“ISO 9001 as a standard of quality management in Poland and Czech Republic: an analysis based on the global data”

AUTHORS
Roman Kozel
Katarzyna Hys
Šarka Vilamova
Liliana Hawrysz
Matej Hudak

ARTICLE INFO

DOI
http://dx.doi.org/10.21511/ppm.15(3-1).2017.10

RELEASED ON
Wednesday, 08 November 2017

RECEIVED ON
Wednesday, 11 January 2017

ACCEPTED ON
Sunday, 01 October 2017

LICENSE
This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

JOURNAL
“Problems and Perspectives in Management”

ISSN PRINT
1727-7051

ISSN ONLINE
1810-5467

PUBLISHER
LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER
LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES
28

NUMBER OF FIGURES
5

NUMBER OF TABLES
2

© The author(s) 2018. This publication is an open access article.
Abstract

It is vital to remember that there are numerous kinds of standards compliant with the ISO 9001 standard. ISO 9001 standard is one of many pro-quality solutions adopted in companies worldwide. Starting to apply pro-quality solutions in an organization, in particular the ISO 9001 standard implementation, is up to the decision making body. The analyses also show that the ISO 9001 standard meets the requirements of decision-making body. This trend is positive and continues to increase. Therefore, it is likely to forecast that the implementation dynamics will still be increasing in the near future.

Keywords
ISO 9001, the level of certification and the dynamics of changes, quality, management, Poland, Czech Republic

INTRODUCTION

Although quality is a multidimensional concept defined by numerous approaches to quality management (e.g., TQM, Kaizen, ISO 9001), strategies and operational activities, ISO 9001 standards are leading norms in Europe. Quality management has been adopted in Poland and the Czech Republic, which translates directly into a number of certificates issued by accredited certification units. The aim of the paper is to analyze the dynamics of issuing Quality Management System (QSM) certificates in Poland and the Czech Republic, certificates of compliance with ISO 9001 standard, in comparison to selected European countries and taking into account the situation in the world in this field. The study also identifies particular limitations such as the lack of data needed to conduct in-depth multi-criteria analyses.

BACKGROUND

“Quality” has many dimensions both in terms of managerial science and practice. From the business point of view, product quality affects the financial and non-financial benefits obtained by entrepreneurs. In holistic terms, the developed quality standards affect both the costs of an organization and its economic turnover. In terms of science, on the other hand, the quality improvement concepts, methods and tools developed by researchers are used by them to participate in the creation of quality...
improvement standards worldwide. The key international concepts of quality improvement processes in strategic and operational terms include TQM, KAIZEN and ISO 9001, amongst others.

Total quality management (TQM) is implemented worldwide by means of numerous concepts, for which a number of supporting methods and tools of strategic and operational character were developed (Hawrysz, 2016; Hys, 2015a; Borys, 2012; Conti, 2010). In general, the TQM concept is considered to be a key quality management idea at the international level. The TQM concept has a positive impact on creation of operational solutions, generally acknowledged as Kaizen and on formation of a systemic approach to quality by means of the implementation of the ISO 9001 principles (Hys, 2015b; Wolniak, 2013; Kim, Kumar, & Kumar, 2011; Marin & Ruiz-Olalla, 2011). Kaizen means “good change”, which is possible to achieve in a company by applying tools supporting these processes in a systemic manner (see Figure 1) (Imai, 1986; Vaněk et al., 2015).

On the other hand, the incorporation of the ISO 9001 standard in a given organization confirms that the implemented activities apply a systemic approach to quality management (Rusjan & Alič, 2010; Sampaio, Saraiva, & Rodrigues, 2009a; Singh, Feng, & Smith, 2006).

1. STANDARDS OF QUALITY

The approach to quality varies from country to country, but a concrete region may also play an important role here (Sucháček & Baránek, 2010). It is conditioned by many factors: firstly, it depends on the level of development and the situational context of the given society, e.g., the economic, socio-cultural, legal and political, technical and technological framework. Nowadays, three key quality management concepts: TQM, Kaizen and ISO 9001 are fostered (Sampaio, Saraiva, Rodrigues, 2009b; Saraiva, Duarte, 2003). Regardless of the differences among them and the fact that each concept suggests to employ distinct politics, strategies, methods and tools, they seem to have one common underlying idea: consolidation of activities results that aim to increase organization’s profits. The concepts of quality management constituted the basis for seeking solutions that would allow decision-makers to optimize their expenses and activity results. American, European or Japanese approach to quality management in organizations is the result of the policymakers search for solutions optimizing the effects of their actions in relation to investment (Pawliczek & Piszczur, 2013).

