

Piotr Kafel<sup>1</sup>  
Pawel Nowicki

**Article info:**  
Received 24.07.2014  
Accepted 9.10.2014

UDC – 332.05

## FUNCTIONING OF ENVIRONMENTAL AND QUALITY MANAGEMENT SYSTEMS AFTER RESIGNATION OF MANAGEMENT STANDARD CERTIFICATION: CASE STUDY OF A POLISH ORGANIZATIONS

**Abstract:** *This paper is intended to answer questions about the main reasons to give up the management system certification as well as what happened with implemented management systems after resignation of its certification. There were chosen seven organization which had implemented and had certified at least one standardized management system (ISO 9001 or ISO 14001) and gave up its certification. The type of studies were case studies. The main results of that researches are: high cost of certification was the most important reason to give up the certification of environmental and quality management systems as well as there was found the lack of positive externalities related to certification. Another outcome form the researches leads to a statement that in most of studied organizations, managers declared that management system is still operating or partly operating. So this comes to conclusion, that no matter they have a valid certificate they still follow the standardized management systems requirements.*

**Keywords:** *ISO 14001, ISO 9001, certification, give up certification, third party certification*

### 1. Introduction

Management Systems (MS) in compliance with requirements of the ISO 9001 and ISO 14001 are the most popular systems implemented in organizations. Quality Management System (QMS) set out in the ISO 9000 series is available and used in the market since 1987. Environmental Management System (EMS) was launched in 1996 and is the most popular environmental management system all around the world. Both standards have experienced rapid

growth on the international stage. Up to the end of December 2012, at least 1 101 272, ISO 9001 certificates had been issued in 184 countries and economies. At the same time, at least 285 844 ISO 14001 certificates, had been issued in 167 countries (ISO, 2013). After an initial period of uncritical belief in the benefits resulting from the implementation of MS, a more rational approach to the use of ISO 9001 and ISO 14001 standard can be noticed (Kafel and Sikora, 2014). In spite of the fact, that number of QM certificates is still growing, the number of companies that give up MS certification is also growing (Kafel *et al.*, 2013; Alic, 2014). Positive effects of certification of MS described in literature

---

<sup>1</sup> Corresponding author: Piotr Kafel  
email: [piotr.kafel@uek.krakow.pl](mailto:piotr.kafel@uek.krakow.pl)

just few years ago, are not so important nowadays (Karapetrovic *et al.*, 2006; Heras-Saizarbitoria *et al.*, 2011). Some findings suggest that a cancelled ISO 9001 certificate could be understood as an early external signal indicating possible business problems in the organisation (Alic, 2014).

MS certification benefits can be classified into external and internal categories. The first ones are related to improvements in terms of marketing and promotional aspects, while internal benefits are related with organisational improvements (Sampaio *et al.*, 2009; Coleman and Douglas, 2003; Douglas *et al.*, 2003; Magd and Curry, 2003a; Bhuiyan and Alam, 2004; van der Wiele *et al.*, 2005). Nowadays, especially the external benefits of QMS and EMS certification are of little importance, e.g. usage of a MS certificate as a marketing tool. According to comparison of ISO 9001 benefits in years 1998, 2002 and 2006, QMS is bringing the benefits it is supposed to bring over time such as increased customer satisfaction and loyalty and decreased complaints and defects. However, most other indirect effects have either gone down or are asymptotically approaching a steady-state level. In other words, although the companies obtained many benefits thanks to the MS implementation and certification, we can observe that they are not valued as highly as they were earlier (Karapetrovic *et al.*, 2006; Honore Petnji Yaya *et al.*, 2014). Similar effect is observed in benefits of EMS. Benefits that goes from implementation and certification of EMS, described in literature and compared with the year of the article publication, it can be observed that studies published before 2000 report predominantly positive findings, while after 2000 the tables tend to show few performance improvements (Heras-Saizarbitoria *et al.*, 2011).

Organizations which certify the systems bear the costs of certification. Such costs are a significant barrier, especially for small and medium organizations (Fouayzi *et al.*, 2006; Mariotti *et al.*, 2014).

