

PROBLEMS RELATED TO MAINTAINING AND IMPROVING ISO 9001 QUALITY MANAGEMENT SYSTEM

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Abstract

The article presents the results of the author's own research, performed in the early 2011 and covering a sample of 92 organisations operating in Poland. The research led to identification of the key problems related to maintaining and improving quality management systems. Those include the ISO 9001 requirements on: defining and attaining quality objectives; ensuring adequate levels of staff knowledge, competence and awareness; ensuring proper internal communication, production process, analysis of customer needs and satisfaction levels; as well as process management.

Introduction

The original version of the ISO 9001 standard was published back in 1987. The quality management system (QMS) described therein became widely popular both among the companies and the organisations operating within the broad area of public administration sector. The data of the International Organisation for Standardization show that in 2009 there were already over a million of entities holding the ISO 9001 certificates in various countries and on various continents.¹

ISO 9001 is a quality system standard and not a product quality standard. It does not substitute but complements the product quality standards. It cannot be guaranteed that product/service quality of ISO 9001 certified organizations would be higher compared to that of non-certified organizations².

Numerous surveys and opinions given by practitioners confirmed the usefulness of quality management systems³. However, there were also critical opinions indicating the problems or irregularities accompanying their deployment, certification and maintenance.⁴ In this context, efforts aimed at improving the quality management systems seem to be of particular importance. The improvement should begin with those areas which on the one hand are most

¹ www.iso.org

² A. Kumar Srivastav, *ISO 9000 as an organization development intervention*, "The TQM Journal", 3/2011, p.313.

³ T. Lee, H. Leung, K. Chan, *Improving quality management on the basis of ISO 9000*, "The TQM Magazine", 2/1999, pp. 88 – 94; A. Casadesus, G. Gimenez, I. Heras, *Benefits of ISO 9000 in Spanish industry*, "European Business Review", 6/2001, pp. 327- 335; Ch. V. Fotopoulos, E. L. Psomas, F. K. Vouzas, *Investigating total quality management practice's inter-relationships in ISO 9001:200 certified organizations*, "The TQM Journal", 5/2010, pp. 503 – 515; L.A. Fons, *Measuring economic effects of quality management systems*, "The TQM Journal", 4/2011, pp. 458 – 474,.

⁴ Cf. O. Boiral, N. Amara, *Paradoxes of ISO Performance: A Configurational Approach*, *The Quality Management Journal*, 3/2009, pp. 36-60, and S. Karapetrovic, M Casadesus Fa, I. Saizarbitoria, *What happened to the ISO 9000 lustre? An eight-year study*, "Total Quality Management & Business Excellence" 3/2010, pp. 245 – 267.

important for the organisation and on the other are most problematic. This article is a description of those areas as identified in the research.

1 Improving of quality management system

Continual improvement is one of the eight principles of quality management. In the ISO 9000 standard it is defined as a recurring activity to increase the ability to fulfil requirements. Actions for improvement should 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 these solutions and making a selection,
- implementing the selected solution,
- measuring, verifying, analysing and evaluating results of the implementation to determine that the objectives have been met,
- formalizing changes.

An organisation is also recommended to ensure that continual improvement becomes an established component of its culture. This is achieved through providing the staff with opportunities for engaging in improvement-oriented activities, empowering them for such actions, securing the necessary resources, and establishing a system recognising and rewarding efforts towards improvement and towards continual improvement of the effectiveness and efficiency of the improvement process itself.⁵

The ISO 9004 standard additionally states that applying the principle of continual improvement within an organisation typically leads to:

- employing a consistent organization-wide approach to continual improvement of the organization's performance,
- providing people with training in the methods and tools of continual improvement,
- making continual improvement of products, processes and systems an objective for every individual in the organization,
- establishing goals to guide, and measures to track continual improvement,
- recognising and acknowledging improvements as a standing objective of the whole organization.

