

Mate Damić¹
Dora Naletina
Luka Buntić

REVISITING THE RELATIONSHIP BETWEEN ORGANIZATIONAL INNOVATIVENESS AND ISO 9001

Article info:
Received 25.03.2020.
Accepted 24.08.2020.

UDC – 005.6
DOI – 10.24874/IJQR15.03-14



Abstract: *The relationship between organizational innovativeness and ISO 9001 is still ambiguous in the literature. This paper aims to shed light on this understudied issue by observing how different levels of ISO 9001 quality management system internalization influence organizational innovativeness. To answer this question we analysed the relationship between internal motivation for implementation of ISO 9001, internalization of ISO 9001 and organizational innovativeness in one hundred and fifty seven ISO 9001 certified organizations from four European countries (Austria, Croatia, Italy and Romania). We found out that higher levels of internalization of ISO 9001 have a positive relationship with organizational innovativeness, while higher levels of internal motivation for implementation of ISO 9001 have a positive influence on ISO 9001 internalization. Through analysis of internal motivation as an important antecedent of ISO 9001 internalization and its relationship with organizational innovativeness, our findings can help organizations to reconcile the need for achieving innovativeness and quality at the same time. Future research should try to broaden the research sample and conduct a longitudinal study in order to analyse the influence of other institutional factors on the relationships proposed in our research.*

Keywords: *Quality management; ISO 9001; Innovation; organizational innovativeness.*

1. Introduction

One of the consequences of globalization is the rising competitiveness of the global market. Organizations competing on the market are required to develop new capabilities that are somewhat contradictory, such as quality and innovativeness. Quality is one of the prerequisites for success on the global market. One of the ways in which customers can be certain that an organization meets high quality standards is the implementation of ISO 9001 quality management system.

According to Manders et al. (2016) the aim of ISO 9001 is to ensure that a certified organization maintains a quality management system that will enable it to successfully meet its publicly announced quality standards in relation to different organizational processes and activities necessary for the delivery of goods and services. On the other hand, a product or service that an organization brings to the market should also be innovative, and in a new, different and better way meet consumer needs. The relationship between quality management and innovation has been a topic of scientific research for quite some time.

¹ Corresponding author: Mate Damić
Email: imdamic@efzg.hr

Most research is focused on innovation as an outcome (Terziovski & Guerrero, 2014; Rafailidis et al., 2017). However, research on the relationship between organizational innovativeness and quality management is still scarce, and findings in the literature are ambiguous (Viardot et al., 2016).

Some scientists (Hung et al., 2011) have found a negative relationship between innovativeness and quality management. The theoretical explanation for this can be found in claims that quality management principles promote a mechanistic approach and bring about the routinization and standardization of business practice that inherently leads to limited creativity and innovativeness in an organization. Others (Perdomo-Ortiz et al., 2009; Yusr et al., 2014; Sirivariskul, 2019) on the other hand, claim that quality management principles will have a positive influence on innovativeness due to their focus on continuous improvement.

Quality management and innovativeness can also be seen as two complementary halves of the same continuum since organizations strive to simultaneously achieve good results both in terms of quality and innovativeness (Baković et al., 2018). Therefore we should not discuss the overall impact of quality management on innovativeness but focus more on the specific relationships between different aspects of these complex constructs. Through the analysis of different ways in which an organization can implement the ISO 9001 quality management system this paper aims to shed more light on the understudied relationship between ISO 9001 and organizational innovativeness. In this paper we analysed how different levels of ISO 9001 internalization influence organizational innovativeness as well as how internal motivation for ISO 9001 implementation affects its internalization. The internal motivation is an important antecedent for successful implementation of ISO 9001 and our findings therefore also offer important managerial insights.

2. Literature review

Quality management can be defined as the “application of formalized systems with the aim of maximizing customer satisfaction at minimum cost while achieving continuous improvement” (Lazibat, 2009). According to Dahlgaard et al. (2013) there are three levels on which we can observe quality management: quality management systems, quality management tools and quality management principles and values. The ISO 9001 is a quality management system implemented in an organization through a set of documented and detailed processes. Upon the completion of the implementation an organization gains an ISO 9001 certificate.

The implementation of ISO 9001 can be seen as a first step towards business excellence. It is a complex task which takes up a lot of organizational resources and is dependent on a number of factors. One of the most important factors that influences the success of ISO 9001 implementation is the motivation for implementation (Prajogo, 2011). Organizations can be motivated to implement ISO 9001 externally or internally. External motivation is related to different types of institutional pressure from key external stakeholders, such as regulators, consumers of business partners (Nair & Prajogo, 2009; Santos & Leal Millan, 2013).

Internal motivation for implementation of ISO 9001 can be viewed through the lens of Porter’s resource theory. According to the theory, the ISO 9001 quality management system can be seen as an organizational resource and it can be expected that organizations will be internally motivated to implement ISO 9001 with the goal of improving organizational processes and routines (Prajogo, 2011). We can expect that different levels of motivation for ISO 9001 implementation could lead to different ways in which the quality management system is implemented in an organization.

