

Activities of the Organization on Provision of Constant Improvements in the Quality System

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Abstract: Many authors agree in the statement that acquiring of certificate for introduced quality system is easier phase than from the phases which will follow. After acquiring of certificate the organizations have relaxation time and somewhere the time of easy dream. And when we wake up, control audits come fast and it is time to show to auditors what we have done in past period. So, maintenance and continuity in development of the quality system present next phases which many auditors estimate as more significant ones and more difficult from the phase of introduction of the quality system itself. By the appearance of standards from years of 2000 (ISO 9001:2000) and 2008 the concept of “continuous improvements” has been introduced in the practice of certification and maintenance of the quality system. Without such improvements and without work on them the quality system as well as all other things in real life would very soon come to the phase of collapse, i.e. quality characteristics would start falling on all levels.

This work will present results of researches conducted in 204 organizations with introduced quality system as well as their activities carried out or to be carried out in the purpose of provision of constant improvements in their organizations. The work will also present comparison of different views seen by persons responsible for quality (manager for quality) in organization as well as by managers of organization (directors).

Keywords: continuous improvements, activities, quality system, organization

1. INTRODUCTION

Up to a few decades ago the ambience in which organizations performed their business was relatively stabile and did not require special skill in their management. Relatively stabile market conditions were giving good base for successful business without huge efforts and risks. However, for organizations as well as for individuals in organizations the time of nonchalance, leisureliness and relaxation is gone for good. Market as supreme criteria for

success, and “giant” struggle on that market narrowed space for un-professionalism, incompetence and bad quality.

Modern market today requires huge efforts with a purpose of realization of competitive advantage. Fundamental goal of modern business presents achievement of business excellence and achievement of the world’s class of products and services. This can be reached exclusively on the basis of continuous improvement of the quality of business in company. This improvement is based on

increment of working productivity and education of every employee in the company.

One “sharp” but realistic statement says that in this century there will be only two types of organizations: “fast” and “dead”! In order to survive in these global markets those organizations have to know and be possible to manage with occurring changes in both themselves and in the surrounding where they act. One of those ways is certainly introduction of management quality system according to demands of standards from ISO 9000 series.

There are more and more organizations with established quality system worldwide. All systems – old organized systems and new systems which are in the beginning of finding of building way have the basic preoccupation of how to involve and motivate all employees, and how together with them to provide constant improvements in their organizations without which there is no progress. With their constant improvements and their creative strength the ISO 9001 standards from years of 2000 and 2008 gave special importance. And there are no constant improvements without creatively motivated employees. Constant improvements of business represent process which never ends (“**never ending story**”). In other words, this is structural process for longer period.

The goal of authors was to investigate what sort of activities were undertaken or planned by certified organizations in Bosnia and Herzegovina in the purpose of achievement of constant improvements in their organizations. We will see this from the aspect of those who manage with quality system in organization (managers for quality) and managers of organization itself (directors).

2. OVERVIEW OF PREVIOUS RESEARCHES

From the moment of appearance of standards from ISO 9000 series and certification of quality systems according to this standard the research of achieved effects started all around the world. Researches related to constant improvements and continuation in the area of certifications are connected between ISO 9000 and TQM, and between possibilities offered by both systems. In continuation we bring some researches on that topic.

- In 1995 Jones, Arndt and Kustin [2] studied connection between type of motive for

certification and noticed benefits. Only 14% of organizations could have been included in the group of only developing motivating organizations. Next 43% of organizations besides developing also recognized external motives. Other organizations certified themselves only because of external pressures. Organizations which did not have developing motives mainly did not experience benefit of certification. This coincides with a claim that: “Systematic but not only formal introduction of entire quality management significantly increases successfulness and efficiency of the organization”;

- Research about the situation of Total Quality Management TQM in Irish manufacturing industry included 394 organizations [3]. Competitive capability is improved in 52% organizations which introduced TQM, and in 24% organizations which acquired certificate of ISO quality system. Influence of certificate to successfulness of business decreases in four years the latest upon acquiring of certificate, if in that period the organization does not start introducing TQM;
- During the research of influence of ISO 9000 quality system and total quality management TQM to competitive capabilities in 294 English manufacturing and service organizations [4] it was proved that organizations which started introducing quality system, and which upgraded it by TQM, achieved bigger values of indicators of competitive capabilities;
- In 2005 Lagrosen and Lagrosen conducted research of opinion of 256 Swedish experts who professionally deal with quality [5]. They divided area of quality prevailing in three levels: principles, models (ISO 9000, EFQM, Swedish award for quality, Baldrige award for quality) and tools. During their research they noticed that efficiency of quality system was in strong connection with noticed importance of principles on which standards and models of excellence were based on, and that quality system was also in connection with noticed usage of quality tools. In order to have proper understanding and giving the importance to principles of constant improvement, the management on basis of facts and involvement of employees was also especially important;

- Magd H. [6] conducted empirical research in Saudi Arabia in 175 manufacturing certified organizations. The research was inter alia focused on foreseen steps upon ISO 9000 certification. Steps which Saudi Arabian organizations intend to perform upon certification relate to the following:
 1. TQM implementation, 41% of organizations;
 2. Maintenance of ISO certificates, 20%
 3. Do not have anything planned, 20% of organizations
 4. To compete for a reward for quality, 5%
 5. Certificate is the end, 14% of organizations;
- In 2006 Heras, Landin and Casadesu conducted research of opinion in the group of Spanish experts for quality system (directors, consultants, examiners, graders, academic specialists and representatives of influential organizations) pursuant to the Delphi method [7]. Those who were interviewed underlined significant difference between only minimal satisfaction of demands of ISO 9000 standard and desire for improvement pursuant to EFQM model of excellence where they would at first represent only satisfaction mark, while at other organizations they fight for excellent mark. Therefore the effects on business results would be significantly different;
- In 2006, within the Faculty for Management in Koper, Piskar and Dolinšek published scientific monograph with title „Effects of ISO standard – from the quality management to business model”. [8] One part of that monograph represents research of the ways how the Slovenian organizations will carry out constant improvements. Research was conducted in 212 certified organizations. During the achievement of constant improvements those organizations will focus on improvement of process in their organizations with 26,3% (almost 90% of organizations from the sample). This does not have to surprise us because the research was conducted in transition period when standard from 2000 was not active in all organizations. Then, there were improvements pursuant Deming’s circle with 13,9% (almost 50% of organizations from the sample), and improvements during performing of internal audits with 13,5%, Constant control points 11,5%, Killing of time needed for completion of ordering

cycles 10,8%, and the smallest organization will start with the path for constant improvement through drastic decrement of costs 6,9%.

3. METHODOLOGY OF RESEARCH

Research of the effects of BH organizations which have introduced and certified their quality system according to demands of standard ISO 9001:2000 we can define as empirical research because we have chosen direct observation of selected segment from the real environment and analysis of collected information in it. For collection of quantitative information we used one of four main ways – questionnaire. We shaped the questionnaire in the way to have it as simple as possible (for usage and understanding), thorough and reliable, made in the way of claims and questions so that its filling needs as less time as possible. In the view of time dimension the research is limited only with one time point, i.e. research of the time review, while from the point of view of originality the research goes towards research with primary performance because it is based on original empirical data. It is one of the first researches on that area in selected environment (Bosnia and Herzegovina) and in such volume. The research is structured in the way to enable comparison or possible repeated performance after certain time, and in time it could become starting research (starting point) of study which could be continued on that “follow-up study” [9].

3.1. Triangulation method

During integral research presented under [1] we used triangulation method. Triangulation refers to the usage of more than one approach in procedures of researches in the purpose of strengthening of trust into results of researches. Webb and Denzin defended the fact that *the hypothesis verified-experienced by more methods is more worth from the one that is verified-experienced by only one method*. Denzin recognizes four sorts of triangulation [10]: methodological triangulation, data triangulation, triangulation of research and theoretical triangulation.

In this work we used and decided for the **data triangulation** in the way that we gathered information on the same issue from various sources, as well as the usage of different kind of information (qualitative and quantitative) collected

by various methods.

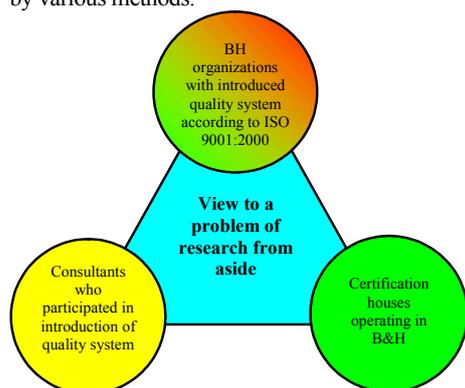


Figure 1 - Overview of triangulation method used in work [1]

Information that refers to the problem of research of effects acquired by organizations in B&H was given by the following sources (Figure 1) [1]:

1. Organization with certified quality system according to ISO 9001:2000,
2. Consultants who worked on preparation of those organizations for introduction of quality system, and

3. Certification houses that certified those systems.

3.2. Conduction of the information collection plan

The postal questionnaire was selected for information collection. The Table 1 shows described conduction. As for the phone and personal contacts we limited ourselves to remind and ask people to fill questionnaires and return them. We think that in this way we fulfilled one of the key conditions for objectivity of research.

