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IMPROVEMENT, INNOVATION, AND LEARNING ACCORDING TO THE ISO 9004 MANAGEMENT MATURITY MODEL. A CASE STUDY OF POLISH AND MONTENEGRIN ORGANISATIONS

Abstract

The aim of this research was to analyse the level of management maturity in Polish and Montenegrin organisations as well as to explore best practices in improvement, innovation, and learning (one of the key elements of the management maturity model). The self-assessment model used in the research was based on the ISO 9004:2009 maturity model. Four organisations were selected for the study: two Polish and two Montenegrin.

In all the selected companies, the level of management maturity according to the ISO 9004 model was assessed as above average. The implementation and certification of international management standards allowed maturity to be assessed at the third level. A higher rank in management maturity requires additional improvements in the management system. The results of the analysis suggest that Polish organisations have more opportunities to raise funds for improvement and innovation. Both Polish companies are beneficiaries of EU funds. These funds play an important role in innovation and learning processes (e.g. e-learning programmes). In the Polish

companies, the online staff training system is very popular and well assessed, and was recognised as the difference between the Polish and Montenegrin organisations. All the researched organisations emphasised the importance of staff training for management system improvement. The most significant difference between the Polish and Montenegrin organisations lies in innovation, which is more developed in the Polish companies.

Keywords: ISO 9004, ISO 9001, organisation maturity level, management systems, innovation.

1. Introduction

Organisations may develop their ideas and practices according to a quality management standard such as the ISO 9001, which is available and has been used in the market for almost 25 years. Moreover, organisations can improve a management system with the guidelines provided in the excellence models (Bayo-Moriones *et al.* 2011, Martínez-Costa, Martínez-Lorente & Choi 2008, Giemza 2012, Vujovic, Krivokapic & Jovanovic 2010). It is considered that the most popular excellence model in Europe is the EFQM Excellence Model. The EFQM Excellence Model was introduced in 1991 as a framework for the self-assessment of both public and private sector organisations (Ansoleaga 2007, Mariscal, García Herrero & Toca Otero 2012). The other most recognised organisational quality awards are the Malcolm Baldrige National Quality Award and the Deming Prize.

Table 1
Key Elements of Management Maturity

Key element no.	Key element	Key element – question
1	Managing	What is the management focus?
1	Managing	What is the leadership approach?
2	Strategy & policy	How is it decided what is important?
3	Resources	How is it decided what is important?
4	Processes	How are the activities organised?
5	Monitoring & measurement	How are results achieved?
5	Monitoring & measurement	How are results monitored?
6	Improvement, innovation & learning	How are improvement priorities decided?
6	Improvement, innovation & learning	How does learning occur?

Source: based on ISO 9004:2009.

In 2009, the International Organisation for Standardisation introduced the ISO 9004:2009 model of self-assessment, which provides a wider focus on quality management than the ISO 9001:2008, and leads to sustained success (ISO 2009). The standard provides two self-assessment tools that help conduct the assessment and calculate the level of management maturity. Those tools are: self-assessment of key elements and detailed self-assessment of key elements. Table 1 presents the key elements of management maturity and key element questions in the self-assessment model.

The aim of this research was to analyse the level of management maturity in Polish and Montenegrin organisations as well as to explore best practices in the improvement, innovation, and learning key element of the management maturity model. The reason for comparing Polish and Montenegrin organisations was the cooperation between the authors and opportunity to collect data from those countries.

2. Methods and Materials

There were four organisations selected for the study. The organisations had introduced and certified at least one standardised management system. It was assumed that the level of management maturity in the investigated organisations was above average. The organisations under analysis were selected on the basis of knowledge and experience of the authors of this paper. The analysis was conducted in the form of case studies. In all four organisations, employees responsible for the functioning of management systems were interviewed. Each case study was conducted in the form of in-depth interviews based on a pre-prepared script. The scenario was developed based on the ISO 9004:2009 model.

Table 2 presents a brief description of the studied organisations.

All the selected and tested organisations are considered leaders in quality management. The management systems implemented in these organisations can be divided into general management systems, which can operate in any organisation regardless of the nature of production, and standards dedicated to specific industries. Table 3 presents the management systems operating in the surveyed organisations, in compliance with which currently valid certificates are issued by independent certification bodies.

Certified systems in both Polish organisations are deeply integrated. Organisation 2 has a certificate confirming integration of the management systems¹.

¹ The certification of integrated management systems in Polish organisations is described extensively in Kafel, Nowicki & Sikora (2012).

Organisation 1 has also implemented TPM – Total Productive Maintenance rules. Organisation 2 has been certified for compliance with the Polish anti-corruption system. This system was developed and certified by the biggest Polish certification body. The system is dedicated for public administration organisations.

Table 2

Description of the Studied Organisations

Organisation no.	Description
Organisation 1	One of the largest ceramic tile manufacturers in Poland, supplying renowned products to customers in Poland and nearly 40 countries around the world; a group of 5 manufacturing plants located in Poland with 1700 employees. Value of assets: 163 million EUR in 2011, value of revenue: 147 million EUR in 2011
Organisation 2	One of the Polish regional public administration offices, with 1000 employees. The organisation has a head office and seven branches in the south of Poland. It is one of sixteen public administration offices in Poland
Organisation 3	The most important and the only large viticultural-wine making company in Montenegro. It deals in the production of wine and table grapes, peaches, the production and distribution of wine and grape brandies, fish farming, catering, and retail. It is also the biggest producer of wine and table grapes in Montenegro and its surroundings, with an annual production of wine grapes of about 22 million kilos and with approximately 17 million bottles sold annually
Organisation 4	A leading organisation in bakery products in Montenegro. It has automated plant with modern equipment for the production of bread, pastries, and fine bakery products; altogether over 150 products

Source: authors' own study.

Table 3

Certified Systems in the Selected Organisations

Organisation 1	Organisation 2	Organisation 3	Organisation 4
ISO 9001	ISO 9001	ISO 9001	ISO 9001
ISO 14001	ISO 14001	ISO 14001	HACCP
PN-N 18001	PN-N 18001	HACCP	
OHSAS 18001	ISO/IEC 27001		

Source: authors' own study.

Both Montenegrin organisations (organisations 3 and 4) are certified according to the ISO 9001 standard and HACCP system. Among many prestigious awards, organisation 3 also has the “Gold European award for quality and commercial prestige from Geneva and Rome”. It is also the winner of the Serbia and Montenegro Quality award (Oskar kvaliteta), which is an award of the EFQM model at the national level. Organisation 3 is also certified according to the ISO 14001 standard. Organisation 4 won the “Well of Montenegro” award, which the Chamber of Economy of Montenegro grants to organisations providing products with the highest level of quality.

The quality awards and certificates confirm the high level of the management system in all the studied companies. All the studied organisations have received awards at the national level. Organisation 2 won the Polish Quality Award in 2006, which is an award of the EFQM model at the national level.

3. Level of Management Maturity

The interviewed employees of the analysed organisations were asked to conduct a self-assessment of management maturity. The results of the self-assessment are presented in Fig. 1 and 2.

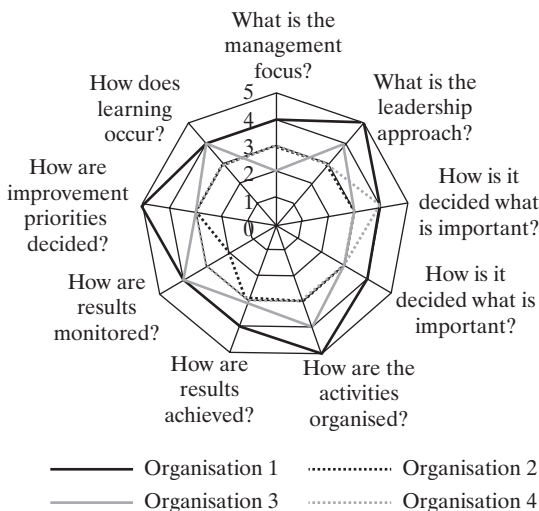


Fig. 1. Key Elements of the Maturity Level of the Studied Organisations

Source: authors' own study.

The results of the self-assessment in the studied companies are diversified. The level of maturity was assessed highest by the Polish production organisation (organisation 1). The other three organisations gave themselves a similar assessment.

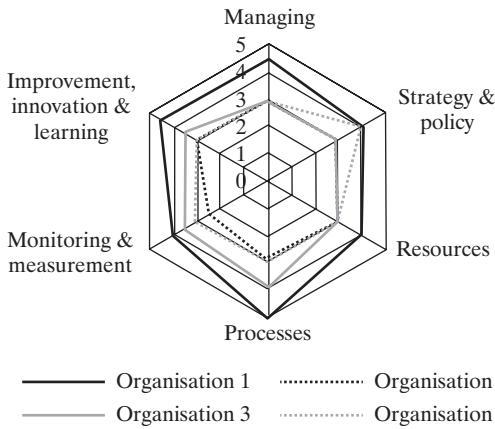


Fig. 2. Results of the Self-assessment of the Studied Organisations

Source: authors' own study.

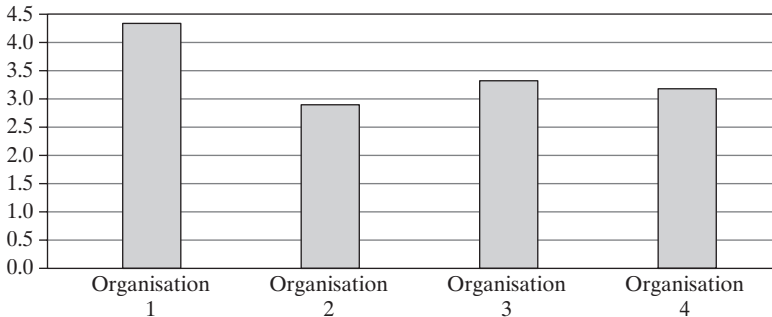


Fig. 3. Overall Level of Management Maturity of the Studied Organisations

Source: authors' own study.

The level of management maturity of an organisation was calculated as an arithmetic mean of the assessed maturity levels of particular key elements. The lowest result was 2.9. All the key elements in that company, except for the monitoring & measurement key element, were assessed at level 3. The highest maturity level among the studied organisations was 4.3. Fig. 3 presents the level of management maturity in detail.

4. The Improvement, Innovation, and Learning Key Element in the Studied Organisations

The improvement, innovation, and learning key element in the ISO 9004 maturity model is divided into four subclauses: general, improvement, innovation, and learning. The interviewed employees of the studied organisations were asked to assess the maturity level and provide examples of best practices in these subclauses of the improvement, innovation, and learning key element.

In organisation 1, maturity in the first subclause (general) was assessed at level 5. One subdivision of the company is responsible for comparing market and product indicators with the main competitors in the industry. The compared indicators are: volume of sales, average prices of products, product innovation, and product technology. Improvement is embedded as a routine activity across the company. Improvement efforts are also carried out routinely for suppliers and partners. Business partners are educated continuously. There is a special B2B platform which helps, among others, with improvement activities.

There are five manufacturing plants in the organisation and this helps with improvement and innovation projects. In 2011, two different organisational structures were tested in two plants. Subsequently, the more efficient one was chosen and implemented in all plants within the group. A new working shift system was chosen in a similar manner. This method is also very helpful in small innovations suggested by workers – kaizen actions. These improvements are also implemented in all plants, where applicable.

In organisation 2, due to the range and character of services provided, big improvement projects are implemented with the support of EU funds. One of these was the introduction of a “help desk” within the organisation. The main goal of this project was to integrate and coordinate technical support for employees. Due to the implementation of the project, tools such as a problem registration centre, necessary application forms, documents, and IT hardware registers were easily accessible to all employees in the organisation.

Radical improvements in organisation 3 are not possible for financial reasons. In this field, Polish organisations have wider opportunities of raising funds for improvement and innovation. Both Polish companies benefit from EU funds.

Improvement assessment in the ISO 9004 maturity model has a major influence on the level of management maturity in the studied key

element. The analysed organisations have implemented and certified management systems. In all these systems (ISO 9001, ISO 14001, ISO 27001), improvement efforts in specific areas of management are obligatory. The PDCA improvement model has been implemented in all the studied companies. Internal and external audits are used in the process of improvement. Other common input data in the process include customer satisfaction survey results, customer feedback, preventive and corrective actions, and management review outputs.

In both Montenegrin organisations, staff training in quality and safety was well-developed. In organisation 3, in-house training, seminars, as well as the use of specialist literature, manuals, technical documentation, and exchange of experience with other organisations are provided.

Organisation 1 involves partners and other organisations in innovation processes. Cooperation with universities is well-developed, mainly in common research areas. In 2012, organisation 1 applied for a patent to protect a new technology for the production of ceramic tiles with antibacterial coating. Currently, work in the organisation is under way to develop so-called fit ceramic tiles technology. This is a new production technology that allows ceramic tiles thinner than standard tiles to be obtained without a decrease in the product's strength parameters.

Securing a patent is a costly and laborious process. According to the quality manager of organisation 1, there are several innovative products and technologies in the company that could be patented, but this is too expensive. Over the previous five years there was one case of another company using a new production streamlining method developed by organisation 1 and patenting it as their own. Since then, more restrictive procedures in the area of innovation protection have been implemented.

Organisation 2 operates in public service sector, so there are no products or technologies to be patented, but the organisation continuously develops the standard of services. The interviewed manager of organisation 2 saw the newly-implemented qualified electronic signature for all department managers as very innovative. A new website has been constructed in this organisation to communicate with clients. With the help of this website, certain tasks can be achieved without the client having to visit the office. These efforts help improve the organisation's efficiency.

There is very limited innovation in both Montenegrin organisations. Innovation efforts are based on data that are related to customer needs and expectations. As a result, organisation 4 provides a very wide range of products. The possibilities for innovative use of the ISO 9001 standard

are widely discussed in the literature. According to Urban (2012), a quality management system can facilitate and lead to organisational innovation.

The next subclause in the studied maturity key element is learning. Learning plays important role in all four organisations. Appropriately implemented ISO 9001 requirements should ensure that the organisation reaches the third level of maturity in the learning subclause of the ISO 9004 model. According to the ISO 9001 standard, the organisation should provide training or adopt other measures to ensure that the organisation's personnel have the appropriate skills (ISO 2008). All the studied companies have well-developed training programmes.

Online learning systems are quite popular nowadays. The advantages of e-learning for learners include increased access to information, better content delivery, personalised instruction, content standardisation, accountability, on-demand availability, self-pacing, interactivity, confidence, and increased convenience. E-learning reduces costs and enables the consistent delivery of content (Bhuasiri *et al.* 2012). Both Polish organisations offer e-learning courses to their employees. In organisation 1, there are some e-learning courses available for staff employed in retail outlets that are independent of the organisation. An additional benefit for the company is the possibility to obtain important market information from the learners. In organisation 2, the e-learning programme is divided into three main categories: preparatory proceedings service, internal training, and new staff recruitment. The first topic covered by e-learning relates to qualified electronic signatures.

Learning in all the researched organisations is recognised as a key issue. In all the studied organisations, clients are important sources of information. Customer complaints are taken seriously and always used in improvement efforts.

In organisation 1, top management supports learning activities. Part of the learning process is strictly connected with the kaizen programme. In both Polish companies there are special funds allotted to postgraduate courses for staff. Usually, the companies cover 50% to 75% of the total cost of the course.

In organisation 3, training is planned and delivered by its own experts as well as external trainers. The aim of training is to acquire new knowledge and skills related to products, processes, industrial safety, and the importance of implementing QMS and HACCP. The level of acquired knowledge and skills defines the level of staff progress and wages.

5. Conclusion

All the studied companies assess their maturity level according to the ISO 9004 model as above average. The implementation and certification of international management standards allow maturity to be assessed at the third level. A higher rank in management maturity requires additional improvements in the management system. According to the obtained results, Polish organisations have more opportunities to raise funds for improvement and innovation. Both Polish companies benefit from EU funds. These funds play an important role in innovation and learning processes. The online learning system is very popular and assessed positively by the Polish companies; it was recognised as a difference between the Polish and Montenegrin organisations. All the researched organisations emphasised the importance of staff training for management system improvement. The most significant difference between the Polish and Montenegrin organisations lies in innovation, which is more developed in the Polish companies.

The study confirmed a strong commitment to improving management systems both in the Polish and Montenegrin organisations.

All the surveyed organisations, however, have reservations about the self-assessment model described in ISO 9004. Managers saw it as an ineffective tool for improving the organisation's management system. In the opinion of the surveyed managers, methods and tools (such as 5S) in which implementation procedures are clear and obvious are much easier and more effective in management system development than the ISO 9004 self-assessment model.

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Abstract

Doskonalenie, innowacje i uczenie się zgodnie z modelem dojrzałości systemu zarządzania zawartym w ISO 9004. Studium przypadku polskich i czarnogórskich organizacji

Celem przeprowadzonych badań była analiza poziomu dojrzałości polskich i czarnogórskich organizacji. W artykule skupiono się na określeniu najlepszych praktyk w obszarze doskonalenia, innowacyjności i uczenia się. W badaniu wykorzystano model dojrzałości opisany w normie ISO 9004:2009. Do badań wytypowano cztery organizacje, w których wdrożono i certyfikowano przynajmniej jeden znormalizowany system zarządzania.

Przeprowadzone badania potwierdziły, że wdrożenie wymagań znormalizowanych systemów zarządzania pozwala ocenić organizację na trzecim poziomie dojrzałości w pięciostopniowej skali. Wyższe wyniki możliwe są do uzyskania w przypadku dodatkowych działań wspierających system zarządzania funkcjonujący w organizacji. Wyniki przeprowadzonych wywiadów wskazały na zdecydowanie większe możliwości rozwoju innowacyjnych działań w polskich przedsiębiorstwach. Szkolenia uznano za istotny element wspierający doskonalenie systemu zarządzania.

Słowa kluczowe: ISO 9004, ISO 9001, poziom dojrzałości organizacji, systemy zarządzania, innowacje.