However, it is essential to point out that the idea to control and standardize systems, which would regulate quality level, has been present since the dawn of time. In contrast, people have been searching endlessly for additional profits in order to improve the results (though with different intensity). Quality systems have emerged and have gained the increasing popularity due to certain belief that their comprehensive application, in the
entire value chain, might facilitate achieving the main goal of a given organization. That goal is to increase profits (economic and non-economic).

In accordance with the concept of quality control, the competence models should be used to systemize competencies of managers. It is therefore essential to determine which skills are crucial for managers, and which competencies should be the most developed and perfected (Kashi & Friedrich, 2013; Hajdu, 2014). It is similarly important to optimize the use of human resources, which as already mentioned, also contributes to achieve the aims of the company. So the organization structure of the company should be designed with regards to the life cycle of the company and its products (Ministr, 2013).

The quality of managerial decision-making is influenced by a number of factors, which shall be constantly monitored. Especially, as nowadays sophisticated information systems are at hand, allowing on-line management of qualitative parameters of advanced methods of strategic as well as operational planning, production optimization and accurate fulfillment of customer requirements (Chuchrová, Vilamová, & Kozel, 2016; Danel et al., 2015; Danel et al., 2013).

2. DATA AND METHODS

Organizations used the formalized quality management compliant with the ISO 9001 standard since the early 1990s (Chiarini, 2015). In this paper, the author continues the work specified in the articles concerning the global trends of the dynamics of changes in the introduction of ISO 9001 standard-compliant quality certificates (Pawliczek et al., 2015; Hys, 2015b; Vilamová et al., 2013; Psomas & Fotopoulos, 2010). The study is focused on the issue of the company certification level compliant with the ISO 9001 standard worldwide. It has been assumed that quality stands for the level of meeting clients’ requirements, while the level of the clients’ requirements which are being met is a key factor of the economic reality assessment performed by the managers. This issue has an impact on the market possibilities of a particular company. In the context of the contribution made by the management, the quality management system in the ISO 9001 standard is considered as a system of organization management, in particular its supervision in relation to quality.

Preparation and analysis of data, as well as drawing conclusions, have been carried out based on the desk research method. The data were obtained while analyzing source materials such as: announcements, information available on the Internet, publicly available reports of companies and research institutions.

3. RESULTS AND DISCUSSION

3.1. Implementation of ISO 9001 norm by the region

The number of implementations of ISO 9001 standard performed by companies in various regions of the world is presented in Table 1.

When an organization meets requirements presented in the norm, it indicates that its quality management system is effective; with regard to its management system, it means that it meets specified requirements that have a significant impact on the results achieved by the organization.

Table 1 represents the number of ISO 9001 certificates registered from 1993 to 2015 on continents/regions.

One should pay attention to the year 2015. Out of the total number of certificates in this year, the following number consist of ISO 9001: 2008 (= 1 029 746), and ISO 9001: 2015 (= 4190).

The European countries have played a leading role since the introduction of ISO 9001 standard. It is to some extent natural and is expressed by the number of issued certificates (Table 1). Nevertheless, it is worth noting that a significant shift has been occurring recently. Europe’s contribution to the total number of certificates accounted for 81.1% in 1993, whereas the 2015 data show that the contribution currently amounts to 42.5%. Despite still being a leader, Europe’s contribution has dropped significantly – even 57.5% of its contribution was taken over by organizations from other parts of the world, i.e., East Asia and the Pacific region, in
Table 1. The number of the registered certificates by continent