Besides, the document identifies three key benefits available for improvements in organisations. The first of them is performance advantages, the second is alignment of improvement activities at all levels to an organization's strategic intent, and the third is increased flexibility to react quickly to opportunities.⁶

The ISO 9001 requirements on quality management systems include solutions which allow organisations to apply the continual improvement principle in practice.⁷

⁵ PN-EN ISO 9000:2006, *Systemy zarządzania jakością. Podstawy i terminologia [Quality management systems – Fundamentals and vocabulary]*, PKN, Warszawa 2006, p. 21.

⁶ PN-EN ISO 9004:2010, *Zarządzanie ukierunkowane na trwały sukces organizacji. Podejście wykorzystujące zarządzanie jakością [Managing for the sustained success of an organization – A quality management approach]*, PKN, Warszawa 2010, pp. 89-91.

⁷ PN-EN ISO 9001:2009, *System zarządzania jakością. Wymagania [Quality management systems – Requirements]*, PKN, Warszawa 2009, p. 39.

2 Research results

Until now there have been a few major studies of quality management. The most detailed one was carried out by M. Urbaniak. They focused on defining the advantages and problems of introducing QMS⁸. Subsequently A. Tabor Smardzewska identified the most significant premises for introducing systems of quality management. They were: improvement of the product quality, gaining wider trust of the customers, strengthening the engagement of employees and enhancing the company's prestige⁹. PB Online company carried out a study to evaluate the impact of introducing ISO 9001 on the firm's competitiveness¹⁰. However none of those concerned directly the subject of improving the system of quality management. Therefore such studies obviously had to be started.

The research method used for identification of the key problems in maintaining and improving the quality management systems compliant with the ISO 9001 was a survey. At the beginning of 2011 i.e. from January until April, the questionnaires were sent out (by post and e-mail) to a varied (in terms of size, business profile and organizational structure) group of organisations holding the ISO 9001 certificates and operating in Poland. Their addresses were collected from the Internet and through the Polish ISO 9000 Forum. The process of receiving responses was closed in June, 2011. The survey resulted in 92 responses – less than 10% of the total number of questionnaires sent. Respondents were organisation managers responsible for QMS. A majority of the responding organisations were companies (74.5%). The other responses came from public administration, mainly town authorities. The responding organisations were much varied in staff size. The most numerous group employed up to 100 people (23.4%). However, the sample also included larger organisations – six of them employ 2,000 people or more.

The questionnaire listed 20 components of quality management systems and the respondents were asked to evaluate their importance related to their maintenance and improvement (*Tab. 1* shows the components). The evaluation was done on a six-grade rising scale (from 0 to 5). Grade 0 meant that a particular component is considered completely unimportant or causes no problems. Conversely, grade 5 meant that a component is of very high importance or there are huge problems with its maintenance or improvement.

Tab. 1. The components of quality management systems

No.	Components	No.	Components	No.	Components
1	Establishing and attaining objectives	8	Internal audits	15	Process management
2	Keeping and checking documentation	9	Monitoring, measurement and data analysis	16	Design and development of product/service
3	Keeping and checking records	10	Corrective actions	17	Procurement
4	Involvement of top management	11	Preventive actions	18	Control of monitoring and measuring equipment
5	Competence, training and awareness of employees	12	Management review	19	Processes for product/service realization
6	Internal communication	13	Analysing customer needs and satisfaction levels	20	Control and management of non-compliant product
7	Assignment of responsibilities and authorities	14	Resource management		

⁸ M. Urbaniak, *Kierunki doskonalenia systemów zarządzania jakością*, Uniwersytet Łódzki, Łódź 2010.

⁹ A. Tabor – Smardzewska, *Przesłanki wdrażania systemów jakości*, „Problemy jakości”, 5/2010, pp.37 – 41.

¹⁰ www.portalbadan.pl (30. 09. 2011)

Source: Own work.