Castello Dalmau et al. (2016) defined three different types of implementation: structural

implementation, internal integration and external integration. Structural implementation is focused on the basic system requirements of quality management, internal integration on requirements for documenting and recording product control and performance while external integration and analysis involves in-depth process control and analysis of requirements affecting suppliers and users of enterprise services.

Nair & Prajogo (2009) theorize that organizations which have implemented ISO 9001 due to internal motives will have a more dynamic way of using the quality management system that should also help continuous improvement. However, this has not been sufficiently empirically tested.

Boiral (2003) defines three types of organizations in terms of their attitudes towards ISO 9001: Symbolic integrators superficially implement ISO 9001 and are motivated by external legitimation. Quality enthusiasts are organizations that are actively dedicated to internalizing the norm and its requests. Dissidents on the other hand are organizations that view ISO 9001 as a constraint set by the management. Quality enthusiasts can therefore be defined as organizations that are expected to have high levels of ISO 9001 internalization.

According to Knight & Liesch (2002) internalization can be defined as a process of absorbing tacit and explicit information in an organization and translating them into useable knowledge. Internalization of ISO 9001 can therefore be defined as an active use of the quality management system practices and routines that will influence organizational behaviour and the decision-making process in an organization. Briscoe et al. (2005) explain that higher levels of internalization signify that practices of ISO 9001 are deeply engrained into existing organizational routines. Higher levels of ISO 9001 internalization are correspondent to employee training, process documentation and the use of ISO 9001 principles as the basis for continuous improvement.

Prajogo et al. (2012) defined three levels of ISO 9001 internalization. The basic level is characterized by strict adherence to the requirements of the quality management system, which in itself is not enough for continuous improvements in the company. Companies that apply ISO 9001 at an advanced level use it as a stimulus to understand how a company can operate more efficiently through it. The highest level of ISO 9001 internalization is named the supportive level. At this level of internalization the company's top management takes an active role in implementing ISO 9001 by developing a culture of quality, monitoring employee behavior and organizing training programs for employees to help develop skills and ensure continuous improvement within the organization.

We can define a number of differences in ways organization implement ISO 9001. However, there is a consensus that the benefits of ISO 9001 implementation are not equally available to all organizations. Organizations that view ISO 9001 implementation as an end goal will probably not enjoy the same benefits as organizations with high levels of ISO 9001 internalization.

The implementation of ISO 9001 should focus on internalizing knowledge of the processes and routines necessary for improving organizational efficiency. External motivation has played an important role in increasing the number of ISO 9001 certified organizations and strengthening their isomorphism. However, the level of internal motivation for implementation varies between organizations. According to the resource theory, we can expect that some organizations will adapt ISO 9001 to their needs and goals in different ways, depending on their internal motivation. This leads us to our first hypotheses.

H1: Internal motivation for ISO 9001 implementation has a positive relationship with ISO 9001 internalization.

The benefits of internalization in terms of financial performance in organizations are well established in the literature. According to Briscoe et al. (2005) organizations with higher levels of ISO 9001 internalization have better operational and financial performance. Boiral (2012) analysed more than a hundred of empirical studies and found that 84,2% of these studies report a positive relationship between higher levels of ISO 9001 internalization and financial performance, as well as operational performance. Bello – Pintado et al. (2018) also find that ISO 9001 internalization has a strong and positive impact on work performance. However, the findings regarding the relationship between ISO 9001 internalization and organizational innovativeness are still ambiguous (Manders et al., 2016)

The concepts of innovativeness and innovation tend to overlap in the literature and it is important to clearly define them. Organisation for Economic Co-operation and Development (2005) defines innovation as an implementation of new or significantly improved product, process, marketing method, organizational method in business practice, organization of workplace or external relationship. This is a wide definition that includes different types of innovation that can be found in the literature and within organizations. Organizational innovativeness on the other hand can be defined as a capability of an organization to create new innovation through continuous learning, knowledge transformation, creativity and exploitation of internal and external resources available to the organization (Iddris, 2016). Organizational innovativeness can therefore be seen as an organizational capability, and innovation as an output of this capability.

Ruvio et al. (2014) define organizational innovativeness as a five dimensional construct. The first dimension of organizational creativity in their framework is creativity. Hughes et al. (2018) define creativity as a “cognitive and behavioral processes applied when attempting to generate novel ideas”. Higher levels of

creativity help in the idea generating phase of creating new innovation.

Openness is the second dimension that relates to flexibility and adaptability of an organization in answering new ideas and change. This construct has been commonly related to organizational innovativeness. Hurley & Hult (1998) define innovativeness in the context of openness to new ideas as the aspects of organizational culture. Therefore, openness measures how willing the members of an organization are to accepting innovation.

Future orientation measures the way in which an organization faces the “innovator’s dilemma” (Christensen, 2013) that signifies the exchange between using accumulated knowledge from the past and exploring future knowledge in terms of limited organizational resources. Organizations that have a higher level of organizational innovativeness will be focused more on accumulating new knowledge.

The fourth dimension, risk taking, measures how willing the management of an organization is to dedicate organizational resources to future endeavours that have higher risk (Miller & Friesen, 1978). Organizations with higher level of organizational innovativeness will have a higher propensity to take on risk.

