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CONTRIBUTION OF THE QMS PRINCIPLES TO COMPANY PERFORMANCE

Abstract: Companies put a lot of efforts to identify factors affecting their business performance. The purpose of this research was to explore the contribution of quality management systems (QMS) on the business performance of companies in terms of return on equity (ROE). A systematic review of scientific literature dedicated to QMS and company performance was performed with a quantitative method. The main finding of this study is that effective implementation of QMS contributes to the business performance of companies. We also identified which of the seven QMS principles, based on standard ISO 9000, and which company performance indicators, were most frequently discussed. In none of the studies to date have the authors comprehensively examined all seven QMS principles, while the business performance, evaluated by the ROE indicator, was discussed in only one study. Finally, a research gap was identified concerning the impact of the QMS principles on ROE.

Keywords: Success Factors, Companies, Quality, Management, Principles, Business Performance.

1. Introduction

In today's society, performance of companies (henceforth organizations) is the subject of a number of analyses and research studies. Thus, researchers study an organization as a business and organizational operating system of a selected group of people, as well as the impact of various factors on an organization's successful performance. The study of individual factors focuses on identification of their negative and positive effects on performance. These impacts on an organization's operations are reflected in its business performance, which is one of the key indicators of its business activities. Companies put a lot of resources and efforts to identify factors affecting their business performance and the extent of their impact thereon.

They use various standard and own tools, models and techniques by means of which they try to enhance their business performance. One of the most recognized standard tools is the ISO 9001 standard which is also the most frequently implemented QMS standard in the world (Heras-Saizarbitoria & Boiral, 2012). In 2019, there were 883,521 valid certificates to the ISO 9001:2015 standard (ISO Survey, 2021). When compared with previous versions, the latest version of the standard is more focused on an organization's performance. Fonseca and Domingues (2017) note that this version is more in line with modern business principles and quality management, and is a useful tool for organizations. QMS is founded on risk-based thinking and act as a tool for preventive actions and for facilitating the process of continuous improvement. Special emphasis is

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placed on the awareness and responsibility of an organization's management to implement QMS in the organization's operations and business activities. The QMS principles (ISO, 2015) are an integral part of an organization's vision, strategy, objectives and goals.

The implementation and effectiveness depend on the ability of an organization's management to identify factors affecting the organization's business performance, including the QMS. Tadić and Boljević (2015) note that an organization's management rarely understands which factors contribute to added value, competitiveness and thus also to an organization's business performance. This observation rightly raises the following question: To what extent is the implementation of the QMS principles an element of an organization's performance?

2. Theoretical framework

Some aspects of quality assurance date back a thousand years, while in the second half of the 13th century, medieval craftsmen started developing formal procedures for product and service quality. Goods were thus regularly inspected and high-quality goods were marked with special symbols (Fisher & Nair, 2009). In the second half of the 19th century, Frederick Winslow Taylor further developed and enhanced the role of quality control within the management system, the main objective of which was to significantly increase productivity.

The first paradigm of the QMS was noticed at the time of the emergence of mass production between 1900 and 1940 (Weckenmann, Akkasoglu, & Werner, 2015). This was the period in which an additional work step was introduced in companies with the purpose of inspecting final products or rather controlling their quality. Faulty products were thus filtered out in order not to be delivered to customers. The understanding of the fact that it is more efficient to eliminate the causes of errors and thus prevent the production of faulty products led to the emergence of

quality control between the 1960s and 1970s. Quality inspection was thus replaced by quality control. The next step was quality assurance. This approach was based on the identification of possible risks and problems and the introduction of actions that prevented the occurrence thereof. Therefore, in the years between 1970 and 1980, the remedial approach was replaced with preventive actions that were based on the use of data and statistical methods. Along with the increased complexity of operations and quality control, as well as the increased volume of documentation, came a need for a new approach to quality. And so, quality management was established between 1980 and 1990, resulting in the issue of the series of ISO 9000 standards. These standards defined basic requirements for QMS. The fourth paradigm in the QMS is the total quality management that appeared after 1990. In addition to customer requirements, this paradigm also takes into consideration the requirements of other stakeholders in the organization and can be implemented in all organizations, not just the manufacturing ones, which was characteristic of the previous paradigms of QMS.