The responses demonstrated that the most serious problems with maintaining quality management systems are related to staff competence, training and awareness (average grade = 2.6) and internal communication (average grade = 2.6). Respondents considered the following components the easiest to maintain: management review (average grade = 2.0), internal audits (average grade = 1.8), and control of monitoring and measuring equipment (average grade = 1.7).

The most serious problems with improving quality management systems are related to analysing customer needs and satisfaction levels (average grade = 2.7), establishing and attaining objectives and process management (average grade = 2.6). The areas most easily improved were believed to include assignment of responsibilities and authorities (average grade = 2.1), management review (average grade = 2.1), control of monitoring and measuring equipment (average grade = 1.7), and internal audits (average grade = 1.8).

Tab. 2 summarises the components of quality management systems which in the respondents' opinion are most important to their organisations and those causing most maintenance and improvement problems. The higher the average grade assigned to a QMS component (as shown in brackets), the higher its significance or the level of maintenance or improvement difficulty.

Tab. 2. The most significant and the most problematic components of quality management systems

Significance for organisation	Maintenance difficulty level	Improvement difficulty level
Product realization (4.4)	Competence, training and awareness of employees (2.6)	Analysing customer needs and satisfaction levels (2.7)
Establishing and attaining objectives (4.3)	Internal communication (2.6)	Establishing and attaining objectives (2.6)
Involvement of top management (4.3)	Establishing and attaining objectives (2.5)	Process management (2.6)
Competence, training and awareness of employees (4.3)	Resource management (2.5)	Involvement of top management (2.5)
Internal communication (4.3)	Process management (2.5)	Competence, training and awareness of employees (2.5)
Control and management of non-compliant product (4.2)	Keeping and checking records (2.4)	Internal communication (2.5)
Assignment of responsibilities and authorities (4.1)	Involvement of top management (2.4)	Design and development of product/service (2.5)
Monitoring, measurement and data analysis (4.1)	Corrective actions (2.4)	Product realization (2.5)
Analysing customer needs and satisfaction levels (4.1)	Preventive actions (2.4)	Keeping and checking records (2.4)
Resource management (4.1)	Analysing customer needs and satisfaction levels (2.4)	Monitoring, measurement and data analysis (2.4)
Process management (4.1)	Product realization (2.4)	Resource management (2.4)

Source: Own work based on survey performed.

It should be noted that respondents decided that the components of quality management systems which are of the least significance for their organisations were design and development of product/service and control of monitoring and measuring equipment.

The information provided by the respondents leads to the following conclusions:

Managers responsible for quality management systems evaluate individual components of the system as very important to their organisations. On the 0-5 rising scale, the lowest grade assigned was 3.4 and the highest – 4.4. Thus the grade spread was not large for individual

components, but still visible enough to allow ranking them. It is worth noting that out of the twenty components included in the survey, twelve achieved an average grade of 4.0 or higher. The perceived difficulty of maintaining individual components is not of a high level – it was graded between 1.7 and 2.6. The perception of component improvement problems is similar – here the grade varied between 1.8 and 2.7. Most of the QMS components typically associated with improvement (i.e. internal audits, corrective actions, preventive actions and management review) were considered to be less important to organisations and were assigned the same average grade of 3.9. This may confirm the hypothesis that improvement of quality management systems is of only secondary importance in business practice. Establishing and attaining objectives constitutes an exception here with its average grade of 4.3 and the second highest rank in the order of significance. The same components were ranked very low as far as problems with their maintenance and improvement are concerned. For instance, internal audits (average grade 1.8) were perceived as the QMS component that is the easiest to improve. Similarly, problems with maintaining and improving management review were ranked as low as 18 out of 20 in the order of magnitude. This may mean that organisations find it easy to deal with these system components, but it is far more likely that managers simply do not pay enough attention to them.

While trying to identify key problem areas it is necessary to account both for the significance and for the difficulty level of maintaining and improving individual QMS components. This can be achieved by looking at the arithmetic result of three values, i.e. the average grade of significance, the average grade of maintenance difficulty level and the average grade of improvement difficulty level. Such a result was calculated for each of the QMS components covered in the survey. In this way it was established that the key problem areas are establishing and attaining objectives, competence, training and awareness of employees, and internal communication. The resulting value of each of the three components was the same. Minimum values were obtained for product realization, analysing customer needs and satisfaction levels and process management.

Conclusion

The main objective of the research was identification of key problem areas related to maintaining and improving ISO 9001 quality management systems. The main outcome was the statement that considering the significance of individual requirements for organisations and the difficulty of meeting them, the areas giving rise to most problems are establishing and attaining quality objectives, competence, training and awareness of employees, and internal communication.

However, identifying the detailed nature of practical problems faced by organisations in this respect will require further research. The scope of such research should include, among others, identification of the problem sources and finding out if those problems are shared by organisations of every type and not, for instance, by large organisations only. This would make a sound basis for planning further actions aimed either at redefining the ISO 9001 requirements or at promoting the solutions (good practices, management tools) to assist organisations in overcoming such problems.

Similar to other studies, in this research there are some limitations. First of all, the research sample is quite small. Therefore we cannot study the differences between certain subgroups of organizations e.g. between a private business and public administration. Another limitation is that the paper does not include other research conducted in Poland. The further article will deal with comparison of the results of different studies.

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PROBLEMY ZWIĄZANE Z UTRZYMYWANIEM I DOSKONALENIEM SYSTEMU ZARZĄDZANIA JAKOŚCIĄ ISO 9001

W artykule przedstawione zostały wyniki badań przeprowadzonych na początku 2011 roku na próbie 92 funkcjonujących w Polsce organizacji. Na tej podstawie określone zostały kluczowe obszary problemowe związane z utrzymywaniem i doskonaleniem systemu zarządzania jakością. Znalazły się wśród nich wymagania normy ISO 9001 dotyczące: ustanawiania i osiągnięcia celów dotyczących jakości; zapewnienia odpowiednich kompetencji, wykszolenia i świadomości pracowników; zapewnienia właściwej komunikacji wewnętrznej, wytwarzania wyrobu, badania potrzeb i satysfakcji klientów; a także zarządzanie procesami.

PROBLEMATIKA UDRŽOVÁNÍ A ZDOKONALOVÁNÍ SYSTÉMU ŘÍZENÍ JAKOSTI ISO 9001

V příspěvku jsou prezentovány výsledky průzkumu prováděného začátkem roku 2011 na vzorku 92 organizací působících v Polsku. Na jejich základě byly stanoveny klíčové problémové oblasti spojené s udrčováním a zdokonalováním systému řízení jakosti. Jsou mezi nimi požadavky normy ISO 9001 týkající se: stanovování a naplňování cílů týkajících se jakosti; zajištění příslušných kompetencí, vyškolení a uvědomění zaměstnanců; zajištění řádné interní komunikace; výroby produktů, zkoumání potřeb a uspokojení zákazníků a také managementu procesů.

FRAGEN DER ERHALTUNG UND VERVOLLKOMMUNG DES QUALITÄTSMANAGEMENTSYSTEMS IM RAHMEN DES ISO 9001

Im Beitrag werden die Ergebnisse der Untersuchungen vorgestellt, die man Anfang 2011 unter den 92 in Polen funktionierenden Organisationen durchgeführt hat. Anhand dieser Erkenntnisse wurden Schlüsselprobleme bestimmt, die mit Erhaltung und Vervollkommnung des Qualitätsmanagementsystems verbunden sind. Darunter sind folgende Anforderungen für die ISO-Norm 9001 zu finden: Sicherstellen und Erreichen der Qualitätszielen; Sicherung entsprechender Kompetenzen, Qualifizierung und Bewusstseinsgestaltung von Mitarbeitern; Sicherung der richtigen internen Kommunikation, der Warenherstellung, der Untersuchung von Bedürfnissen und Zufriedenheit der Kunden und auch Verfahrenstechnik.