Proactivity is the last dimension in the conceptual model of organizational innovativeness proposed by Ruvio et al. (2014). In this sense, proactivity can be defined as organizational search for business opportunities that can be related to existing product lines, but can also be related to new product lines (Lumpkin & Dess, 2001). Proactivity puts an emphasis on initiation activities that are the first part of the innovation process in an organization.

Viardot et al. (2016) state that organizational innovativeness is commonly linked to creativity while the key element of any quality management system is standardization, its direct opposite. Baković (2011), however, explains that innovation

management is getting more integrated into quality management principles. Castelion & Markham (2013) add that successful innovation requires successful commercialization as well, and standardization is required as a part of this process. Therefore, organizations do have a need for implementing a good quality management system as well as innovativeness, but the way of achieving these two goals simultaneously has not been thoroughly researched so far.

In general, a few arguments regarding the relationship between ISO 9001 and organizational innovativeness can be made. ISO 9001 is designed in order to decrease variation and eliminate waste which can have a negative influence on innovativeness (Hindo, 2007). It is also designed in a way that should help improve internal processes which can lead to bureaucratization and a decrease in innovativeness (Gotzamani & Tsiotras, 2002). This can lead to a conclusion that ISO 9001 internalization could have a negative influence on organizational innovativeness. However, the latest revision of ISO 9001 from 2015 puts more emphasis on integrating innovativeness in quality management routines, and there is still a lack of research regarding the possible changes in the relationship between ISO 9001 and innovativeness due to the revision (Wilson & Campbell, 2018). This paper is a relevant addition to the existing research on the relationship between ISO 9001 and organizational innovativeness since the data was collected in 2018 and 2019. All analyzed organizations have undergone a mandatory recertification according to the 2015 revision. According to the requirements of the revision, we can therefore expect that higher level of ISO 9001 internalization could lead to higher organizational innovativeness.

Since continuous improvement is one of the key principles of ISO 9001 that is even more emphasized in the 2015 revision, we can theorize that it will have a positive relationship with organizational innovativeness. When discussing the

relationship between ISO 9001 internalization and organizational innovativeness it is also important to take note of the time passed since ISO 9001 introduction in an organization. The implementation of ISO 9001 requires significant organizational resources. Therefore, it is not unusual for organizations to suffer poor innovative performance while implementing ISO 9001. However, in the long term, organizations that have successfully internalized the ISO 9001 quality management system should have a higher organizational innovativeness than organizations that have not internalized it (Bourke & Roper, 2017). Some scientists (Perdomo – Ortiz et al. 2009; Manders et al., 2016; Viardot et al., 2016) argue that quality management system implementation in an organization could help create a surrounding that will promote innovativeness and increase organizational learning capability. However, this assumption needs to be further empirically tested, which leads us to our second hypotheses:

H2: Internalization of ISO 9001 has a positive relationship with organizational innovativeness.

3. METHODOLOGY

The research sample for our study consisted of 1500 randomly picked ISO 9001 certified organizations in Croatia, Romania, Austria and Italy. The data on internal motivation for implementation of ISO 9001, internalization of ISO 9001 and organizational innovativeness was gathered through an online survey tool. The sample was adjusted to the demands of multivariate analysis and the model was tested for regression coefficients. Data was collected from November 2018 to February 2019. In total, 157 responses were gathered for a 10,47 % response rate. After analysing the collected data, all incomplete questionnaires were left out and this resulted with a total of 115 complete responses.

Out of 115 analysed organizations, 17 were from Austria, 26 from Romania, 34 from Croatia and 38 from Italy. When analysing revenue, 92 organisations from the sample claim industrial products as the main source of their income, while 22 state that they sell services. Almost all of the organizations come from the manufacturing sector and can be classified as SME-s according to the EU classification (less than 250 employees and less than 50 million € of yearly income).

All the constructs were measured through existing scale items that have shown high levels of validity and reliability. The questionnaire used was translated to English with the help of experts from Croatia and other countries in order to ensure that all items were understood in the same manner by all respondents. The study was focused on key informants in organizations such as quality managers or other middle and top management respondents. Quality managers account to 90 respondents in the sample. Nine respondents have stated their position in the organization as „other“, eight were top management and six were middle management.

The study was conducted using an on-line survey tool in order to decrease the costs of data gathering and ensure the questionnaire was easily accessible to all respondents. Items that measure internal motivation for ISO 9001 implementation are focused on combating poor quality performance, building a foundation for systemic management, business process control improvement and continuous improvement in order to realize the company's strategy for pursuing quality. Internal motivation for ISO 9001 implementation was measured through a scale developed by Prajogo (2011).

We used a scale developed by Naveh & Marcus (2005) to measure internalization. Items that were used to represent internalization measure how well the employees are acquainted with ISO 9001 principles, are organizational procedures aligned with ISO 9001 requirements, as well

as how often do organizations conduct internal audits and how prepared they are for external audits.