This work will present results given only by organizations where that part of Questionnaire was filled by managers for quality in organizations as well as by chief directors of organization, after which we will compare results.

4. RESULTS OF THE RESEARCH

4.1. Representativeness of the sample

As we said earlier the work will present only the results given by organizations. Therefore we will deal here only with presentation of the sample of organizations.

Statistical population - for the organizations - for the consultants - for the certification houses	- organizations in B&H in 2008 which posses introduced quality system according to requirements of standard ISO 9001:2000. - consultants who operate in the area of B&H - certification houses which operate in the area of B&H
Unit of the sample	Individual organization, Individual consultant, Individual certification house
Limits of sampling - for the organizations - for the consultants - for the certification houses	660 organizations from the population 70 consultants, addresses from our own register 14 houses from our own register
Size of the sample - for the organizations - for the consultants - for the certification houses	- planned out of 120-150 units – 204 units achieved - planned and achieved 31 units - planned 10 units – 11 units achieved
Procedure of sample choosing	Random sampling inside the population
Researching instrument	Structural questionnaires
Method of information collection	Combined postal method, supported by their own phone calls and contacts through certification houses and ministries
Time for poll conduction - for the organizations - for the consultants - for the certification houses	from March 2008 to July 2008 from July 2008 to December 2008 from December 2008 to February 2009
Time of established situation	End of 2007 / beginning of 2008.

Table 1 - Conduction of the information collection plan [1]

Regarding the activity all organizations gave the answer, and the structure is as follows: Eighty two (40,2%) organizations were service organizations, 24 (11,8%) were mainly service organizations, 72 (35,3%) were manufacturing organizations and 26 (12,7%) were mainly manufacturing organizations. This means that we got closely the same sample for manufacturing and service organizations. This points to a change of belief that only or mainly manufacturing organizations dominate in the certification process. Basically, number of organizations from the area of service activities which had introduced and certified quality system is increasing [1].

Answers to a question regarding the sort of company were as follows: Limited liability company (139= 68,1%); Joint stock company (41=20,1%); Public companies, organs and organizations (21=10,3%); and one organization from the area of public companies, one organization from the area of financial institution and others (3=1,5%).

Standards are mainly introduced in economic companies and service organizations, and number of companies in public administration (municipalities and cantons) and other organizations (such as insurance companies, agencies for property and personal protection) slowly grows. [1]

Answers to a question regarding number of employees were as follows: Eighty seven organizations have got up to 50 employees (42,65%); 81 organizations have got between 51 and 250 employees (39,7%); 36 organizations have got more than 250 employees (17,65%). Here we can see that every group for itself can represent minimal statistical sample, and also we notice that participation of large certification organizations in BiH is decreasing and the focus is on small-size and middle-size organizations [1].

Answers to question regarding the year of acquiring of the certificate: Sixty two organizations (30,4%) acquired certificate in the period 1997-2003, and 142 organizations (69,6%) acquired certificate in the period 2004-2008. Answers were given mostly by the organizations which acquired certificate in the period 2005-2007. This shows that in starting years upon acquiring of the certificate there is better motivation for quality in organizations, and that their readiness to participate in such researches is bigger [1].

The goal of authors was to get answers

from persons responsible for quality, which was achieved. Regarding the managers for quality systems their participation was 90%, and directors had participation of 75%, by which we can confirm that results represent opinion of persons whom we asked answers from.

When we compare different data, such as: sort of activity-number of employees, or sort of activity-year for acquiring of the certificate, we come to the fact that most of these individual categories can represent statistical sample for itself. So, we can conclude that there is satisfactory presentation of the sample even per individual criteria, that is that all activities are represented in sufficient quantity as well as all sizes of organizations in sufficient quantity, as well as the period of certification which were considered

4.2. Planned activities on provision of constant improvements

As most authors underline, acquiring of certificate is only one beginning step in the process which will follow. The solution is not to acquire certificate and sleep on it afterwards. The goal of standards from years 2000 and 2008 was to have organizations undertaking activities on provision of constant improvements in their organizations in order to avoid stagnation in results. We offered eight noticed activities (which were often performed in their organizations) to managers for quality system and chief directors. They could also add other activities which they perform in their organizations. Picture 2. presents results of what B&H organizations do or plan to do regarding that issue, from the point of view of managers for quality system. Table 2. presents comparing results given by managers for quality system and chief directors of organizations. [1]

As it can be seen from the Chart, the organizations will pay biggest attention to improvement of process 27,60% (or even 91,2% of the sample). This is dominant activity pursuant any comparing, and it is expressed the most in organizations which acquired certificate before year 2003. Introduction of new standard from year 2000 caused transformation to so-called processed approach which was not present earlier. Processes and their owners were given full importance. On the occasion of preparation for certification and during its establishment it seemed that there was not enough time to pay necessary attention to both establishment of process and its realization. Second, perhaps more important reason for

such agreement can be found in the fact that organizations realized importance of processed

approach and its strength.

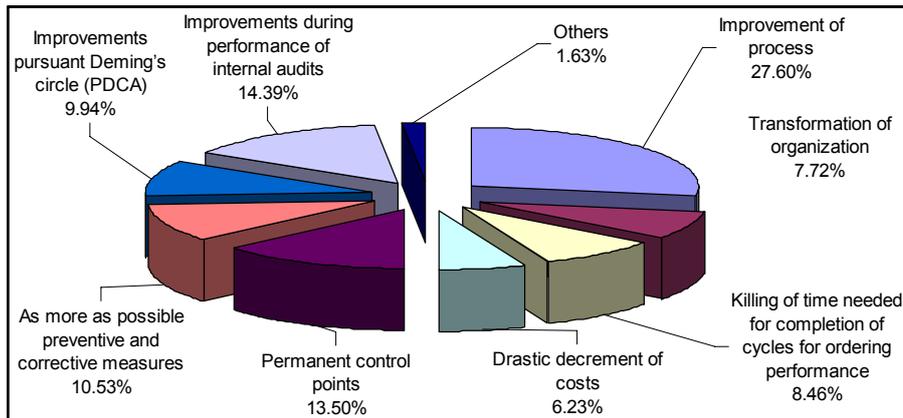


Figure 2 - Activities which organization performs or intend to perform for provision of constant improvements

Second place is given to the improvement during performance of internal audits with 14,4% (or 47,6% in the sample). We think that thus is given the importance to internal audits as powerful tool which in basic does not cost much but is available once after we educate personnel who will be ready to carry it out properly. In most comparing internal audit took second place. Only the organizations which acquired certificate before year 2003 gave more importance to it 15% (or almost 55% in the sample), because they carry it out for longer period and recognized it as something that can cause improvement.

Following are the control points with 13,5% (or 44,6% in the sample) which are often used by middle-size manufacturing organizations. Preventive and corrective actions are next in the scale of importance with 10,53% (or 34,80% in the sample). They are pretty powerful means especially to fix the things where organizations see occasion to improve something through them.

Following are the improvements pursuant Deming's circle which are, according to the authors, pretty weakly used and represent the tool which the Total Quality Management TQM is generally based on. Reason for this we can find in the fact that most of organizations still plan badly (in all level and areas) and thus there is no follow up of the plans. We think that this is the tool which would have to be positioned on much higher place in the

hierarchy.

It is also good to mention that manufacturing organizations, both small ones (up to 50 employees) and big ones (over 250 employees), as one of the first five activities underlined killing of time for completion of ordering cycles with 9,60% (or over 33% in the sample).

Organizations had possibility to state other activities for which they think that are of importance in improvement of organization, which are the following:

- make of annual plans for improvement
- improvement of document management
- control of implementation of the process quality management
- stimulus for innovative activity by stimulating of useful proposals for improvement and saving by all employees, and
- stimulation and motivation of employees

If we check Table 2. and compare results given by managers for quality systems and chief directors we see that there are no significant differences in opinions of these two categories of persons who are responsible for quality in organization. Deviations occurred for example in the way that managers for quality system gave better support to internal audits and chief managers gave better support to permanent control points and corrective and preventive measures. These deviations can be connected to the position of these people in organization and

their better connectivity for every individual activity.

	What are the activities that you perform/intend to perform for provision of constant improvements?	QA Managers			General Managers		
		(1)	(2)	(3)	(1)	(2)	(3)
1.	improvement of process	1	186	27,60	1	167	24,74
2.	transformation of organization	7	52	7,72	8	51	7,56
3.	killing of time needed for completion of cycles for ordering performance	6	57	8,46	7	54	8,00
4.	drastic decrement of costs	8	42	6,23	6	55	8,15
5.	permanent control points	3	91	13,50	2	103	15,26
6.	as more as possible preventive and corrective measures	4	71	10,53	3	100	14,81
7.	improvements pursuant Deming's circle (PDCA)	5	67	9,94	5	55	8,15
8.	improvements during performance of internal audits	2	97	14,39	4	85	12,59
9.	Total sample of valid answers		674	100,0		675	100,0

(1) rank; (2) the number of valid sample units (N); (3) the share of valid answers (in percentages)

Tabela 2 - Comparison of activities which organization performs/ intend to perform for provision of constant improvements

It is for sure that managers for quality system more connected to internal audits than the chief managers. On the other hand, equality of results can also point to the fact that chief managers are well informed about events in the scope of management quality system in their organizations which would be very praiseworthy and very good for the progress of organization.

5. CONCLUSION

Continuous development of the quality system as well as the organization itself is not possible without constant improvements in organizations. There are many ways how to get to constant improvements. Certificated organizations in B&H determined themselves for certain activities which can point to directions but also to weak points which were recognized. Dominant activity on provision of constant improvements in organization will be searching for possibility through improvements of process taking part in same organizations. The integral work [1] presents analysis of what the organizations will undertake on the plan of improvement of their processes in

organization.

Listed activities certainly point to general activities which will be undertaken on the plan of provision of constant improvements. In every of those activities there will be several steps which will contribute that overall result be the new and better desired situation which we planned in the beginning of planning process of constant improvements.

Total effects gained by activities on constant improvements will not be fulfilled if we do not involve all employees in organization. Results which we will gain on the way to constant improvements will depend a lot on their involvement and motivation. Factor identification was done in integral work [1], such as: satisfaction of employees, number of innovation, number of employees, working atmosphere between employees, interest for further education and other. Given results show that employees do not get enough attention which certainly can hinder this way towards constant improvements in every organization. Therefore we suggest to organizations that one of the activities for provision of constant improvements be activities on increment of satisfactions of their employees.

REFERENCES:

- [1] Jašarević, S.: "Research of the effects of introduced quality system according to requirements of ISO 9000 standard in organizations in BiH" PhD dissertation, Faculty of Mechanical Engineering in Zenica, 2009.
- [2] Jones, R., Arndt, G., Kustin, R.: ISO 9000 among Australian companies: impact of time and reasons for seeking certification on perceptions of benefits received, *International Journal of Quality and Reliability Management*, Vol.14, No.7, pp. 650-670, 1997
- [3] Ismail, M.Y.; Hashmi, S.J.: The state of quality management in the Irish manufacturing industry, *Total Quality management*, Vol. 10, No. 6, pp. 853-862, 1999.
- [4] Prabhu, V.; Appebly, A.; Yarrow, D; Mitchell, E.: The Impact of ISO 9000 and TQM on best Practice/Performance, *The TQM Magazine*, Vol. 12, No. 2, pp. 84-91, 2000.
- [5] Lagrosen, Y., Lagrosen, S.: The effects of quality management – a survey of Swedish quality professionals, *International Journal of Operations & Production Management*, Vol. 25, Iss. 9/10, pp. 940-951, 2005
- [6] Magd, H.: An Investigation of ISO 9000 Adoption in Saudi Arabia, *Managerial Auditing Journal*, Vol. 21, No. 1, pp 132-147, 2006.
- [7] Heras, I., Landin, G., Casadesus, M.: The impact of quality management in European companies' performance: The case of Spanish companies, *European Business Review*, Vol. 18, Iss. 2, pp. 114-131, 2006.
- [8] Piskar, F.; Dolinšek, S.: Učinki standarda kakovosti ISO-Od managementa kakovosti do poslovnega modela, Fakulteta za management Koper, Znanstvena monografija, Koper, 2006
- [9] Easterby-Smith, M., R. Thorpe i A. Lowe: Raziskovanje v managementu, Koper, Fakulteta za management, 2005.
- [10] Lobe, B.: Združevanje kvalitativnih i kvantitativnih metod-stara praksa v novi preobleki?, *Družboslovne razprave*, XXII (2006), 53, page 55-73, 2006.