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>46571</td>
<td>70364</td>
<td>127348</td>
<td>162700</td>
<td>223298</td>
<td>271846</td>
<td>343641</td>
<td>457833</td>
<td>510349</td>
<td>497919</td>
<td>660132</td>
<td>896905</td>
<td>951486</td>
<td>980322</td>
<td>1063751</td>
<td>1118510</td>
<td>1111698</td>
<td>1017279</td>
<td>1022877</td>
<td>1036321</td>
<td>1033936</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>1009</td>
<td>1177</td>
<td>1563</td>
<td>2255</td>
<td>2555</td>
<td>3342</td>
<td>4928</td>
<td>4769</td>
<td>3903</td>
<td>4529</td>
<td>3769</td>
<td>4865</td>
<td>6763</td>
<td>7441</td>
<td>7446</td>
<td>8534</td>
<td>8435</td>
<td>7667</td>
<td>7775</td>
<td>9674</td>
<td>9819</td>
<td>10143</td>
<td>12154</td>
</tr>
<tr>
<td>Central and South America</td>
<td>140</td>
<td>475</td>
<td>1220</td>
<td>1713</td>
<td>2989</td>
<td>5221</td>
<td>8972</td>
<td>10805</td>
<td>14409</td>
<td>13679</td>
<td>9303</td>
<td>17016</td>
<td>22498</td>
<td>29382</td>
<td>39354</td>
<td>37458</td>
<td>35549</td>
<td>49260</td>
<td>51663</td>
<td>51459</td>
<td>52466</td>
<td>50165</td>
<td>49265</td>
</tr>
<tr>
<td>North America</td>
<td>2613</td>
<td>4915</td>
<td>10374</td>
<td>16980</td>
<td>25144</td>
<td>33550</td>
<td>45166</td>
<td>48296</td>
<td>50894</td>
<td>53806</td>
<td>40185</td>
<td>49962</td>
<td>59663</td>
<td>61436</td>
<td>47600</td>
<td>47896</td>
<td>41947</td>
<td>36632</td>
<td>37530</td>
<td>38586</td>
<td>48579</td>
<td>41459</td>
<td>46938</td>
</tr>
<tr>
<td>Europe</td>
<td>37779</td>
<td>55400</td>
<td>92611</td>
<td>109961</td>
<td>143674</td>
<td>166255</td>
<td>190247</td>
<td>269332</td>
<td>269648</td>
<td>292878</td>
<td>242455</td>
<td>120748</td>
<td>377172</td>
<td>414208</td>
<td>431479</td>
<td>455303</td>
<td>500286</td>
<td>530039</td>
<td>492248</td>
<td>469739</td>
<td>458814</td>
<td>453628</td>
<td>439477</td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>4767</td>
<td>7719</td>
<td>19766</td>
<td>27885</td>
<td>42824</td>
<td>54671</td>
<td>81950</td>
<td>109217</td>
<td>155597</td>
<td>177767</td>
<td>185846</td>
<td>240938</td>
<td>266100</td>
<td>320320</td>
<td>354056</td>
<td>366491</td>
<td>408498</td>
<td>438477</td>
<td>471836</td>
<td>396398</td>
<td>387543</td>
<td>414801</td>
<td>422519</td>
</tr>
<tr>
<td>Central and South Asia</td>
<td>74</td>
<td>330</td>
<td>1038</td>
<td>1712</td>
<td>2963</td>
<td>3556</td>
<td>5508</td>
<td>6411</td>
<td>6348</td>
<td>9383</td>
<td>9162</td>
<td>13856</td>
<td>27966</td>
<td>44923</td>
<td>50379</td>
<td>44171</td>
<td>44432</td>
<td>37596</td>
<td>33577</td>
<td>32373</td>
<td>44847</td>
<td>44790</td>
<td>40822</td>
</tr>
<tr>
<td>Middle East</td>
<td>189</td>
<td>348</td>
<td>776</td>
<td>2194</td>
<td>3149</td>
<td>5251</td>
<td>6870</td>
<td>9003</td>
<td>9550</td>
<td>9724</td>
<td>7199</td>
<td>12747</td>
<td>13681</td>
<td>19195</td>
<td>21172</td>
<td>20469</td>
<td>24604</td>
<td>18839</td>
<td>17069</td>
<td>19050</td>
<td>20812</td>
<td>21335</td>
<td>22761</td>
</tr>
</tbody>
</table>
particular (40.9%). It is due to the changes occurring in organizations localized in East Asia and the Pacific region. These changes concern spatial transformations and allocation of industrial centers. New companies that follow the principles of cooperation with European trade partners, are actively participating in the process of standardization according to the ISO 9001 standard. The issue quality management system incompatibility was thus eliminated. Considering the existing data, it is possible to assume that this tendency will continue in the coming years.

From 1993 to 2015, the regional share in percentage is as follows: Central and South America (0.3–4.8%), North America (5.6–4.5%), Central and South Asia (0.2–3.9%), the Middle East (0.4–2.2%) and Africa (2.2–1.2%). The last global indicator taken into account is the number of countries on the particular continent, implementing the system, which is in compliance with ISO 9001 standard (Figure 2).

At present, 201 countries participate in certification process in compliance with ISO 9001 standard. In 1993, the number of countries in the world where companies have implemented standard ISO 9001 was 60. Therefore, it can be concluded that throughout past 22 years, application of standard in the business practice has increased by 30%. The fastest growth can be observed in following regions: Africa, Central and South America, Europe, East Asia and Pacific, Central and South Asia, the Middle East. In North America the number of countries does not change – it is constant. Detailed data are as follows. The ratios, however, seem to be rather unequal: Africa (51 countries), Europe (50), Central and South America (36), East Asia and Pacific (33), Middle East (14), Central and South Asia (14) and North America (still 3). Therefore, it can be noted that the developing countries are characterize by the most dynamic growth in the number of certified systems ISO 9001, i.e., BRICS (Brazil, Russia, India, China, South Africa).