Organizational innovativeness was measured using a multidimensional scale developed by Ruvio et al. (2014). This scale measures five different dimensions of organizational innovativeness: creativity, openness, future orientation, risk-taking, and proactiveness. It is important to state that the construct of organizational innovativeness, measured in this way neglects the existing technical base of the organization since it is focused more on sociological and behavioural elements within the organization. A five-point Likert scale was used to provide responses for all three constructs. The scale value ranged from 1 (strongly disagree) to 5 (strongly agree).

Only complete answers were taken into consideration in order to decrease the possibility for error and to avoid analysing incomplete values. In order to test the questionnaire for reliability and to identify and remove eventual difficulties while answering the survey we conducted a pilot study on twenty respondents from the research sample. We analysed the Cronbach alpha coefficient for each construct to test their reliability. According to Pallant (2007), an acceptable cut-off value for the coefficient is 0,7. Factor analysis was conducted in order to obtain the most reliable measurement scales. The factor analysis showed a total of eight items that did not have the appropriate factor structure and disrupted the research model. These items were subsequently removed from the questionnaire. All the scales have shown a high level of reliability and the Cronbach alpha values for the scales used in the study are shown in table 1.

We conducted a main component factor analysis of the constructs to see if the research model corresponds to the empirical findings. In order to analyse how much of the interdependence of the variables can be explained by common factor we conducted the Kaiser – Meyer – Olkin test. The cut-off value of the test is 0,5 while in our case it was

0,808, which indicates a large proportion of related variables that can be explained by a common factor. The Bartlett test of sphericity has shown that the relationship between all constructs is statistically significant. In order to exclude common method variance we conducted Harman single factor test. The results show that one factor would account for 35,99% of model variations, which is significantly lower than the upper threshold of 50%. Therefore common method variance is not a problem in our study. The Catell's diagram scree plot shows a structure of seven distinct factors, five of which correspond to the construct of organizational innovativeness while ISO 9001 internalization and internal motivation for ISO 9001 implementation were loaded on separate factors. However, creativity and openness, dimensions of the organizational innovativeness construct had a number of cross loaded items with low Cronbach alpha coefficients and were consequently removed from further analysis. Finally, the orthogonal factor rotation yielded the results of the factor analysis presented in the appendix. All questions had a level of significance higher than the minimum 0.5 on the predicted factors, indicating a high level of validity of the questionnaire.

Table 1. Cronbach Alpha values for the scales used

Construct	Number of questions in the scale	Cronbach Alpha
Organizational innovativeness	12	0,860
Internalization of ISO 9001	5	0,808
Internal motivation for implementation	5	0,855

Based on the results of factor analysis we concluded that organizational innovativeness is a three dimensional construct consisting of the following dimensions: future orientation, risk taking and proactiveness. However, Harman single factor test of these three dimensions shows that more than 50% of the

construct variance can be explained by a single factor, therefore we can state that these dimensions form organizational innovativeness as a second order unidimensional construct (Ruvio et al., 2014).

In order to test our hypotheses we used multivariate statistical analysis. One of the advantages of using multivariate statistical methods is the possibility to conduct data analysis on smaller samples (Wiengarten et al., 2011). We compared two models that were constructed by adding different control variables together with the dependent and independent variables. First control variable in our study was the time elapsed since ISO 9001 implementation in analysed organizations. Time is an important factor in analysis of ISO 9001 in organizations since the implementation requires large organizational resources that become unavailable for other organizational activities (Bourke & Roper, 2017; Sfredo et al., 2018). However, as time goes by, the resources become available for other organizational activities, therefore, it is important to take this into account. Time since implementation was measured by using a natural logarithm of the years passed since ISO 9001 was introduced in an organization. According to Gelman & Hill (2007) natural logarithm use is practical since regression coefficients can be interpreted as differences in dependent variable proportion. The other control variable was the human development index (HDI) value for each country. HDI is a composite variable that scores from 0,001 – 1 for each country. The variable takes into account the life expectancy, education and average income. The value of HDI in the model represents the differences between institutional and macroeconomic factors that can affect organizations in the sample since they come from different countries. HDI values were also transformed into natural logarithms.

In order to test the first hypothesis we analysed the regression model in which internal motivation for ISO 9001 was the independent variable while internalization of

ISO 9001 was the dependent variable. The percentage of explained variance in the first regression model is 21,1 %. The independent variable, internal motivation for ISO 9001 implementation has a significant and positive influence on ISO 9001 internalization ($\beta = 0,492, p < 0,01$). Therefore, our first hypothesis is confirmed. The control variables are not significant in the

model. The correlation matrix analysis shows that only the independent and dependent variable have significant correlation which indicates that multicollinearity is not an issue in the model. Tolerance analysis ($> 0,1$) as well as VIF index value (<10) also point out that there is no multicollinearity issue. The results of the analysis are shown in tables 2 and 3.

Table 2. Explained variance for the first regression model

C	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,482 ^a	,232	,211	3,99264	1,829

a. Predictors: (Constant), motivation, hdi_ln, t_ln

b. Dependent Variable: internalization

Table 3. Analysis of the first regression model

Model	Unstand. Coeff.		Stand. Coeff.	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			TOL	VIF
Constant	8,022	2,639		3,039	,003		
t_ln	,565	,445	,109	1,270	,207	,932	1,072
hdi_ln	1,230	9,336	,011	,132	,895	,949	1,054
motivation	,516	,089	,492	5,769	,000	,951	1,051

a. Dependent Variable: internalization

In order to test the second hypothesis we analysed the regression model in which internalization of ISO 9001 was the independent variable while organizational innovativeness was the dependent variable. The percentage of explained variance in the second regression model is 15,9 %. The independent variable, internalization of ISO 9001 has a significant and positive influence on organizational innovativeness ($\beta = 0,38, p < 0,01$). Therefore, our second hypotheses was confirmed as well. It is important to note that time elapsed since ISO 9001 certification has a significant and negative influence on

organizational innovativeness ($\beta = -0,165, p < 0,1$), contrary to the theoretical assumptions. It would be interesting to investigate this relationship further in future research. The correlation matrix analysis shows that only the independent and dependent variable have significant correlation which indicates that multicollinearity is not an issue in the model. Tolerance analysis ($> 0,1$) as well as VIF index value (<10) also point out that there is no multicollinearity issue. The results of the analysis are shown in tables 4 and 5.

Table 4. Explained variance for the second regression model

C	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,426 ^a	,181	,159	7,82011	1,691

a. Predictors: (Constant), internalization, t_ln, hdi_ln

b. Dependent Variable: innovativeness

Table 5. Analysis of the second regression model

Model	Unstand. Coeff.		Stand. Coeff.	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			TOL	VIF
Constant	28,628	4,855		5,896	,000		
t_ln	-1,609	,860	-,165	-1,871	,064	,962	1,040
hdi_ln	-14,572	18,366	-,070	-,793	,429	,960	1,042
internalization	,718	,163	,380	4,394	,000	,997	1,003

a. Dependent Variable: innovativeness

4. Discussion

According to previous research of ISO 9001 and organizational innovativeness (Manders et al., 2016; Bourke & Roper, 2017) we added two control variables in the model, the time since ISO 9001 implementation and human development index of the country in which organization does business. When analysing the relationship between internal motivation for ISO 9001 implementation and internalization neither of the two variables were found significant in the model. Since all organizations come from four member countries of the EU and have a HDI index value higher than 0,8 the insignificance of this variable can be somewhat expected. It would be interesting to conduct similar research in the future on a larger number of countries with more differences in HDI values. On the other hand, we expected that the time elapsed from certification would be positively correlated with the level of internalization of the standard. The argument for this is the possibility that companies which have applied the ISO 9001 quality management system for a longer time will have it more deeply woven into organizational processes. However, in our research model this was not the case.

The findings regarding the relationship between internal motivation for ISO 9001 implementation and ISO 9001 internalization in previous research were somewhat ambiguous. However, our research has shown a positive relationship between the two constructs. These findings are significant since our study was done in four countries and

is one of the first studies of this type to be done after the ISO 9001 revision in 2015.

Internalization of ISO 9001 within an organization signifies accepting all fundamental principles and practices of the quality management system from all decision makers within an organization, and their active use in organizational daily processes and routines (Briscoe et al., 2005; Naveh & Marcus, 2005). Theoretical explanation for the positive relationship can be found in Porter's resource theory. According to Prajogo et al. (2012) organizations that have higher levels of internal motivation for ISO 9001 implementation will view it as an important organizational resource that will enable the organization to gain a competitive advantage in the market. When all members of the organization are internally motivated to implement the norm, higher levels of its use in everyday practises and routines can be expected, together with the development of a strong quality culture within an organization (Baković, 2011).

In our second hypotheses we expressed the view that ISO 9001 can be a foundation that enables an organization to be more effective and efficient in a way that enables a continuous surplus of organizational resources and provides the basis for continuous improvement. The time elapsed since ISO 9001 implementation has shown a significant and negative relationship with organizational innovativeness. Bourke & Roper (2017) state that time passed since ISO 9001 implementation should have a positive influence on organizational innovativeness. The argument for this is that implementation

of the quality management system takes up a lot of organizational resources in the short term, however, in the long run those resources become available to use for other organizational goals. On the other hand, certain time is needed for ISO 9001 routines and practices to take hold within an organization, therefore, long term benefits of implementation should be more visible. A possible reason for the negative influence of time since implementation could be the fact that organizations that have implemented ISO 9001 more recently have a fresh experience of intensive organizational learning which can later be replicated to other sources of information outside the organization. A possible avenue for future research could be the impact of the time since ISO 9001 implementation on different organizational outcomes.

The internalization of ISO 9001 has a significant and positive influence on organizational innovativeness, according to our second hypotheses. This confirms the assumptions in a number of studies that argue that quality management principles can have a positive influence on organizational innovativeness in case that they are adopted in the right way (Kim et al., 2012; Viardot et al., 2016; Khan & Naeem 2018;). According to Naveh & Marcus (2005) ISO 9001 internalization does not serve only as a measure of the level of quality management system implementation but also can be seen as a catalyst for change that can help an organization to innovate on the basis of the standard. Using the theoretical lens of Porter's resource theory can help in building the conceptual model in which an organization will be internally motivated to internalize ISO 9001 in order to improve its operations. On the other hand, one of the key principles of ISO 9001 is continuous improvement. Organizations that have a higher level of internalization of ISO 9001 therefore should have a more dynamic way of implementing its principles and can use the quality management system as a "springboard" (Naveh & Marcus, 2005) for

the development of organizational innovativeness.

5. Conclusion

In the highly competitive and globalized markets of today, organizations that want to be successful often need to fulfil a number of paradox goals. One example of this is consumer requests regarding quality and innovation. Bringing high quality products and services that are innovative at the same time to the market can be a difficult task. A number of studies argue that quality and innovation are two opposite goals that cannot be achieved simultaneously (Terziovski & Guerrero, 2014), while others view them as two parts of the same continuum (Baković, 2011). In order to shed more light on this understudied issue we analyzed the specific relationships between different constructs related to quality and innovation, namely internal motivation for ISO 9001 internalization, internalization of ISO 9001 and organizational innovativeness.

Many organizations implement the ISO 9001 quality management system in order to improve their operational and financial performance, but the relationship between ISO 9001 and organizational innovativeness still remains ambiguous. The aim of this study was to analyse the conditions under which ISO 9001 quality management system can help organizational innovativeness. Based on our literature review, we concluded that internal motivation for ISO 9001 implementation and ISO 9001 internalization can be seen as important antecedents of organizational innovativeness in organizations that have implemented the ISO 9001 quality management system. We used the theoretical lens of resource theory in order to build our research model. According to Prajogo (2011), organizations that have a higher level of internal motivation for ISO 9001 implementation should also have higher level of ISO 9001 internalization. The theoretical explanation for this is that organizations that are motivated to improve

their organizational performance will view ISO 9001 as an important organizational resource, and will therefore embed it in their daily processes and routines. Following the 2015 ISO 9001 revision, the findings in the literature regarding this relationship were somewhat ambiguous, with some scientists claiming external motivation is more important for successful internalization (Fonseca & Domingues, 2018; del Castillo Peces et al., 2018). Our four country study, however, has shown that internal motivation is a significant antecedent for internalization of ISO 9001.

Further building on Porter's resource theory, we viewed organizational innovativeness as an important organizational capability that helps organizations to innovate. We theorized that ISO 9001 internalization can be seen as an antecedent to organizational innovativeness. Organizations that have a higher level of ISO 9001 internalization will use it more in their daily practices and routines (Prajogo et al., 2011). One of the key principles of ISO 9001 is continuous improvement, and organizations that have a high level of internalization of ISO 9001 should be able to use it in order to further improve their organizational processes and develop new products and services. This is especially important following the 2015 ISO 9001 revision that puts an emphasis on innovation management. When applying resource theory, we can observe the level of ISO 9001 internalization as an unique organizational resource that is hard to imitate since every organization will implement ISO 9001 and adapt its organizational processes to the requirements of ISO 9001 in a specific way. Following this argument, organizational innovativeness can be seen as a specific higher order organizational capability (Teece et al., 1997) that helps an organization adapt to changing circumstances in the environment and reconfigure its resource base in order to achieve competitive advantage. The

prerequisite for development of organizational innovativeness is the existing organizational resource base. In this paper we viewed internalization of ISO 9001 as the organizational resource needed for development of organizational innovativeness. Internal motivation for ISO 9001 implementation on the other hand, is an important antecedent of the level of ISO 9001 internalization in an organization.

Our research has confirmed that higher level of ISO 9001 internalization has a positive influence on organizational innovativeness. One of the limitations of this research is the relatively small number of respondents with a 10,47% response rate. However, the questionnaire has shown adequate factor structure as well as appropriate levels of validity and reliability that enabled the testing of hypotheses. One of the limitations of the research is the subjectivity of the survey questionnaire used in the research, since the research is based on the subjective assessment of key respondents within the company. It is important to note that the survey used pre-tested questionnaires that were further validated prior to conducting the analysis itself, but the use of subjective perceptions of individuals may have nevertheless affected the research results. Another limitation of the study is the relatively low percentages of explained variance in the regression equations, which ranged from 15.9% to 21.2%, indicating that a significant proportion of variations in the level of ISO 9001 internalization and organizational innovativeness in analysed organizations remained unexplained. Future research should try to broaden the research sample and the number of countries in which analysed organizations do business. It would also be interesting to conduct a longitudinal study and try to analyse the influence of other institutional factors on the relationships proposed in our research model.

References:

- Baković, T. (2011). Utjecaj kvalitete i inovacija na poslovanje poduzeća u Hrvatskoj prerađivačkoj industriji. *Ekonomski pregled*, 62(9-10), pp. 525-543.
- Baković, T., Damić, M., & Dužević, I. (2018). Can organizational culture help manage the innovation paradox? In Dahlgaard-Park, S. M. & Dahlgaard, J. J. (ed.). *21st QMOD-ICQSS Proceedings: „The quality movement – where are we going? 22 – 24 August 2018*, Cardiff: United Kingdom, Cardiff University, pp. 1167-1176.
- Bello–Pintado, A., Heras–Saizarbitoria, I., & Merino–Díaz-de-Cerio, J. (2018). Work-performance and internalisation of ISO 9000 standards: A shop-floor workers perspective. *Total Quality Management & Business Excellence*, 1-15. 10.1080/14783363.2018.1536522
- Boiral, O. (2003). ISO 9000: Outside the iron cage. *Organization science*, 14(6), 720-737. 10.1287/orsc.14.6.720.24873
- Boiral, O. (2012). ISO 9000 and organizational effectiveness: A systematic review. *Quality Management Journal*, 19(3), 16-37. 10.1080/10686967.2012.11918071
- Bourke, J., & Roper, S. (2017). Innovation, quality management and learning: Short- term and longer-term effects. *Research Policy*, 46(8), 1505-1518. 10.1016/j.respol.2017.07.005
- Briscoe, J. A., Fawcett, S. E., & Todd, R. H. (2005). The implementation and impact of ISO 9000 among small manufacturing enterprises. *Journal of Small Business Management*, 43(3), 309-330. 10.1111/j.1540-627X.2005.00139.x
- Castellion, G., & Markham, S. K. (2013). Perspective: New Product Failure Rates: Influence of A rgumentum ad P opulum and Self-Interest. *Journal of Product Innovation Management*, 30(5), 976-979. 10.1111/j.1540-5885.2012.01009.x
- Castello Dalmau, J., Gimenez, G., & De Castro, R. (2016). ISO 9001 aspects related to performance and their level of implementation. *Journal of Industrial Engineering and Management (JIEM)*, 9(5), pp. 1090-1106. <http://dx.doi.org/10.3926/jiem.2072>
- Christensen, C. (2013). *The innovator's dilemma: when new technologies cause great firms to fail*. Cambridge, Massachusetts: Harvard Business Review Press.
- Dahlgaard-Park, S. M., Chen, C. K., Jang, J. Y., & Dahlgaard, J. J. (2013). Diagnosing and prognosticating the quality movement—a review on the 25 years quality literature (1987–2011). *Total quality management i business excellence*, 24(1-2), 1-18. 10.1080/14783363.2012.756749
- del Castillo-Peces, C., Mercado-Idoeta, C., Prado-Roman, M., & del Castillo-Feito, C. (2018). The influence of motivations and other factors on the results of implementing ISO 9001 standards. *European Research on Management and Business Economics*, 24(1), 33-41. <https://doi.org/10.1016/j.iedeen.2017.02.002>
- Fonseca, L. M., & Domingues, J. P. (2018). Empirical research of the ISO 9001: 2015 transition process in Portugal: Motivations, benefits, and success factors. *Quality Innovation Prosperity*, 22(2), 16-45. 10.12776/QIP.V22I2.1099
- Gelman, A., & Hill, J. (2007). *Data analysis using regression and multilevelhierarchical models* (Vol. 1). New York, NY, USA: Cambridge University Press.
- Gotzamani, K. D., & Tsiotras, G. D. (2002). The true motives behind ISO 9000 certification: their effect on the overall certification benefits and long term contribution towards TQM. *International Journal of Quality i Reliability Management*, 19(2), 151-169. 10.1108/02656710210413499

- Hindo, B. (2007). At 3M, a struggle between efficiency and creativity. *Business Week*, 11(11), pp. 8-14.
- Hughes, D. J., Lee, A., Tian, A. W., Newman, A., & Legood, A. (2018). Leadership, creativity, and innovation: A critical review and practical recommendations. *The Leadership Quarterly*, 29(5), pp. 549-569. <https://doi.org/10.1016/j.leaqua.2018.03.001>
- Hung, R. Y. Y., Lien, B. Y. H., Yang, B., Wu, C. M., & Kuo, Y. M. (2011). Impact of TQM and organizational learning on innovation performance in the high-tech industry. *International business review*, 20(2), 213-225. 10.1016/j.ibusrev.2010.07.001
- Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of marketing*, 42-54. 10.1177/002224299806200303
- Iddris, F. (2016). Innovation capability: A systematic review and research agenda. *Interdisciplinary Journal of Information, Knowledge, and Management*, 11, 235-260. <https://doi.org/10.28945/3571>
- Khan, B. A., & Naeem, H. (2018). Measuring the impact of soft and hard quality practices on service innovation and organisational performance. *Total Quality Management & Business Excellence*, 29(11-12), 1402-1426. <https://doi.org/10.1080/14783363.2016.1263543>
- Kim, D. Y., Kumar, V., & Kumar, U. (2012). Relationship between quality management practices and innovation. *Journal of operations management*, 30(4), 295-315. 10.1016/j.jom.2012.02.003
- Knight, G. A., & Liesch, P. W. (2002). Information internalisation in internationalising the firm. *Journal of Business Research*, 55(12), 981-995. 10.1016/S0148-2963(02)00375-2
- Lazibat, T. (2009). *Upravljanje kvalitetom*. Zagreb: Znanstvena knjiga.
- Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of business venturing*, 16(5), 429-451. 10.1016/S0883-9026(00)00048-3
- Manders, B., de Vries, H. J., & Blind, K. (2016). ISO 9001 and product innovation: A literature review and research framework. *Technovation*, 48, 41-55. 10.1016/j.technovation.2015.11.004
- Miller, D., & Friesen, P. H. (1978). Archetypes of strategy formulation. *Management science*, 24(9), 921-933. 10.1287/mnsc.24.9.921
- Nair, A., & Prajogo, D. (2009). Internalisation of ISO 9000 standards: the antecedent role of functionalist and institutionalist drivers and performance implications. *International Journal of Production Research*, 47(16), pp. 4545-4568. 10.1080/00207540701871069
- Naveh, E., & Marcus, A. (2005). Achieving competitive advantage through implementing a replicable management standard: Installing and using ISO 9000. *Journal of Operations Management*, 24(1), pp. 1-26. 10.1016/j.jom.2005.01.004
- Organisation for Economic Co-operation and Development (2005) *The measurement of scientific and technological activities: proposed guidelines for collecting and interpreting technological innovation data: Oslo manual*. Paris: OECD.
- Pallant, J. (2007). *SPSS survival manual*, 3th ed. New York: McGraw-Hill.
- Perdomo-Ortiz, J., Gonzalez-Benito, J., & Galende, J. (2009). An analysis of the relationship between total quality management-based human resource management practices and innovation. *The International Journal of Human Resource Management*, 20(5), 1191-1218. 10.1080/09585190902850372

- Prajogo, D. I. (2011). The roles of firms' motives in affecting the outcomes of ISO 9000 adoption. *International Journal of Operations i Production Management*, 31(1), 78-100. 10.1108/01443571111098753
- Prajogo, D., Huo, B., & Han, Z. (2012). The effects of different aspects of ISO 9000 implementation on key supply chain management practices and operational performance. *Supply Chain Management: An International Journal*, 17(3), 306-322. <https://doi.org/10.1108/13598541211227135>
- Rafailidis, A., Trivellas, P., & Polychroniou, P. (2017). The mediating role of quality on the relationship between cultural ambidexterity and innovation performance. *Total Quality Management i Business Excellence*, 28(9-10), 1134-1148. 10.1080/14783363.2017.1309122
- Ruvio, A. A., Shoham, A., Vigoda-Gadot, E., & Schwabsky, N. (2014). Organizational innovativeness: Construct development and cross-cultural validation. *Journal of Product Innovation Management*, 31(5), 1004-1022. 10.1111/jpim.12141
- Santos, G., & Millán, A. L. (2013). Motivation and benefits of implementation and certification according ISO 9001--The Portuguese Experience. *International Journal for Quality Research*, 7(1), 71-86. Retrieved from <http://www.ijqr.net/journal/v7-n1/5.pdf>
- Sfreddo, L. S., Vieira, G. B. B., Vidor, G., & Santos, C. H. S. (2018). ISO 9001 based quality management systems and organisational performance: a systematic literature review. *Total Quality Management & Business Excellence*, 1-21. 10.1080/14783363.2018.1549939
- Sirivariskul, N. (2019). The Effect of Absorptive Capability on Relationship between Total Quality Management and New Product Innovativeness of ISO 9001 International Quality Standard in the Industries Sector, Thailand. *International Review of Management and Marketing*, 9(1), 31-35. <https://doi.org/10.32479/irmm.7276>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, 18(7), pp. 509-533.
- Terziovski, M., & Guerrero, J. L. (2014). ISO 9000 quality system certification and its impact on product and process innovation performance. *International Journal of Production Economics*, 158, 197-207. 10.1016/j.ijpe.2014.08.011
- Viardot, E., Sherif, M. H., & Chen, J. (2016). Managing innovation with standardization: An introduction to recent trends and new challenges. *Technovation*, (48-49), 1-3.
- Wiengarten, F., Fynes, B., Pagell, M., & de Búrca, S. (2011). Exploring the impact of national culture on investments in manufacturing practices and performance: an empirical multi-country study. *International Journal of Operations i Production Management*, 31(5), 554-578. 10.1108/01443571111126328
- Wilson, J. P., & Campbell, L. (2018). ISO 9001: 2015: The evolution and convergence of quality management and knowledge management for competitive advantage. *Total Quality Management & Business Excellence*, 1-16. 10.1080/14783363.2018.1445965
- Yusr, M. M., Mohd Moktar, S. S., & Othman, A. R. (2014). The effect of TQM practices on technological innovation capabilities: Applying on Malaysian manufacturing sector. *International journal for quality research*, 8(2), 197-216. Retrieved from: <http://www.ijqr.net/journal/v8-n2/5.pdf>

Mate Damić

Faculty of Economics and
Business, Zagreb, Croatia
mdamic@efzg.hr

Dora Naletina

Faculty of Economics and
Business, Zagreb, Croatia
dnaletina@efzg.hr

Luka Buntić

Faculty of Economics and
Business, Zagreb, Croatia
lbuntic@efzg.hr