Nowadays, globalization puts new requirements on QMS, demanding from organizations not only a technically-oriented quality but also a consideration of social responsibility and sustainability. This is reflected in the integration of total quality management, stages-of-development theories in strategic management and organizational life cycles (María, 1996).

QMS is not the only management tool for achieving improvement, but one of the tools that organizations use and exploit in their operations. The basis for effective use of tools is the correctness of their implementation. Thus, the basis for the implementation of QMS is presumed to be the need of an organization's management to have business-oriented QMS (Anttila & Jussila, 2017). Organizations can use the full potential of QMS if they fully integrate it in their business model.

Prior to implementing the QMS, an organization's management should perform self-assessment of the current situation and then, upon the implementation of the system, take into consideration the following principles of successful implementation: planning, role of top management leadership, customer focus, employee focus, process focus, product and service quality, information management and analysis (Brah, Tee, & Madhu, 2002). Considering the nature of the ISO 9001:2015 QMS, an organization's management has room to manoeuvre as regards the implementation, because the latest version of the standard gives organizations more flexibility to tailor the systems to their specific needs. It requires less documentation than the previous versions. The implementation of QMS is more effective in those organizations where the implementation of standards was driven by external motivation, mostly by customers (Fonseca & Domingues, 2018). The authors emphasized in their study the observation that the implementation of QMS was more successful in smaller organizations with a smaller international presence.

Strategic planning within organizations should be based on management making the right decisions and planning such activities that bring competitive advantage (Kantardjieva, 2015). In this case, QMS and strategic planning should complement each other, which should then be reflected in an organization's performance. In a research study, such as the one by Alič (2004), a positive correlation was observed between the QMS and an organization's performance, while others, such as Fikru (2014), found no such correlation. Heras-Saizarbitoria and Boiral (2012) claim that there is only a partial correlation between the QMS and an organization's performance.

In view of the effectiveness of the implementation of QMS as an element of an organization's performance, an analysis should be made of the factors affecting the performance and of those by means of which an organization's performance is measured.

An example of such a comprehensive review is given by Astrini (2021) who lists 48 factors used to study the performance of various organizations. The factors were classified into the following six groups: operational performance, business performance, financial performance, quality performance, organizational performance and innovation performance. The main finding was that the process and effectiveness of the implementation of QMS affect the performance of companies.

Bakator and Čočalo (2018) studied the impact of the ISO 9001 QMS on business performance which they divided into four categories: product and service quality, customer satisfaction, financial performance and operational performance. They found that in 55% of organizations, QMS had a positive impact on business performance, while in the remaining 45%, this impact was negative or not established. The key finding is that the well-functioning ISO 9001 QMS have a positive impact on operational performance, customer satisfaction, financial and business performance.

Considering the findings of the above mentioned studies, a systematic review of domestic and foreign scientific literature was carried out to examine the findings of other researchers and to establish:

- how many research studies discuss the QMS principles and their correlation with indicators of company business or other performance,
- whether the discussed QMS principles include the seven principles that the International Organization for Standardization lists as the basic QMS principles that an organization can use to improve its business or other performance,
- how many empirical studies were conducted after the publication of the latest version of the ISO 9001:2015 QMS standard,
- whether financial indicators, the

ROE indicator in particular, were considered among the factors of an organization's business performance examined by researchers and

- the size of companies in terms of the number of their employees (micro, small, medium-sized and large) included in the studies.

The primary purpose of our research was defined on the basis of preliminary findings, theoretical bases and key findings of certain studies. A systematic review was performed of domestic and foreign scientific literature by authors who examined the seven QMS principles and explored their impact on an organization's business performance in terms of ROE. Based on preliminary findings, a research gap was identified and suggestions for further research outlined.

3. Method

In our study, a quantitative method of scientific research was applied by means of which a systematic review was performed of domestic and foreign scientific literature found in publicly available databases. By

using search terms "ISO 9001", "performance" and conjunction "and", we searched the PQDT Open, ScienceDirect, ProQuest, Mendeley and Google Scholar databases for scientific papers and doctoral dissertations. Doctoral dissertations in Slovene language were searched in repositories of the University of Primorska, University of Nova Gorica, University of Ljubljana, University of Maribor and in the electronic library of the Faculty of Organization Studies in Novo mesto, while the English dissertations were searched and retrieved from the PQDT Open database.