3.2. Implementation of ISO 9001 in Poland and the Czech Republic in comparison to other European countries

In Europe, 50 countries implemented in their companies certificates of compliance with ISO 9001. Whereas, the number of implemented certificates ISO 9001 registered in 2015 in European countries differs significantly in the spatial arrangement. In Europe, the most active countries in the field of ISO 9001 system implementation are: Italy, Germany, United Kingdom, Spain, France and Romania. The threshold of ten thousand certificates was exceeded by the countries such as Switzerland, Poland, the Czech Republic and the Netherlands (Figure 3).
In other European countries, the average number of implemented certificates of ISO 9001 is 2,210, while the minimum number is 9 (Kosovo), and the maximum number does not exceed 9,100 (Russian Federation) (Figure 4).

Due to the purpose of the article, particular attention will be paid to implementation of ISO 9001 norm in Poland and the Czech Republic. Total number of implemented certificates in these countries in the period 1993–2015 is presented in Table 2.

Analysis of the dynamics of the implementation of the ISO 9001 standard in these countries in the years 1993–2015 shows clearly that it is the Czech Republic that has greater activity in this area (Table 2). In the analyzed period, merely in the year 2003, 2008 and 2015, Poland implemented more certificates of ISO 9001 than the Czech Republic. In the remaining years, the Czech Republic implemented far greater number of certificates. In 2015, the number of certificates exceeded significantly the average value in Europe (Figure 5).

At this stage of the analysis, the limitation of further research has been disclosed. Although quantitative data are available regarding the number of implementations of ISO 9001 in a given country, in a given year, in general and percentage approach, there is lack of an extensive database that allows to conduct in-depth research. The authors note that there is a lack of information concerning the name of companies that have already implemented certificate. This kind of database would allow for an analysis of the research problem formulated as fol-

**Table 2. The number of the registered certificates by continent**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech Republic</td>
<td>18</td>
<td>47</td>
<td>180</td>
<td>366</td>
<td>746</td>
<td>1443</td>
<td>1500</td>
<td>3855</td>
<td>5627</td>
<td>8489</td>
<td>2565</td>
<td>10781</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>16</td>
<td>130</td>
<td>260</td>
<td>669</td>
<td>768</td>
<td>1012</td>
<td>2075</td>
<td>2622</td>
<td>3091</td>
<td>3216</td>
<td>5753</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>12743</td>
<td>12811</td>
<td>10458</td>
<td>10089</td>
<td>14031</td>
<td>16242</td>
<td>12697</td>
<td>10679</td>
<td>12679</td>
<td>13229</td>
<td>10648</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>9718</td>
<td>8115</td>
<td>9184</td>
<td>10965</td>
<td>12707</td>
<td>12195</td>
<td>10984</td>
<td>10105</td>
<td>10527</td>
<td>9574</td>
<td>10681</td>
<td></td>
</tr>
</tbody>
</table>
The data on which the analysis was carried out are absolute numbers. This fact does not allow tracing the development of the company in a longer time frame. It would be important to conduct research, through which one could carry out the analysis of monitoring the impact of (un)favorable implementation of the ISO 9001 standard on the results achieved by the company.
CONCLUSION

The aim of this paper is to present and analyze trends in the scope of the implementation of quality certificates of compliance with the ISO 9001 standard. An analysis of the dynamics of changes in the scope of the number of implemented certificates of compliance with the ISO 9001 standard enable to draw the following conclusions. Generally, the number of certificates of compliance with the ISO 9001 standard has been continuously growing worldwide. In Europe, including Poland and the Czech Republic, in the field of quality management systems, ISO 9001 is a leading standard. Quality management has been adopted in these countries in 1993, which directly translates into the number of certificates issued by certification bodies. General, in 2015, in terms of the number of certificates, Poland was ranked 8th in Europe, however, the Czech Republic was ranked 9th. Analysis of the dynamics of the implementation of the ISO 9001 standard in the years 1993–2015 shows clearly that it is the Czech Republic that has greater activity in this area. Only in the year 2003, 2008 and 2015, Poland implemented more certificates of ISO 9001 than the Czech Republic.

However, taking into account comprehensive approach to issue of quality, one shall bear in mind that the number of certificates is not the only indicator of the level of quality in the particular country. Organizations, apart from ISO 9001 standard, implement other solutions, which are based on various concepts of management, such as TQM or Kaizen. Currently, however, there are not any statistic data or registries concerning the number of organizations that have adopted these philosophies. Therefore, if one wishes to perform any analysis, it has to be carried out on the basis of particular case. The following step is the recommendation to introduce a comprehensive registry of solutions implemented within Quality System Management. However, it does not mean that these companies do not meet quality standards.

ACKNOWLEDGEMENT

The article was supported by a specific university research by Ministry of Education, Youth and Sports of the Czech Republic No. SP2016/29 Creation of a system for market analysis of industrial enterprises.
REFERENCE:


