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# QUALITY MANAGEMENT AND BUSINESS PERFORMANCE OF SERBIAN COMPANIES\*

## Menadžment kvaliteta i poslovne performanse preduzeća u Srbiji

### Abstract

The impact of quality management (QM) programs on business results has been the subject of numerous studies worldwide. However, given the complexity of the contemporary QM paradigm and its context-dependence, it is difficult to generalise its impact on business performance. This study examines QM from the strategic management perspective by comprehensively analysing the effects of quality management system (QMS) certification to ISO 9001 in terms of improved business performance and the achieved level of total quality management (TQM) in Serbian companies. Control variables of industry type and company size are employed to observe their possible impact on motives for, and effects of, QMS certification to ISO 9001. The results reveal that the certification of Serbian companies' QMS to ISO 9001 positively influences their operational and market performance, with the impact intensity dependent upon company size and industry type. The impact of certification on financial performance was examined but not confirmed. Compared to companies motivated primarily by marketing interests and market pressure, companies that certify their QMS to ISO 9001 to improve the quality of their business show a higher level of TQM implementation and gain greater benefits from certification.

**Keywords:** *quality management system (QMS); ISO 9001; total quality management (TQM); business performance; strategic management.*

### Sažetak

Uticaj programa upravljanja kvalitetom na poslovne performanse postao je predmet brojnih studija širom sveta. Međutim, s obzirom na složenost savremene paradigme upravljanja kvalitetom i njenu kontekstualnu zavisnost, teško je generalizovati taj uticaj. Ovaj rad analizira menadžment kvaliteta iz perspektive strategijskog menadžmenta putem sveobuhvatnog istraživanja efekata sertifikacije sistema upravljanja kvalitetom prema zahtevima standarda ISO 9001 u pogledu poboljšanih poslovnih performansi i dostignutog nivoa menadžmenta ukupnog kvaliteta u preduzećima u Republici Srbiji. Kontrolne varijable vrsta industrije i veličina preduzeća korišćene su u cilju sagledavanja njihovog mogućeg uticaja na motive i efekte sertifikacije. Rezultati sprovedenog istraživanja pokazuju da sertifikacija sistema menadžmenta kvaliteta prema zahtevima standarda ISO 9001 pozitivno utiče na operative i tržišne performanse preduzeća u Republici Srbiji, pri čemu intenzitet tog uticaja zavisi od veličine preduzeća i vrste industrije. Uticaj sertifikacije na finansijske performanse je ispitan, ali nije potvrđen. U poređenju sa preduzećima koja su prvenstveno motivisana marketinškim interesima i pritiskom tržišta, preduzeća motivisana poboljšanjem kvaliteta poslovanja pokazuju viši nivo implementacije menadžmenta ukupnog kvaliteta i ostvaruju veće koristi od sertifikacije sistema menadžmenta kvaliteta prema zahtevima standarda ISO 9001.

**Ključne reči:** *sistem menadžmenta kvaliteta; ISO 9001; menadžment ukupnog kvaliteta; poslovne performanse; strategijski menadžment.*

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## Introduction

Quality permeates all activities that constitute the value chain of a company, giving quality management (QM) a strategic importance. The ability to manage quality effectively determines the business success of companies, their survival, growth and prosperity. In such conditions, QM implies a focus on all activities and processes of the company, and the involvement of all employees. Requirements for continuous improvement of quality represent a special and significant dimension of a company's strategic orientation. The digital era is a new context of QM characterised by the exponential growth of opportunities. The ways of living, working and connecting are fundamentally changing. The Industry 4.0 solutions enable the emergence of combinatorial innovations which represent a key driver of growth [15]. As intelligent technologies offer more functionality and flexibility [16], they can be perceived as key enablers for improving the quality of goods and processes, as well as for improving the agility of modern enterprises. Further, new technologies enable cooperation between different fields and thus open new frontiers of business development [14]. Therefore, the implementation of the various innovative technologies on which Industry 4.0 is based, as a revolution not only in the field of production, has a special significance in the QM process.

Owing to its characteristics and potency, intellectual capital (IC) provides key support to the QM process. Namely, the changes to which we are direct witnesses and which concern the sources of competitive advantage and drivers of competitiveness are inseparable from IC and its growing importance [7, 13]. Through the QM process, companies exploit and increase the value of its IC. We can see the importance of IC by the fact that its share of the total assets of companies in the S&P 500 during 1975–2015 increased from 17% to 84% [36]. In most OECD countries, investments in intangible assets are growing rapidly, and in some cases, approaching or even exceeding investments in tangible assets. The growth of global competition, information and communication technologies (ICTs), new business models and the growing importance of the service sector is making IC

more important for businesses, industries and national economies [38, 39].

QM attracted a great deal of attention from theorists and practitioners given its history of dramatically improving the business performance of companies. However, it also becomes the subject of criticism, particularly in cases of ineffective implementation. The effective implementation of QM sometimes requires changes to a firm's existing practices and its employees' ways of thinking. The motivation of managers and employees plays an important role in quality improvement; motivation comes from being aware of the importance of quality for the company's success, learning, being rewarded for quality improvements, and possessing the necessary resources. Unclear priorities and competing company goals most often have a negative impact on employees' attitudes towards quality, which is why it is so important to integrate QM into the strategic management process. The Balanced Scorecard as a strategic management tool can significantly help address this issue. Nicoletti and Oliveira [35] note that the strategic orientation of the company towards quality by using the Balanced Scorecard enables continuous monitoring of the quality management system's (QMS) performance and timely reactions in order to achieve the set goals. Janošević and Dženopoljac [23] state that the Balanced Scorecard provides comprehensive and focused monitoring of total quality management (TQM) results, and enables breakthrough results and the discovery of completely new processes. In this regard, companies can expect significantly better QM effects if they use the Balanced Scorecard as a platform for its implementation. Basir and Davies [4] point out that in order to achieve superior performance, organisations should adopt ISO 9000 standards as strategic management practices, stating that resource allocation and commitment during the implementation process of ISO 9000 principles positively impact performance. The ISO 9004:2009 standard is the first quality system standard that provides recommendations on how to manage an organization in order to achieve sustainable business success, and its scope covers the expectation of all stakeholders, especially the ones of capital owners [3].

Using modern performance measurement systems that include financial and non-financial performance

measures, this study comprehensively examines the impact of QM on different types of business performance. Specifically, we analyse the improvement of business performance after the companies' QMS certification to ISO 9001; the impact of certification incentives on the motives for, and the effects of, certification; and the level of TQM implementation in companies depending on the certification incentives. We include company size and industry type in the model as control variables.

The rest of this paper proceeds as follows. Section 2 develops research hypotheses in relation to the literature and previous research. Section 3 describes the research methodology, including sample definition and identification of variables. Section 4 presents empirical findings, and Section 5 is devoted to discussion and conclusions, including theoretical contribution and managerial implications, as well as limitations and recommendations for the future research.

## Theoretical Development and Hypotheses

Investigating the effects of ISO 9000 standards implementation, Melão and Guia [32] conclude that these standards contribute to process improvement, employee motivation and internal communication. Although the implementation of the standards impose a greater administrative burden, employees were better organised and more prepared to tailor their work to the specific needs of users. Ochieng et al. [37] find that certification has a positive effect on return on assets (ROA). Psomas et al. [44] conclude that the effective implementation of ISO 9001 directly affects operational performance, and indirectly affects financial performance. Since the newer version of ISO 9001 contains guidelines for building a culture of excellence, attention should be paid to the conclusion of Rezaei et al. [45] that there is a significant positive relationship between a culture of excellence and organisational performance.

Improved productivity, organisation, communication, employee motivation and defect reduction are most often cited as internal benefits of certification [24], while the most significant external benefits are reduced customer complaints, improved communication with customers and stakeholders, increased customer satisfaction and improved image [20]. Yaya et al. [53] state that the

relationship between customer satisfaction and loyalty is about 47% stronger in the case of banks with ISO 9001 certification. Corbett et al. [10] conclude that significant improvement of a company's financial performance can be observed three years after the certification. Benner and Veloso [5], on the other hand, find that companies that certify their QMS later than their industry peers derive less financial benefits compared to companies certified earlier. Numerous studies [17, 27, 29, 30, 48] through different approaches conclude that certification does not produce evident effects on the company's financial performance. Contextual factors such as motivation for certification, QM experience in the company, implementation strategy, employee involvement, and monitoring of operations in accordance with the standard guidelines and requirements can explain the differing effects of certification across companies [40]. Additionally, some research shows that the effects of certification vary by sector [51], company size [41, 47] and technological focus [5]. The literature discussed above leads to the following hypotheses:

- H1a. QMS certification to ISO 9001 contributes to the improvement of the company's operational performance.
- H1b. QMS certification to ISO 9001 contributes to the improvement of the company's market performance.
- H1c. QMS certification to ISO 9001 contributes to the improvement of the company's financial performance.

There is general agreement among researchers that the certification incentives are internal and external [8, 22, 26, 28, 30, 43, 46]. External incentives relate to certain external pressures (competition, customers, government, etc.) or improving the image of the company. On the other hand, internal incentives refer to improving product and service quality, reducing costs, and improving internal efficiency. Valmohammadi and Kalantari [52] conclude that companies certified to ISO 9001 achieve superior performance over non-certified companies. Additionally, they find that internal incentives are positively related to companies' performance. Martinez-Costa et al. [30] find that TQM and certification have a positive effect on a company's business performance, and that internal certification incentives have a greater impact on the business performance than external incentives. They also find that internally motivated companies achieve a higher level of

TQM implementation compared to externally motivated ones, whereby TQM implementation level is determined by evaluating TQM key success factors. Milovanović and Janošević [34] found that TQM positively impacts market and financial performance of Serbian companies which have certified their QMS to ISO 9001. Prajogo [43] points to a positive relationship between internal certification incentives and operational performance, though finds no statistically significant relationship with performance in the case of external certification incentives. Llopis and Tari [28] find that companies that are internally motivated for certification show a higher level of TQM implementation and achieve greater profitability. Certification incentives are a potential answer to the question of why some businesses fail even though they certified QMS to ISO 9001.

Companies certify their QMS to ISO 9001 with the assistance of certification bodies, which act as consultants leading the entire process of adapting a company to the standard requirements, and ultimately awarding the certificate when the requirements are fulfilled. However, a parallel can be drawn here with the research of Holmemo et al. [21] who, in the lean thinking example, state that external experts can hardly bring and install concepts related to the 'soft' elements of business, which include relationships within the organisation and with stakeholders, and organisational learning and continuous improvement, as is the case with the TQM concept and ISO 9001 certification. In addition to the certification incentives, management's ability to embrace the new philosophy of business plays a significant role, as well as the ability and desire of consultants to convey these soft elements to the client. The lack of commitment and support from managers is the main reason for the failure of continuous improvement programs. External certification incentives combined with the profit motives of certification bodies diminish the potential for ISO 9001 implementation to improve business performance. Moreover, a portion of companies implement standards improperly and without commitment, thus certificates have only a formal character [2]. According to the previous discussion, the following hypotheses are suggested:

H2a. Improvement of operational performance after QMS certification to ISO 9001 is more significant in companies with internal certification incentives.

H2b. Improvement of market performance after QMS certification to ISO 9001 is more significant in companies with internal certification incentives.

H2c. Improvement of financial performance after QMS certification to ISO 9001 is more significant in companies with internal certification incentives.

H3. Internal incentives for QMS certification to ISO 9001 lead to a higher level of TQM implementation in companies than external incentives do.

Djofack, et al. [11] find that company size and age are negatively related to the time and cost of quality system implementation. Galetto et al. [19] point to the impact of company size, regional development and industry type on the effects of QMS certification to ISO 9001, and find that non-certified companies have a higher risk of collapse (bankruptcy, liquidation) compared to certified companies, while the risk is lower three years after certification. These authors further suggest that researchers should evaluate and compare business performance for the same companies before and after certification, instead of comparing business performance to a different control group of companies.

## Research Methodology

### Survey Design and Data Collection

The research was carried out as a part of doctoral dissertation [33] that includes 141 companies from the Republic of Serbia with a valid certificate of conformity of their QMS with ISO 9001 standard requirements. Most previous research on this and similar topics compare the performance of sample companies to that of a control group (e.g. certified vs. non-certified companies, award winners vs. non-award winners, and so on). Such an approach raises questions about the accuracy of the conclusions drawn because they compare non-homogeneous groups of companies, meaning that the structure of the groups in terms of company size, maturity, type of activity and the like could affect the results. This study compares performance for each company individually before and after certification, thereby eliminating the risk of aggregating results. It evaluates the impact of certification on business results based on quality managers' perceptions and objective performance measures.

This study involved academic experts and quality managers from companies with a good reputation for quality in the design and testing of the questionnaire in order to make it fully understandable to respondents, and to ensure the most useful inputs for research. The final version of the questionnaire was sent to 228 e-mail addresses of quality managers who previously gave oral consent by telephone to participate in the survey, and the response rate was 64%.

## Variables

The independent variables in this study are the incentives for QMS certification to ISO 9001 and the TQM key success factors which determine the level of TQM implementation. The known TQM key success factors [1, 6, 18, 42, 50] became the basis for the following combination of TQM factors: Customer orientation, Top management commitment, Employee focus, Process approach, Continual improvement, Information and analysis, Supplier relationship and Corporate social responsibility. The latter has been added given its growing importance in evaluating the quality of a business as reflected in its relationships with the community and the environment. Claver-Cortés et al. [9] demonstrate empirically that hotels with a greater commitment to TQM are more interested in environmental management practices. Respondents evaluated each TQM key success factor by assessing 5 statements in a questionnaire on a five-point Likert scale (1 = absolutely disagree, 5 = absolutely agree). The questionnaire is formulated similarly to earlier studies [1, 9, 12, 25, 29, 31, 42, 49, 50].

This study uses operational performance measures (employee productivity, employee satisfaction and employee fluctuation), market performance measures (market share, customer satisfaction and customer retention rate) and financial performance measures (return on assets – ROA, return on equity – ROE, and return on sales – ROS) as dependent variables. Quality managers estimated the improvements in operational and market performance after certification using a five-point Likert scale (1 = significantly less, 5 = significantly higher). Improvements in financial performance are determined using secondary data from companies' publicly available annual financial

statements for the year in which the certification occurred, as well as for the third year after the certification. Industry type and company size are control variables included to observe their possible impact on the motives for, and effects of, certification.

## Analysis and Results

This study describes the parameters of significance using their frequencies, arithmetic mean and standard deviation. An ANOVA with a Tukey test, SPANOVA, T-test,  $X^2$  test and univariate linear regression are used to test the hypotheses. The probability level is set at  $p < 0.05$ , and data is analysed using SPSS v 21. The Cronbach's Alpha coefficients, which ranged from 0.735 to 0.876, confirm the reliability of the perceptual measures. Table 1 presents the descriptive indicators of the measured parameters.

**Table 1: Descriptive statistics of the measured parameters**

	N=141
TQM critical success factors	M ± SD (Min-Max)
Customer orientation	4.47±0.54 (1.60-5.00)
Top management commitment	4.33±0.56 (2.80-5.00)
Employee focus	4.12±0.69 (2.00-5.00)
Process approach	4.19±0.66 (1.40-5.00)
Continual improvement	4.31±0.62 (2.20-5.00)
Information and analysis	4.15±0.70 (2.20-5.00)
Supplier relationship	4.25±0.54 (2.80-5.00)
Corporate social responsibility	4.20±0.66 (2.40-5.00)
Financial performance measurements	M ± SD (Min-Max)
ROA before QMS certification to ISO 9001	0.12±0.28 (-2.23 - 0.84)
ROA after QMS certification to ISO 9001	0.09±0.32 (-2.92 - 1.25)
ROE before QMS certification to ISO 9001	0.22±0.67 (-5.84 - 1.86)
ROE after QMS certification to ISO 9001	0.17±0.39 (-1.89 - 1.25)
ROS before QMS certification to ISO 9001	0.06±0.24 (-1.40 - 1.10)
ROS after QMS certification to ISO 9001	0.02±0.26 (-1.50 - 0.55)
Perceptual improvement after QMS certification to ISO 9001	M ± SD (Min-Max)
Operational performance	3.69±0.61 (2.33-5.00)
Market performance	4.12±0.59 (3.00-5.00)
Incentives for QMS certification to ISO 9001	n(%)
External	24 (17.6%)
Internal	108 (79.4%)
Both external and internal	4 (3.0%)

Table 1 indicates that there was improvement in the companies' operational and market performance after QMS certification to ISO 9001. In this regard, the results confirm hypotheses H1a and H1b. The ANOVA test determines whether a statistically significant difference between companies of different sizes (micro, small, medium and large) exists in terms of operational and market performance improvement after certification (Table 2). As a statistically significant difference exists for the variable Market performance is ( $F = 3.51, p =$

0.02), Tukey test is employed to determine the nature of this difference. The results show that the improvement of market performance after certification was more significant in medium and small companies compared to large and micro companies.

An ANOVA test also checks for a statistically significant difference between companies belonging to different types of industries (manufacturing, trade, services) in terms of operational and market performance improvement after QMS certification to ISO 9001 (Table 3). As a statistically

**Table 2: Improvement of operational and market performance after QMS certification to ISO 9001 by company size**

	Company size								Total		F	p
	Micro		Small		Medium		Large					
	M	SD	M	SD	M	SD	M	SD	M	SD		
Operational performance	3.69	0.56	3.73	0.69	3.72	0.58	3.49	0.48	3.69	0.62	0.76	0.52
Market performance	3.94	0.59	4.22	0.55	4.22	0.63	3.79	0.54	4.12	0.59	3.51	0.02

M – arithmetic mean; SD – standard deviation; F– ANOVA test; p – statistical significance;

**Table 3: Improvement of operational and market performance after QMS certification to ISO 9001 by industry type**

	Industry type						Total		F	p
	Manufacturing		Trade		Service					
	M	SD	M	SD	M	SD	M	SD		
Operational performance	3.63	0.57	4.10	0.69	3.67	0.65	3.69	0.61	4.30	0.02
Market performance	4.11	0.56	4.23	0.63	4.09	0.68	4.12	0.59	0.32	0.72

M – arithmetic mean; SD – standard deviation; F– ANOVA test; p – statistical significance;

**Table 4: Control variables and financial performance change after QMS certification to ISO 9001**

	ROA		ROE		ROS	
	before ISO 9001	after ISO 9001	before ISO 9001	after ISO 9001	before ISO 9001	after ISO 9001
<b>INDUSTRY TYPE</b>						
Manufacturing	0.09±0.31	0.07±0.35	0.24±0.41	0.13±0.41	0.05±0.27	0.01±0.28
Trade	0.19±0.21	0.11±0.15	0.42±0.50	0.29±0.33	0.08±0.09	0.03±0.22
Services	0.17±0.22	0.15±0.28	0.07±1.19	0.26±0.36	0.10±0.25	0.07±0.25
Total	0.12±0.28	0.10±0.32	0.22±0.68	0.18±0.40	0.06±0.25	0.03±0.27
<i>Wilks' Lambda</i>	0.998		0.969		0.999	
<i>F test</i>	0.114		1.916		0.059	
<i>Partial Eta<sup>2</sup></i>	0.002		0.031		0.001	
<i>p-value</i>	0.893		0.152		0.943	
<b>COMPANY SIZE</b>						
Micro	0.07±0.65	-0.04±0.80	0.56±0.55	0.28±0.37	0.09±0.12	-0.02±0.26
Small	0.15±0.19	0.13±0.16	0.29±0.34	0.25±0.30	0.12±0.13	0.08±0.17
Medium	0.12±0.17	0.11±0.13	0.02±1.14	0.07±0.47	0.03±0.38	-0.01±0.39
Large	0.09±0.17	0.09±0.18	0.07±0.45	0.05±0.51	-0.03±0.26	-0.01±0.28
Total	0.12±0.28	0.10±0.32	0.23±0.68	0.18±0.40	0.07±0.24	0.03±0.27
<i>Wilks' Lambda</i>	0.993		0.980		0.978	
<i>F test</i>	0.294		0.787		0.888	
<i>Partial Eta<sup>2</sup></i>	0.007		0.020		0.022	
<i>p-value</i>	0.830		0.503		0.449	

significant difference exists for the variable Operating performance ( $F = 4.30, p = 0.02$ ), the Tukey test is applied to determine the nature of the difference. The results show that the improvement of operational performance after QMS certification to ISO 9001 is more significant in trade than in manufacturing and service companies ( $M = 4.10$  vs.  $M = 3.63$ ; and  $M = 3.67$ ).

The SPANOVA test examines whether the values of financial performance measures changed significantly after the certification (Table 4). The results show no statistically significant difference. In this regard, the results do not confirm hypothesis H1c. The SPANOVA test results also reveal that industry type and company size did not have a statistically significant effect on the change in financial performance after certification.

An investigation of the impact of certification incentives on operational and market performance using linear regression (Table 5) followed the definition of certification incentives as a dummy variable (Primarily External Incentives = 0, Primarily Internal Incentives = 1). The positive regression coefficient indicates that internal certification incentives have a greater positive impact on operational and market performance than do external certification incentives. The average values of operational performance for companies with external incentives are  $3.34 \pm 0.49$ , while for companies with internal incentives average values are  $3.80 \pm 0.60$ . The

average values of market performance for companies with external certification incentives are  $3.72 \pm 0.54$ , while for companies with internal incentives, the values are  $4.22 \pm 0.54$ . Therefore, hypotheses H2a and H2b are confirmed.

The SPANOVA test results confirm a statistically significant impact of certification incentive on the change in ROS, but not ROA or ROE (Table 6). Companies with internal certification incentives face a milder ROS drop than companies with external certification incentives. However, given that financial performance has not improved after certification, H2c is not confirmed.

The T-test checks for a statistically significant difference in the level of TQM implementation according to companies' certification incentives (Table 7). The results show that internal certification incentives have a stronger positive impact on the TQM key success factors of Process approach, Information and analysis and Corporate social responsibility, than external certification incentives do, thus confirming hypothesis H3.

The  $\chi^2$  test examines of the influence of industry type and company size on the certification incentives. The results reveal that the percentage of companies driven by external certification incentives was highest among service companies and significantly lower among trade and manufacturing companies (Table 8), while there is no statistically significant impact of company size on the certification incentives (Table 9).

**Table 5: Impact of certification incentives on operational and market performance improvement after QMS certification to ISO 9001**

Dependent variable	Independent variable	Univariate linear regression		
		Beta (95%CI)	p	Adjusted R <sup>2</sup>
Operational performance	Certification incentives	0.293 (0.196–0.722)	0.001	0.079
Market performance	Certification incentives	0.330 (0.246–0.754)	0.000	0.102

**Table 6: Certification incentives and financial performance change after QMS certification to ISO 9001**

	ROA		ROE		ROS	
	before ISO 9001	after ISO 9001	before ISO 9001	after ISO 9001	before ISO 9001	after ISO 9001
CERTIFICATION INCENTIVES						
External	0.12±0.13	0.07±0.15	0.35±0.51	0.25±0.42	0.13±0.25	-0.04±0.34
Internal	0.12±0.31	0.10±0.36	0.19±0.73	0.17±0.40	0.06±0.20	0.04±0.25
Total	0.12±0.28	0.09±0.33	0.22±0.69	0.18±0.40	0.07±0.21	0.03±0.27
Wilks' Lambda	1.000		0.995		0.928	
F test	0.039		0.598		9.245	
Partial Eta <sup>2</sup>	0.000		0.005		0.072	
p-value	0.844		0.441		0.003	

**Table 7: Certification incentives and the TQM key success factors**

	Certification incentives	M	SD	t	df	p
Customer orientation	External	4.30	0.48	-1.80	126.00	0.074
	Internal	4.52	0.54			
Top management commitment	External	4.20	0.53	-1.26	122.00	0.211
	Internal	4.36	0.56			
Employee focus	External	3.93	0.73	-1.37	126.00	0.174
	Internal	4.16	0.69			
Process approach	External	3.88	0.74	-2.64	123.00	0.009
	Internal	4.26	0.61			
Continual improvement	External	4.17	0.78	-1.26	125.00	0.212
	Internal	4.35	0.56			
Information and analysis	External	3.82	0.73	-2.83	125.00	0.005
	Internal	4.25	0.66			
Supplier relationship	External	4.13	0.57	-1.23	127.00	0.221
	Internal	4.28	0.52			
Corporate social responsibility	External	3.76	0.61	-3.86	128.00	0.000
	Internal	4.31	0.63			

