
</tr>
<tr>
<td>7</td>
<td>Analyzing the data for improvement 8.4</td>
<td>Utilize the 7-Basic QC tools, Kano model, QFD, utilize the results for taking preventive action</td>
</tr>
<tr>
<td>8</td>
<td>Reviewing the supplier's performance periodically 7.4.1</td>
<td>Get lot-wise results including rejections and reworks. Also check for on-time delivery</td>
</tr>
<tr>
<td>9</td>
<td>Establishing more control for design, development and changes 7.3.7</td>
<td>Utilize the results of customers/ potential customer surveys &amp; use techniques like failure mechanism, failure mode &amp; effect analysis (FMEA) and fail safe system</td>
</tr>
</tbody>
</table>

For incorporating all these changes the documents also needs to be revised. The areas where there are minor changes, the documents can be revised and the new procedures can be added for areas where major changes have occurred like customer...
focus, quality objectives, continuous improvement, process orientations and HRD. This is only a suggestion, this can't be true for every organization because of its own unique activity profile. Many organizations have formulated their documents matching the ISO 9001: 94 clauses. Those organizations need to fully revise their whole documentation, but this is still not mandatory.

SEVEN STEPS ACTION PLAN FOR TRANSFORMATION TO ISO 9001:2000

STEP 1: Create awareness to the new standard among the employees and top management. Conduct a seminar or take help of a trainer to conduct the seminar on transformation to ISO 9001:2000. Convince the top management about the advantages of its implementation.

STEP 2: Perform gap analysis and call a top management meeting to decide the schedule and the resource requirement of each activity for transformation. Involve all the departments in the meeting. Inform the certification body about your planned arrangements.

STEP 3: Identify main processes and then divide into sub-processes. Care should be taken in the choice of terminology to ensure that sub-processes are accurately described. Define the interaction between sub-processes. Discuss how the performance of these processes can be improved.

STEP 4: Strengthen or develop the HRD department and start training of management and workforce to enhance their skills and competencies. Device methods to measure their competencies. Improve your working environment. Give special consideration to enhance the skills of the internal auditors. Train those people as internal auditors, who are well aware of the organizational key processes, as the new standard requires the evaluation of processes.

STEP 5: Review your Quality Policy & define Quantitative Quality Objectives of each function & level in conjunction with the quality policy. Determine method to measure these objectives.

STEP 6: Revise the documentation to include all the applicable requirements of the standard. Use the information gathered in steps 3 & 5. Involve all the departments in the preparation of these documents. Trial run these documents and make changes based on the feedback received from different areas and then standardize the documents.

STEP 7: Conduct the management review and internal quality audits, evaluate the results. Inform your certification body if you feel you are ready for transformation to ISO 9001:2000.

The consultants and trainers must have a very clear understanding of all the major and minor changes and the new tools, which can be utilized to meet the new requirements. The certification bodies should train their auditors to correctly interpret
this new standard. The auditors need to know the technical processes more thoroughly, as the new standard emphasizes on the improvement of the processes. The evaluation of a process is only possible when the auditor has adequate knowledge of this process. These bodies should also encourage & guide the companies on transformation. They should make schedules for their existing clients to shift to this new standard.

**BENEFITS OF CHANGES**

By implementing this new standard, the following benefits are expected:

1. Clear quality objectives of each function and level.
2. Continuous improvement through revisions of quality policy and objectives.
3. Better communication internally and with the external customer.
4. Improved working environment.
5. Adherence to National/ International product regulations.
6. More usage of basic quality tools for analyzing the data for improvement.
7. Awareness to the suppliers performance.
8. More control over design and development.
9. More compatibility with the customer needs (Customer focused).
10. Better organization of HRD.

**CONCERNS**

1. The 1994 version of ISO 9000 series standard has not been implemented effectively in many organizations. A study of certified companies carried out by Pakistan Institute of Quality Control (PIQC) shows that implementation is not very effective in many organizations especially the improvement cycle (Ref. No.3). So if this version is also not implemented effectively, the results could be the same.

2. A thorough understanding of this standard is required before implementation, otherwise the implementation will become retarded and meaningless.

3. Unless there is a systematic identification of processes and their interactions it will be difficult to improve the performances of these processes.

4. The auditors (Both Internal & External) without process familiarity can’t audit this new standard effectively.

5. There will be little improvement if the compliance is demonstrated with ineffective procedures defining a very low level of performance.

**CONCLUSIONS**

The changes in this new standard ISO 9001:2000 are quite useful and the organizations implementing this standard in true sprit will definitely be benefited. The process approach represents a significant advantage over the previous approach. Organizations can now demonstrate the compliance with the new standard on the basis of their processes. The adoption of this standard will upgrade the Quality Management
System of the organization, if implemented carefully, intelligently, correctly and positively.

REFERENCES


ABOUT THE AUTHOR

Muhammad Amjad is an Electrical Engineer who graduated from the University of Engineering & Technology, Lahore in 1978. He started his carrier from WAPDA as Assistant Director Planning. He served WAPDA for more than 4 years. In October 1982, he joined SCECO (East) Saudi Arabia as Sr. Electrical Engineer. There he was involved in Design & Planning activities. He worked with this company for more than 9 years.

He returned to Pakistan and joined the Newage Cables (Pvt) Limited as Manager Quality Assurance in 1992. He took extensive training in the field of Quality through participation in number of seminars and International Conventions on Quality. He lead the Newage Cables team to achieve the ISO 9002 certification in May 1997. Newage Cables was among the first 25 companies and First in the field of Cables and Conductors in Pakistan to receive the ISO 9000 Certification. He also presented the case study of Newage Cables in UET and LUMS, Lahore.

He has received his training in the field of Quality from Japan where he participated in an extensive Quality Control training course comprising training and visits to production sites in Osaka. He is a Certified Auditor/Lead Auditor for ISO 9000 QMS (SGS Yarsely UK) and ISO 14000 EMS (IQCS Certification Singapore).

He is Senior Tutor (Part Time) for the Pakistan Institute of Quality Control, Guest Speaker for the Chamber of Commerce and Industry, Lahore. He has conducted a number of seminars on ISO 9000 Quality Management System, Statistical Quality Control and Total Quality Management. Presently he is also conducting the Certified Quality Professional course.