Scientific papers were archived by means of the Mendeley computer program and selected in a manner to discard duplicates of individual scientific papers or papers with incomplete texts. Scientific papers and doctoral dissertations were then examined in terms of their adequacy as regards our search parameters. Texts that did not meet the criteria were discarded.

The remaining papers and dissertations were then included in our study (Figure 1).

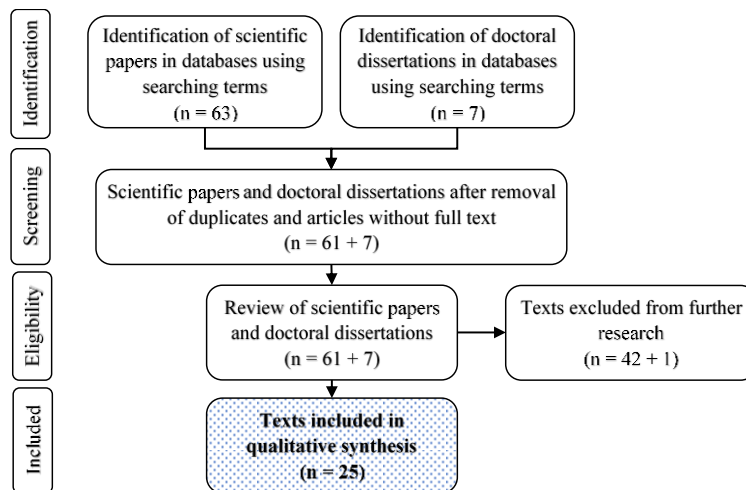


Figure 1. Research model (Summarized and adapted from Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009, p. 1009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ*, 339(jul21 1), b2535–b2535.

Our research was conducted using the method of description or rather a description of facts, and a compilation or summary of results of the examined qualitative and quantitative research studies of other authors. At first, an analysis of the content of the considered scientific papers was made. Then, the key findings of the studies were highlighted. Further, papers and dissertations in which authors specify the key QMS principles or companies' performance factors were examined to emphasize these principles and factors and to discuss them.

4. Results

19 scientific papers presented in Table 1 were selected and considered in our study. In addition, six doctoral dissertations were also taken into consideration. Scientific papers included in our study are from the period between 2002 and 2020, while 84 % of them are actually from the period between 2010 and 2020. Doctoral dissertations considered in our study were published between 2011 and 2019.

Table 1. Scientific papers included in the study.

Journal	No. of considered papers	Share
International Journal of Quality & Reliability Management	5	26 %
The TQM Journal	2	11 %
Benchmarking: An International Journal	1	5 %
International Journal of Production Economics	1	5 %
International Journal of Services and Operations Management	1	5 %
International Journal of Supply Chain and Logistics	1	5 %
International Journal of Supply Chain Management	1	5 %
Journal of Business Economics and Management	1	5 %
Management Science Letters	1	5 %
Procedia Economics and Finance	1	5 %
Procedia Engineering	1	5 %
Procedia Manufacturing	1	5 %
Sustainability	1	5 %
Total Quality Management and Business Excellence	1	5 %
	25	

11% of papers were published in scientific journals with impact factors higher than 2; 68% of them in scientific journals with impact factors between 1 and 2, while 21% of the papers were published in journals with impact factors less than 1. Among the authors included in our study, there were four researchers that discussed the latest version of the ISO 9001 standard.

QMS are not monolithic entities but aggregates of principles and quality tools. Thus, the authors of considered research studies did not only emphasize their general finding that effective functioning of QMS contributes to an organization's performance, but they also listed the studied QMS principles and company performance indicators (Table 2).

Table 2. QMS principles and company performance indicators

Author(s)	QMS principles	Company performance indicators
Brah, Tee, & Madhu (2002)	Customer focus Engagement of people Process approach	No comparable numerical indicators

Table 2. QMS principles and company performance indicators (continued)

Author(s)	QMS principles	Company performance indicators
Claver, José Tari, & Molina (2002)	Leadership Process approach Improvement	No comparable numerical indicators
Kumar, Choisine, de Grosbois, & Kumar (2009)	No comparable QMS principles	Profit Sales per employee Market share Return on assets ROA Return on sales ROS
Bell (2011)	Customer focus	Sales growth Return on assets ROA
Phan, Abdallah, & Matsui (2011)	Customer focus Leadership Engagement of people	Unit cost of manufacturing Inventory turnover
Maletič (2013)	Process approach	Return on investment ROI Sales growth Profit Market share
Cetindere, Duran, & Yetisen (2015)	Improvement	No comparable numerical indicators
Islam, Habes, Karim, & Syed Agil (2015)	No comparable QMS principles	Costs reduction Market share Return on assets ROA Sales growth Profit
Kafetzopoulos, Psomas, & Gotzamani (2015)	Customer focus Improvement	Profit Sales growth Market share Cash flow
Bogataj (2017)	Customer focus Leadership Engagement of people Process approach Improvement Evidence-based decision making	Revenue growth rate Added value growth rate Added value height rate
Bouranta, Psomas, & Pantouvakis (2017)	Customer focus	Profit Sales growth Cash flow
Panuwatwanich & Nguyen (2017)	Leadership Engagement of people	No comparable numerical indicators
Patyal & Koilakuntla (2017)	Engagement of people Process approach	Market share Revenue Sales growth Profit Unit cost of manufacturing
Antunes, Quirós, & Justino (2018)	Customer focus Leadership Engagement of people Improvement	No comparable numerical indicators

Table 2. QMS principles and company performance indicators (continued)

Author(s)	QMS principles	Company performance indicators
Astrini (2021)	No comparable QMS principles	Sales growth Market share Profit Costs reduction Turnover Revenue Stock price Debt-to-equity ratio Return on assets ROA Return on investment ROI Return on sales ROS Earnings before interests and taxes EBIT Earnings per share EPS
Ažman (2018)	No comparable QMS principles	Sales growth
Bhatia & Awasthi (2018)	No comparable QMS principles	Profit Market share Sales growth Return on investment ROI Cash flow
Sahoo & Yadav (2018)	Process approach	No comparable numerical indicators
Ahmad et al. (2019)	Customer focus Leadership Engagement of people Process approach	No comparable numerical indicators
Chiarini, Castellani, & Rossato (2019)	No comparable QMS principles	No comparable numerical indicators
Kreslin (2019)	Process approach Relationship management	Return on equity ROE
Pambreni, Khatibi, Azam, & Tham (2019)	Customer focus Engagement of people Improvement	No comparable numerical indicators
Saraf (2019)	Leadership	Costs
Maletič, Maletič, Al-Najjar, & Gomišček (2020)	No comparable QMS principles	Unit cost of manufacturing Quality costs Scrap share
Njuguna & Ngugi (2020)	Customer focus Process approach Improvement	Profit Market share

The authors of the studies only considered the QMS principles separately. None of the studies examined the seven principles

together. Figure 2 illustrates the frequency of consideration of individual QMS principles.

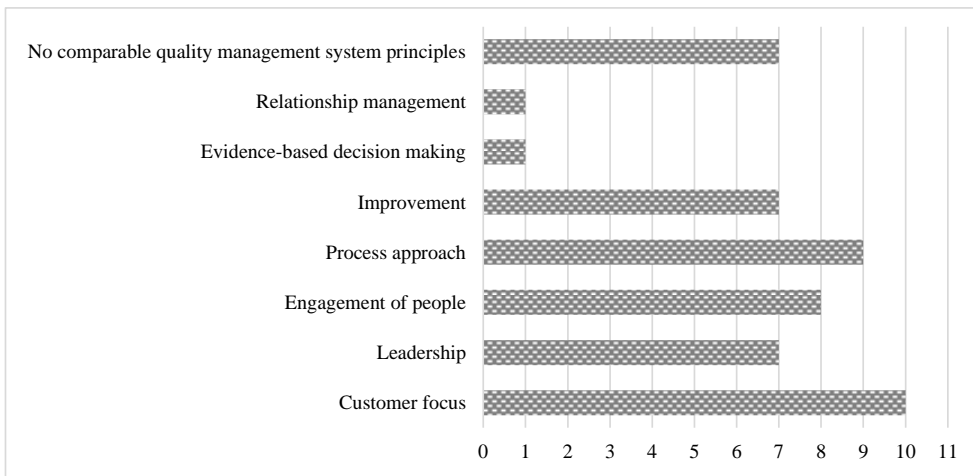


Figure 2. QMS principles by frequency of consideration.