M-arithmetic mean; SD – standard deviation; t – t-test; df – degree of freedom; p – statistical significance

**Table 8: Relationship between certification incentives and industry type**

		Certification incentives		Total	
		External	Internal		
Industry type	Manufacturing	Total	11	77	88
		%	12.5%	87.5%	100.0%
	Trade	Total	3	13	16
		%	18.8%	81.2%	100.0%
	Service	Total	10	18	28
		%	35.7%	64.3%	100.0%
Total		Total	24	108	132
		%	18.2%	81.8%	100.0%

$\chi^2=7.69$ ,  $df=2$ ,  $p=0.021$

**Table 9: Relationship between certification incentives and company size**

		Certification incentives		Total		
		External	Internal			
Company size	Micro	Total	4	12	16	
		%	25.0%	75.0%	100.0%	
	Small	Total	13	45	58	
		%	22.4%	77.6%	100.0%	
	Medium	Total	5	30	35	
		%	14.3%	85.7%	100.0%	
	Large	Total	2	17	19	
		%	10.5%	89.5%	100.0%	
	Total		Total	24	104	128
			%	18.8%	81.2%	100.0%

$\chi^2=2.22$ ,  $df=3$ ,  $p=0.528$



## Discussion and Conclusions

### Theoretical Contributions

The literature on the impact of companies' QMS certification to ISO 9001 on business performance has offered mixed findings. The results of the present study reveal that the certification of QMS to ISO 9001 contributes to the improvement of a company's operational and market performance. Other authors reach the same conclusions using different performance measures [20, 24, 32, 44, 53]. We also join a group of authors who find no impact of certification on financial performance [17, 27, 29, 30, 48]. The type of incentives prompting QMS certification to ISO 9001 affects the TQM implementation level in companies and company performance. Companies driven by internal certification incentives show a higher level of TQM implementation [28] and benefit more from certification in terms of operational and market performance than companies driven by external incentives, a finding that matches with previous research results [30, 43, 52]. Although there is no statistically significant change in financial performance due to certification, the results indicate that companies with internal incentives face milder ROS fall compared to companies with external incentives.

By including the control variables of industry type and company size, this study finds that service companies are driven more by external certification incentives compared to manufacturing and trade companies. Medium and small companies realise a more significant improvement in market performance after certification relative to micro and large companies, while trade companies realise a more significant improvement in operational performance after certification compared to manufacturing companies.

### Managerial Implications

This study also makes a practical contribution, as it explains the link between QM and business performance in a systematic and comprehensive manner, which can be of great importance for managers to understand and successfully implement QM practices. It is important

to embrace QM as part of a strategy for achieving sustainable competitive advantage and long-term profitable growth, rather than as an administrative innovation whose implementation burden falls on the executives and managers in the lower levels of the organisational structure. In order to create higher value for customers, and consequently for owners as the ultimate goal of a business, it is necessary for QM to become part of a strategic determination by the company to build success on the basis of quality. Unfortunately, in many developing countries the awareness of the importance of quality as a strategic resource, which contributes to the development of IC as a basis for future sustainable growth of the company, is still not sufficiently developed. The use of strategic management tools such as the value chain and the Balanced Scorecard, as well as modern performance measurement systems, can significantly contribute to increasing the efficiency of QM implementation.

### Limitations and Direction for Future Research

Collecting data based on respondents' assessments has significant limitations regarding objectivity issues. A case study would be preferable over a questionnaire to improve the reliability of the data used in future research. This approach would enable the researcher to measure all research inputs and thereby determine whether a company made progress in QM practices and how the progress affected its business performance. Although such a process may be time-consuming, it would help to increase the reliability of the study results. The present research uses a period of three years to observe the impact of QMS certification to ISO 9001 on the business performance of Serbian companies. As we find no evidence of improved financial performance, future research could examine a longer time period after certification. More research on this and similar topics in developing countries would have a positive impact on raising the awareness about the strategic importance and effective implementation of QM practices. The research question suggests another potential trajectory of research: how can businesses harness the potency of IC and ensure its support to improve the QM process?

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