There is an essential difference between MS functioning and MS certification. Third party certification provides only the information, that a company meets the minimum system requirements specified by ISO standard. It is not a perfect indicator of the real value of the management system. Both QMS and EMS can be fully implemented and efficiently functioning without its external certification. Furthermore there is a discussion concerning a credibility of the certification bodies and benefits that are achieved due to third party surveillance (Albersmeier *et al.*, 2009; Konefal *et al.*, 2011, Djekic *et al.*, 2011).

This paper is focused on the facts that are mentioned above, and is intended to answer the following questions:

- What are the main reasons to give up the management system certification?
- What happened with implemented management systems after resignation of its certification?

## 2. Methods and materials

The study was carried out in December 2013. There were chosen seven organization which had implemented and had certified at least one standardized management system (ISO 9001 or ISO 14001) and gave up its certification. The type of studies were case studies. In each of the organizations, the person responsible for the operation of management systems (representatives of the leadership of the organization in this area) was interviewed. In two cases (organization no. 2 and 3) this interviewed person were owners of the company. The study was conducted in the form of in-depth interviews on the basis of pre-prepared script. All interviews were audio recorded. The developed scenario based on main management requirements of ISO 9001 and ISO 14001. Characteristics of studied organization are contained in Table 1.

**Table 1.** Characteristics of the organizations.

Organization	Characteristics
Organization 1.	One of the largest electrical system installation companies on the Polish market operated since 1949. Company has been providing specialist electrical systems and supplying control and switchgear equipment for the Polish market as well as foreign markets, for all branches of heavy and light industry. Number of employees: 180 Year when ISO 9001 was certified: from 1998 to 2010
Organization 2.	One of the leading companies in the area of development of green areas. The main activities of the studied organization are: the development of green areas, in particular the scope of services offered include: consultancy - at the level of projects and the design of developed land, construction services and equipping playgrounds. Number of employees: 20 Year when ISO 9001 was certified: from 2010 to 2013
Organization 3.	Organization in the printing industry, providing printing services including design, graphic design, composition, prepress, printing and bookbinding. Organization specializes in offset and digital printing. Number of employees: 9 Year when ISO 9001 certificate was valid: from 2011 to 2012
Organization 4.	The main activity of the organization is distribution of door handles, fittings and accessories for doors and windows. Number of employees: 35 Year when ISO 9001 was certified: from 2009 to 2012
Organization 5.	Leading manufacturer of agricultural machines and garden equipment in Poland. Number of employees: 400 Year when ISO 9001 has been certified: from 2007 Year when ISO 14001 was certified: from 2007 to 2013
Organization 6.	Regional hospital, one of the largest medical facility in Poland. Number of employees: 2000 Year when ISO 9001 was certified: from 2010 to 2013 Year when ISO 14001 was certified: from 2010 to 2013
Organization 7.	Organization offers comprehensive services in the scope of widely-understood flow of information in companies. The scope of services provided to big enterprises processing plenty of documents includes: mailing room service, electronic document archiving, registering data in the client's systems, electronic flow of documents and paper document management. Number of employees: 700 Year when ISO 9001 was certified: from 2007 to 2013 Year when ISO 14001 was certified: from 2007 to 2013

The most popular management systems are built on the requirements of ISO 9001 and ISO 14001 standards. Studied companies implemented and certified also other management systems. Organization no. 5

had implemented occupational health and safety system OHSAS 18000 together with ISO 14001, and gave up certification of this systems in 2013. Organization no. 6 had implemented OHSAS 18000 system and

gave up its certification together with ISO 9001 and ISO 14001.

### 3. Benefits and difficulties coming from normalized systems certification

It is quite obvious to separate benefits coming from normalized systems implementation and certification on benefits coming from system itself as well as from certification of those systems. In the available literature these benefits are usually described together and authors do not separate them.

Certification with a management standard may represent an attempt to communicate about desirable organizational attributes to parties that cannot observe them directly. This lead to such competitive advantage as preferred supplier status, a more consistent supply of orders, or reduced sales costs (Terlaak and King, 2006).

Certificate can increase credibility of organization, not only in the area of high quality of products mainly due to ISO 9001 certificate but also in other areas. Certification leads to enhancement of company's image (Turk, 2009). Companies with ISO 14001 are perceived as more responsible and engaged in environmental issues. According to Potoski and Prakash joining ISO 14001 certification, an important non-governmental voluntary program, improves facilities' compliance with government regulations (Potoski and Prakash, 2005).

All above mentioned advantages of MS certification are independent of "the quality" of implemented management systems. Certification provides a competitive advantage whether or not the standard actually improves the organization's operational performance (Terlaak and King, 2006; Djekic *et al.*, 2014). The value of this benefits is decreasing nowadays, and some of the organizations decide that the cost of certification is higher than the effects from

it. Decreasing value of MS certification benefits is connected with increasing number of organizations that implemented and certified MS. Managers and clients have the wider knowledge about the minimal MS requirements that are sufficient to get the certificate. It is also worth to mention that the most important basic principle of all normalized systems is further continuous improvement as well as not stopping on minimal requirements. Nevertheless, the value of certificates has definitely decreased lately. Not without significance is the matter of competition on the certification bodies, which lead to the decrease of certificates' credibility. All this factors leads to the decision to give up a certification, which is paradoxically consistent with the 7th quality principle - factual approach to decision making (ISO, 2005).

MS conformity certificate, as a paper, is not the only one benefit that can be used by certified organizations. There are also internal benefits that goes from certification surveillance processes. Certification audits which are performed during the certification process are very often pointed out as an important source of information in the processes improvement. In an investigation of 103 organizations registered to ISO 9001, ISO 14001 and OHSAS 18001, Salomone in his paper presented the optimization and/or unification of external audits (certification audits) as one of the benefits obtained from the implementation of an integrated management system as well as points it out as one of the most important in organization's improvement (Salomone, 2008). Other important benefit which goes from the involvement of certification body is the motivation effect that can be used by the persons responsible for MS (Bernardo *et al.*, 2010). Annual audits and probability of an extra supervision audits can also motivate to continuous maintenance and improvement of the system.

## 4. Cases' analysis

### 4.1 Resignation of the MS certification - main reasons

Quality managers were asked about the main reason of resignation of ISO 9001 and ISO 14001 certification. High cost of certification was the most important reason to give up the certification of MS. Only in organization no. 2 and 7 the reasons were different. Organization no. 2 was in the process of consolidation within the group of companies. Organizational changes were quite rapid and severe. Top managers decided to give up the certification, until the end of consolidation process. In organization no. 7 the reason to quit the certificate process was quite similar. This company has changed the office and other buildings. Because of the new localization, it was required to update management system and there was no possibility to move the documentation of all processes and easily adopt it in new buildings and facilities. A manager responsible for the management system decided that, the recertification process will be renew after few months that are needed to adjust the system to new localization and carry out an internal audits in both quality and environmental areas. In case of company no. 6 the other reason that had influenced this situation was merging process with another organization. They explained, that when they became one organization the adaptive process (for example training another internal auditors, development of new documentation etc.) lasted too much time, so they could not fulfill the requirements to implement all the procedures at the exact time.

In another two cases (organization no. 1 and 5) an important reason to resign from the certification, was lack of positive externalities related to certification. As an example of such benefits, marketing advantage and requirements of clients were pointed out. According to manager of organization no. 1 clients do not ask about

the MS certificates in the process of supplier selection nowadays. So there is no need to pay for that. This is not a separate case when client do not need MS certificate anymore. In other studied organizations managers have the same opinions. Only in the company no. 5, ISO 9001 standard is still certified because of the external clients requirements.

Only in one case (organization no. 3) lack of positive internal effects as a reason to give up certification was indicated. Quality and environmental managers in other six organizations admit, that implemented management system have contributed to the development of organization and it had been a good decision to implement and certify this system in the past.

The main goal of this study was the verification of the management system functioning in the organization, when there is no longer external third party system surveillance. Only in organization no. 3 resigning from certification was tantamount to management system cancelation. In other studied organizations managers declared that management system is still operating (organizations no. 2, 4, 5, 6) or partly operating (organizations no. 1 and 7).

The motivation for MS certification is a significant and positive predictor of the benefits derived from certification (Terziovski *et al.*, 2003). Matuszek-Flejszman gives a number of reasons for implementing the management system which are (Matuszek-Flejszman, 2009):

- care for the environment,
- accepted development strategy of the company,
- development guidelines for the quality management system in use,
- influence of any third parties on the activity of the company,
- possible growth in exports of company products,
- compliance with legal requirements,
- raising pro-ecological awareness of the employees,
- interest of the local community in the

- activity of the company,
- improving environmental impact,
- planning to increase market share

All mentioned above reasons for implementing the management systems are more like external. According to the studies, enterprises tend toward placing a higher degree of significance on motivation of an external nature than that of internal motivation, but internal motivations were also taken under consideration (Heras and Arana, 2010; Molina-Azorín *et al.*, 2009; Psomas *et al.*, 2010).

Managers of studied companies were asked about the main motivations to implement and certify MS in order to compare them with decision to stop maintain the implemented MS. The main purpose to implement QMS in organizations no. 3 was external reason. This company was applying for the EU funds and one of the requirements was to have quality management system implemented. So once they had not received this funds, they were not interested in maintaining a quality system. They also pointed that there were no real benefits of implemented QMS, so there was no purpose to sustain the system. This company had their QMS system implemented only for a year, so they did not have enough time to convince about the benefits that are carried out by the system. In other organizations the motives of implementation and certification of MS were mixed – internal and external ones, but all this organizations decided to still maintain the MS without the supervision of third party certification body.

At the same time the managers answered question, if they are planning to undergo the certification process in near future. Only in case of company no. 3, according to the information mentioned above, they definitely are not interested in the recertification process. Regarding the companies no. 1, 2 and 4 there was no decision made in this aspect. The main reasons for undergoing the recertification process are: customer

requirements (company no. 1) and financial condition (company no. 2 and 4). In case of companies no. 6 and 7 they are willing to recertificate their systems but in different period of time. The company no. 6 aims to do it in 3 years period of time and company no. 7 during the following year. It shows that this two companies are at the different stage of composing their new documentation as well as it shows that the adopting process to new situation within those two companies is unlike and shows that the company no. 7 copes better in that area.

#### 4.2 Cases of ISO 14001 give up certification

One of the objectives of this research was the verification if the environmental system is still working, or the company had stopped to follow the rules after they had given up certification. In companies no. 5 and 6 the system is still fully running including all the required procedures. However in case of company no. 7 the manager said that the system is working partly only, because being at the stage of adopting procedures they are not able to fulfill all of the systems' requirements. He pointed out that the only procedure that is not working at the time of interview is internal audit. The partly working procedures according to the ISO 14001 standard requirements were (ISO, 2004): environmental objectives, targets and programme (4.3.3.), competence, training and awareness (4.4.2), communication (4.4.3) as well as control of records (4.5.4). Besides that, all other procedures were fully running.

The managers were asked about which environmental records according to ISO 14001 are still controlled after giving up certification as well. The results are presented in table 2. It can be seen that in companies no. 5 and 6 all environmental records are still controlled. The companies representatives emphasized that is because no matter they need to follow the environmental law requirements or to obey

the environmental management systems rules in consequence they have to keep those records done, so the lack of certificate had not changed anything. Regarding company no. 7 in this aspect, they do not keep all the records up to date, because as it has been mentioned before being at the stage of adopting procedures they are not able to control all the records. The representative of

this company also pointed out that there has been other very important issues for them, that remained from the system such as: business continuity plan and safety and security continuity plan, which for them are one of the most important issues that let them keep working within emergency situations.

**Table 2.** Still controlled environmental records in the companies after resignation from certification.

Records	-1- Existed before implementation of 14001 (Y/N)			-2- Were implemented or significantly changed in implementation / certification of 14001 process (Y/N)			-3- Still exists (Y/N); If yes, records are collected more like in point 1 or 2? 1/2		
	Company no.			Company no.			Company no.		
	5	6	7	5	6	7	5	6	7
complaint records	N	Y	Y	Y	Y	N	Y	Y	Y
training records	N	Y	Y	Y	Y	N	Y	Y	Y
process monitoring records	N	N	Y	Y	Y	N	Y	Y	Y
inspection, maintenance and calibration records	N	Y	Y	Y	Y	N	Y	Y	Y
pertinent contractor and supplier records	N	N	P	Y	Y	Y	Y	Y	Y
incident reports	N	N	Y	Y	Y	N	Y	Y	N
records of tests for emergency preparedness	N	N	Y	Y	Y	N	Y	Y	Y
audit results	Y	N	N	N	Y	Y	Y	Y	N
management review results	N	N	N	Y	Y	Y	Y	Y	N
external communications decision	N	N	N	Y	Y	Y	Y	Y	Y
records of applicable legal requirements	N	N	Y	Y	Y	N	Y	Y	Y
records of significant environmental aspects	N	N	N	Y	Y	Y	Y	Y	Y
records of environmental meetings	N	N	N	Y	Y	Y	Y	Y	N
environmental performance information	N	N	N	Y	Y	Y	Y	Y	N
legal compliance records	N	N	Y	Y	Y	N	Y	Y	Y
communications with interested parties	N	N	N	Y	Y	Y	Y	Y	N

Next question was to list the three most positive and the three most negative elements of the ISO 14001 system. None of the representatives pointed any negative elements and they only listed the positive ones. The most important were: waste segregation, business continuity plan (e.g. usage of UPS - uninterruptible power supplies), regularity at work, employees awareness on environmental issues, knowledge of actual law requirements, estimation and measure of impact on the environment costs on which they can save money. All those positive elements of the system mentioned above, according to managers let them to easily run the business and to avoid any unexpected problems as well as to be prepared for any emergency situations.

The other advantages that were a result of functioning of the integrated management system were a prizes that the companies were receiving. All the companies were the beneficiaries of the fund of regional quality awards, that also proves their maturity as an organization as well as effective management of the integrated management systems.

### 4.3 Cases of ISO 14001 give up certification

Managers were asked about the sustaining of the obligatory procedures that are required by ISO 9001 standard. In table 3 there are the results provided by the managers during the case studies.

**Table 3.** QMS procedures operating in organizations after giving up the certification.

ISO 9001 procedure	Organization number					
	1	2	3	4	6	7
Internal audit	No	No	No	Partly	Yes	Partly
Corrective and preventive action	Partly	Partly	No	Yes	Yes	Yes
Supervision of documentation and records	Yes	Yes	No	Yes	Yes	Partly
Supervision of nonconforming product	Yes	Yes	No	Yes	Yes	Yes

In studied organizations fulfillment of the internal audit requirements is the most problematic issue. Only one organization carry out internal audits in the same way, as when the QMS was under the third party surveillance. In organization 4 and 7 audits are still carried out, but the frequency and scope of audits is limited. Supervision of nonconforming product procedure is still under usage without any limitations in all six organizations that declared operating of QMS.

Up-to-date MS documentation can be recognized as one of the indicators of QMS maintaining. In studied companies managers were asked about such documents as: quality manual, quality policy and map of processes. In organization no. 3 none of this documents has left. Two companies which gave up certification due to organizational changes

(no. 2 and no. 7), claimed that a quality policy is still valid, but quality manual and map of processes required updating. This update will be done after finishing the organizational changes. In remaining organizations all documents mentioned above are in daily usage and are valid.

Managers were also asked about the ISO 9001 requirements that had been conducted only in order to maintain certification process, and had not provided any real benefits for the company. Only in two organizations quality managers pointed out such requirements. One of them described the usage of some process indicators that was considered redundant. In other company recording of some correction actions was sometimes carried out differently than in the procedure requirements. Both described situations were rather problems of

inappropriate implementation of standard requirements than a problems of the standard itself. Remaining quality managers couldn't point out such examples, but they listed most negative and most positive elements of the system. The most negative elements of the ISO 9001 in studied organizations are:

- necessity of keeping detailed records which are not used sometimes (bureaucracy),
- internal audits that required regularity at work (this was a negative element for some staff but it was a benefit for top management),
- costs of certification and QMS maintaining

The most positive elements of the ISO 9001 in studied organizations are:

- improvement of internal communication,
- systematization of processes in organization,
- organizing documentation and records (e.g. possibility to easily locate needed information).

## 5. Discussion and conclusions

To sum up all the above mentioned research analysis, it can be pointed that high cost of certification was the most important reason to give up the certification of environmental and quality management systems as well as there was found the lack of positive externalities related to certification. Only in one case (organization no. 3) lack of positive internal effects as a reason to give up certification was indicated. Another outcome from the researches leads to a statement that in most of studied organizations, managers declared that management system is still operating (organizations no. 2, 4, 5, 6) or partly operating (organizations no. 1 and 7).

So this comes to conclusion, that no matter they have a valid certificate they still follow the standardized management systems requirements. In studied organizations fulfillment of the internal audit requirements is one of the most problematic issues. Maintenance of internal audits at a level similar to that one which had been before certification, may be regarded as a good indicator of the actual functioning of the environmental and quality management systems in the surveyed organizations. Resignation from E&QMS certificate seems to be a decision worth to analyse. As indicated in the research, it is not always synonymous with a negative attitude towards the management system itself. The ability to give up the certification undoubtedly depended on a thorough analysis of the costs and benefits that it carries out. For some branches, where there is a higher level of industry certification or clearly defined clients requirements, it may not be possible. However, in most of the cases, clients of the studied organizations do not require to have a certified E&QMS from suppliers, so there is another issue not to spend money on system certification.

This article describes 7 cases. There is a need to continue to research that topic on a wider number of companies. Authors assume that in the future it would be reasonable to compare the motivations of giving up certification with the quality or environmental maturity of organisations. During the interviews with the company representatives, authors get the conviction that most of studied companies had low maturity level and the reason for that was: e.g. not using quality tools, which causes the lack of environmental and quality management system improvement.

## References:

- Albersmeier, F., Schulze, H., Jahn, G., & Spiller, A. (2009). The reliability of third-party certification in the food chain: From checklists to risk-oriented auditing. *Food Control*, 20(10), 927-935.
- Alic, M. (2014). Impact of ISO 9001 certification cancellation on business performance: a case study in Slovenian organisations, *Total Quality Management & Business Excellence*, DOI: 10.1080/14783363.2014.906107.
- Bernardo, M., Casadesus, M., Karapetrovic, S., & Heras, I. (2010). An empirical study on the integration of management system audits. *Journal of Cleaner Production*, 18(5), 486-495.
- Bhuiyan, N. & Alam, N. (2004). ISO 9001:2000 implementation-the North American experience, *International Journal of Quality & Reliability Management*, 53(1), 10-17.
- Coleman, S. & Douglas, A. (2003). Where next for ISO 9000 companies? *The TQM Magazine*, 15(2), 88-92.
- Djekic, I., Tomasevic, I., & Radovanovic, R. (2011). Quality and food safety issues revealed in certified food companies in three Western Balkans countries, *Food Control*, 22(11), 1736-1741.
- Djekic, I., Tomic, N., Smigic, N., Tomasevic, I., Radovanovic, R., & Rajkovic, A. (2014). Quality management effects in certified Serbian companies producing food of animal origin, *Total Quality Management & Business Excellence*, 25(3-4), 383-396.
- Douglas, A., Coleman, S., & Oddy, R. (2003). The case for ISO 9000, *The TQM Magazine*, 15(5), 316-24.
- Fouayzi, H., Caswell, J., & Hooker, N. (2006). Motivation of fresh-cut produce firms to implementation of quality management systems, *Review of Agricultural Economics*, 28(1), 132-146.
- Heras, I., & Arana, G. (2010). Alternative models for environmental management in SMEs: the case of Ekoscan vs. ISO 14001. *Journal of Cleaner Production*, 18(8), 726-735.
- Heras-Saizarbitoria, I., Molina-Azorín, J.F., & Dick G.P.M. (2011). ISO 14001 certification and financial performance: selection-effect versus treatment-effect, *Journal of Cleaner Production*, 19(1), 1-12.
- Honore Petnji Yaya, L., Marimon, F., & Casadesus, M. (2014). The revitalising effect of ISO 9001 on dissatisfied customers, *Total Quality Management & Business Excellence*, DOI: 10.1080/14783363.2014.904567.
- Kafel, P., & Sikora, T. (2014). The level of management maturity in the Polish food sector and its relation to financial performance, *Total Quality Management & Business Excellence*, 25(5-6), 650-663.
- Kafel, P., Nowicki, P., & Sikora, T. (2013). The quality management system in companies after the resignation of its certification (in polish), *Problemy Jakości*, 10, 17-20.
- Karapetrovic, S., Casadesus, M., & Heras, I. (2006). *Dynamics and integration of standardized management systems. An empirical study*. Girona, Dokumenta Universitaria.
- Konefal, J., & Hatanaka, M. (2011). Enacting third-party certification: A case study of science and politics in organic shrimp certification. *Journal of Rural Studies*, 27(2), 125-133.
- Magd, H., & Curry, A. (2003). An empirical analysis of management attitudes towards ISO 9001:2000 in Egypt, *The TQM Magazine*, 15(6), 381-90.

- Mariotti, F., Kadasah, N., & Abdulghaffar N. (2014). Motivations and barriers affecting the implementation of ISO 14001 in Saudi Arabia: an empirical investigation, *Total Quality Management & Business Excellence*, DOI: 10.1080/14783363.2014.912038.
- Matuszak-Flejszman, A. (2009). Benefits of Environmental Management System in Polish Companies Compliant with ISO 14001. *Polish Journal of Environmental Studies*, 18(3).
- Molina-Azorín, J.F., Tarí, J.J., Claver-Cortés, E., & López-Gamero, M.D. (2009). Quality management, environmental management and firm performance: a review of empirical studies and issues of integration. *International Journal of Management Reviews*, 11(2), 197-222.
- Potoski, M., & Prakash, A. (2005). Green clubs and voluntary governance: ISO 14001 and firms' regulatory compliance. *American Journal of Political Science*, 49(2), 235-248.
- Psomas, E.L., & Fotopoulos, C.V., & Kafetzopoulos, D.P. (2010). Critical factors for effective implementation of ISO 9001 in SME service companies. *Managing Service Quality*, 20(5), 440-457.
- Salomone, R. (2008). Integrated management systems: experiences in Italian organizations, *Journal of Cleaner Production*, 16(16), 1786–1806.
- Sampaio, P., Saraiva, P., & Rodrigues, A.G. (2009). ISO 9001 certification research: questions, answers and approaches. *International Journal of Quality & Reliability Management*, 26(1), 38-58.
- Terlaak, A., & King, A.A. (2006). The effect of certification with the ISO 9000 Quality Management Standard: A signaling approach, *Journal of Economic Behavior & Organization*, 60(4), 579-602.
- Terziovski, M., Power, D., & Sohal A.S. (2003). The longitudinal effects of the ISO 9000 certification process on business performance, *European Journal of Operational Research*, 146(3), 580-595.
- Turk, A.M. (2009). The benefits associated with ISO 14001 certification for construction firms: Turkish case, *Journal of Cleaner Production*, 17(5), 559-569.
- van der Wiele, T., Iwaarden, J., Williams, R.m & Dale, B. (2005). Perceptions about the ISO 9000 (2000) quality system standard revision and its value: the Dutch experience, *International Journal of Quality & Reliability Management*, 22(2), 101-119.

---

**Piotr Kafel**

Cracow University of  
Economics,  
Department of Quality  
Management  
Rakowicka 27  
31-510 Cracow  
Poland  
[piotr.kafel@uek.krakow.pl](mailto:piotr.kafel@uek.krakow.pl)

**Pawel Nowicki**

Cracow University of  
Economics,  
Department of Quality  
Management  
Rakowicka 27  
31-510 Cracow  
Poland  
[pawel.nowicki@uek.krakow.pl](mailto:pawel.nowicki@uek.krakow.pl)

---