The most frequently studied QMS principle is the customer focus, while those that are studied the least are the relationship management principle and evidence-based

decision making.

Company performance indicators include 21 financial indicators (Figure 3).

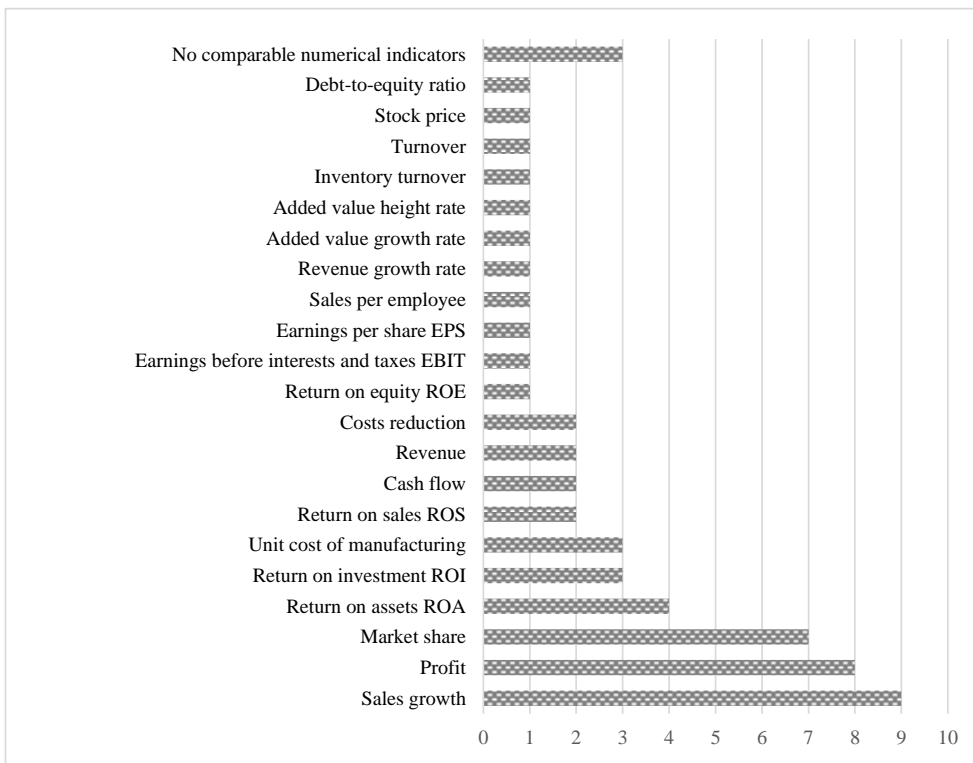


Figure 3. Company performance indicators.

Sales growth was the most frequently studied company performance indicator, while the ROE indicator, for example, was considered only once.

Among the 25 reviewed scientific papers, the authors of 8 of them specifically indicated the size of the studied organizations (Table 3).

According to the Companies Act of the Republic of Slovenia (ZGD-1), companies are classified as regards the number of employees as micro (up to 10 employees), small (from 11 up to 50 employees), medium-sized (from 51 up to 250 employees) and large (more than 250 employees) companies.

Table 3. Company size

Author(s)	Size of studied companies
Brah, Tee, & Madhu Rao (2002)	Small, medium-sized and large.
Kafetzopoulos, Psomas, & Gotzamani (2015)	Micro, small, medium-sized and large.
Antunes, Quirós, & Justino (2018)	Small and medium-sized.
Sahoo & Yadav (2018)	Small and medium-sized.
Ahmad et al. (2019)	Small and medium-sized.
Chiarini, A., Castellani, P., & Rossato, C. (2019)	Small and medium-sized.
Pambreni, Khatibi, Azam, & Tham (2019)	Small and medium-sized.
Maletič, Maletič, Al-Najjar, & Gomišček (2020)	Micro, small, medium-sized and large.

Among the eight studies that specifically indicated the size of the considered companies, there were five studies that included small and medium-sized companies, one that examined small, medium-sized and large companies, while there were two studies that took into consideration companies of all sizes.

5. Discussion

Our study included 19 scientific papers (Table 1) from the period between 2002 and 2020. 84% of papers were published between 2010 and 2020, while six doctoral dissertations are from the period between 2011 and 2019. The authors of considered studies specified the QMS principles as well as the indicators with which they measured companies' performance (Table 2). In eight of these studies, authors also indicated the size of the studied companies (Table 3).

An analysis was performed that demonstrated an important link between QMS and company performance. All authors found that effective implementation of QMS should result in better company performance in terms of better operational, business and financial performance.

QMS is in line with modern business and quality management concepts and are a useful tool for companies to achieve better performance (Fonseca & Domingues, 2017). But what is also important is their implementation in the existing business model of an organization. It is namely this successful implementation of QMS that has a positive impact on operational and business performance of an organization (Kumar, Maiti, & Gunasekaran, 2018), resulting in better financial performance (Sfreddo, Vieira, Vidor, & Santos, 2021). In addition to having a significant impact on financial performance of an organization (Jannah et al., 2020), QMS also affect operational, business, organizational and innovation performance, as well as quality performance (Astrini, 2021). However, the mere certification of QMS is not reflected in better financial performance, but in an organization's operational performance (Antunes, Quirós, & Justino, 2018). Better financial performance can be achieved through the implementation of the QMS tools and practices. In this respect, greater attention should be focused on QMS upon company mergers or acquisitions. It is namely a fact that too little consideration is given to successful

integration of QMS (Bashan & Armon, 2019).

Anttila and Jussila (2017) emphasize that organizations can benefit from QMS only if they creatively integrate and apply the whole ISO 9000 family of standards. Indeed, total quality management has a direct positive effect on business performance (Ahmad, Zakuan, Jusoh, Yusof, & Takala, 2014). Certified organizations have identified positive effects on motivation and performance, as well as increased bureaucratization, complexity of procedures and increased costs (Bravi, Murmura, & Santos, 2019).

Nevertheless, organizations that have implemented QMS perform better financially than those that are not certified (Islam, Habes, Karim, & Syed Agil, 2015), which can, after all, result in improved quality of work, external customer satisfaction, safety, market share, effectiveness of planning, labor efficiency, competency in human resources and risk management (Panuwatwanich & Nguyen, 2017). QMS have a significant positive impact on financial performance of an organization (O'Neill, Sohal, & Teng, 2016). However, it has been proven that following a cancellation of the QMS certification, financial performance of an organization drops (Alič, 2014). QMS has a positive impact on an organization's performance (Pambreni, Khatibi, Azam, & Tham, 2019), taking into consideration also an organization's management and key quality tools (Patyal & Koilakuntla, 2017). It can improve customer satisfaction, employee relations, operational procedures and financial results (Kumar, Choisne, de Grosbois, & Kumar, 2009), service quality (Sumardi & Fernandes, 2020) or business performance (Bakator & Čóckalo, 2018), although Kafetzopoulos, Psomas and Gotzamani (2015) argue that the effectiveness of QMS has no direct impact on an organization's business performance. If the QMS in an organization is complemented by other improvement tools, such as Six Sigma or Lean Methodology, they have a

positive effect on process performance (Veena & Prabhushankar, 2019).

QMS consist of various factors that represent specific areas which can more or less affect companies' performance. The authors of the examined studies have thus emphasized the relationship and interaction between QMS and companies' performance, and they also highlighted the key QMS principles and companies' performance indicators (Table 2). Thus, Claver, José Tari and Molina (2002) argue that an organization's management should improve their organization's performance by improving their advanced quality planning, process of continuous improvement and specialist training. QMS based on management leadership, strategic planning, employee involvement and quality education and training have a positive impact on an organization's performance (Sahoo & Yadav, 2018), whereby the importance of information quality should also not be neglected (Bhatia & Awasthi, 2018). Organizations also identified positive effects of risk-based thinking, organizational context determination and identification of the relevant interested parties and their requirements (Fonseca & Domingues, 2018). After all, the objective of every organization is to distribute its products or services to customers, and it is this very customer focus that plays a major role in an organization's performance (Ahmad et al., 2019).

However, we have not come across a study that would consider all seven QMS principles together (customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision making and relationship management). These are namely the principles that the International Organization for Standardization (ISO) lists as the basic principles that an organization can use to improve its performance. The most commonly studied principle was that of customer focus, followed by process approach, engagement of people, leadership and improvement. The relationship

management and evidence-based decision making principles were considered once (Figure 2).

The research studies in question listed 21 company performance indicators, among which the most frequently studied indicator was that of sales growth, followed by the profit and market share indicators (Figure 3). The return on equity (ROE) indicator was explored once (Kreslin, 2019).

Our review revealed that among the discussed research studies, there were only four that examined the latest version of the ISO 9001 QMS standard.

In our study, we have not found a single case where the contribution of the seven QMS principles on company performance would be evaluated by means of the ROE indicator.

6. Conclusion

The purpose of our study was to perform a systematic review of scientific literature by authors who examined the QMS and explored their contribution on an organization's business performance in terms of ROE.

This review of literature encompassed 19 scientific papers published between 2010 and 2020, and six doctoral dissertations from the period between 2011 and 2019 (Table 1). While the considered authors listed the seven QMS principles only separately or in smaller groups, they identified 21 different financial and other indicators as the company performance indicators.

They defined the QMS principles based on their research starting points. However, we have not come across a study that would deal with all seven QMS principles that the International Organization for Standardization (ISO) lists as the basic principles that an organization can use to improve its performance. These seven principles include customer focus, leadership, engagement of people, process approach, improvement, evidence-based decision making and relationship management. The

latest version of the 2015 standard with the seven QMS principles was explored by four researchers. This version of the standard is relatively new, resulting in a low number of research studies. The researchers did not explore the impact of the seven QMS principles on one of the key company performance indicators, such as return on equity (ROE). Measuring ROE is one of the most widely used measures of company profitability and stockholder return (Heinfeldt & Rindler, 2010). The ROE indicator is also significant for potential investors because it illustrates a company's performance and thus also the appropriateness of potential investment. We have come across a single comprehensive study of this company performance indicator, namely in a doctoral dissertation by Kreslin (2019), in which, however, the author did not explore the seven QMS principles.

While the considered authors mainly analyzed the performance of small and medium-sized companies (Antunes, Quirós, & Justino, 2018; Chiarini, Castellani, & Rossato, 2019; Sahoo & Yadav, 2018), large companies are studied only in combination with organizations of various sizes (Brah, Tee, & Madhu Rao, 2002; Kafetzopoulos, Psomas, & Gotzamani, 2015; Maletič, Maletič, Al-Najjar, & Gomišček, 2020). Large organizations have not been the subject of independent studies of the QMS and company performance, and neither have we come across a study that would examine medium-sized and large companies together.

Our study reveals the current situation in the field of research studies on the contribution of the QMS principles on companies' business performance. The study provides organizations with an insight into the most commonly explored QMS principles, enabling them to analyze their own situation and find opportunities for improvement.

Most studies to date that have been published in the field of QMS or rather the contribution of the QMS principles on an organization's performance were based on prior versions of

the ISO 9001 standard. Therefore, the purpose of our study was to demonstrate the need for the update of this subject. The latest version of the standard – 2015 – places more emphasis on risk-based thinking and the role of management in the process of continuous improvement. Our study revealed a research gap in terms of a lack of information on the contribution of the seven QMS principles on ROE in medium-sized and large companies.

Our study has been conceived broadly to include both qualitative and quantitative research studies. It was narrowed down to 19 scientific papers and six doctoral dissertations. A greater scope of reviewed scientific literature could extend the range of the seven QMS principles and companies' performance indicators. Our research was narrowed down to five publicly available databases of papers and doctoral dissertations in English and Slovene, to the period between 2010 and 2020, and to two keywords. It was

presumed that the seven QMS principles provide a thorough and well-substantiated starting point for addressing the subject that is interesting for theory, researchers and practical application. Moreover, it was assumed that the implementation of these seven QMS principles would reflect in an organization's results that can be measured in different ways. As regards the measurement of effects, the assumption has been that only those indicators that can be measured should be taken into consideration because they can be unambiguously and expertly corroborated.

It would make sense to conduct a quantitative study of the contribution of the seven QMS principles on companies' business performance. The company performance indicator to be used would be ROE. A study of the contribution of the seven QMS principles on ROE should be conducted in all types of medium-sized and large companies in the defined area or country.

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