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EXPLORING THE MODERATING ROLE OF NATIONAL CULTURE ON THE RELATIONSHIP BETWEEN ISO 9001 AND ORGANIZATIONAL INNOVATIVENESS

Abstract: *This paper aims to explore the moderating role of national culture on the understudied relationship between ISO 9001 and organizational innovativeness. To achieve the goals of this paper the moderating role of power distance, individualism vs. collectivism and uncertainty avoidance on the relationship between ISO 9001 internalization and organizational innovativeness was analyzed using moderated multiple regression in two hundred and forty seven ISO 9001 certified small and medium enterprises (SMEs) from four European countries (Austria, Croatia, Italy and Romania).*

Power distance and individualism vs. collectivism were not significant in the model, while uncertainty avoidance had a negative moderating effect. The study findings are promising and future research should broaden the research by including more organizations and countries in the research sample. The analysis of the effect other institutional factors have on the relationships proposed in this research is another possible avenue for future research.

Keywords: *National Culture; ISO 9001; Organizational Innovativeness; Quality Management; Innovation*

1. Introduction

Globalization, technology development and product life cycle shortening have emphasized the importance of meeting two opposing sets of requests for business organizations, i.e. achieving high levels of organizational innovativeness and product and service quality at the same time. Implementing a quality management system (QMS) is often viewed as a first step in achieving product and service quality (Fonseca, 2015). One of the most widespread quality management systems implemented by organizations worldwide is the ISO 9001. Manders et al. (2016) define ISO 9001 as a quality management system

that helps an organization to “successfully meet its publicly announced quality standards in relation to different organizational processes and activities necessary for the delivery of goods and services.” The way in which an organization will implement ISO 9001 and the benefits it will gain from the implementation are dependent on several internal and external factors such as the motivation for implementation or external pressure (Santos & Millán, 2013). Different levels of ISO 9001 implementation can be defined as the degree of ISO 9001 internalization. Organizational innovativeness is also dependent on several internal and external factors, such as the industry in which the

organization operates and organizational resources (Pouwels & Koster, 2017). The QMS of an organization is one of the internal factors that can also affect organizational innovativeness (Baković & Ledić-Purić, 2011).

There exists a significant body of literature on the relationship between ISO 9001 and organizational innovativeness. However, the findings regarding this relationship are still ambiguous. Several studies analyzed the impact of QMS on innovation outcomes, such as the number of product or process innovations that an organization implements (Terziovski & Guerrero, 2014; Rafailidis et al., 2017). These studies, however, do not consider the differences in ISO 9001 internalization that exist between organizations. They also do not recognize the importance of viewing innovativeness as an organizational capability and an antecedent of achieving continuous innovation outcomes rather than an outcome by itself. This paper aims to take this into account and offer a different perspective on the relationship between ISO 9001 and organizational innovativeness.

When analyzing the proposed relationship, it is important to consider external variables that can affect it, such as pressure from formal and informal institutions in the organizational surroundings. One of the most important informal institutions is national culture (Hofstede et al., 2010). National culture can be defined as a set of values, norms, behaviors, beliefs, and customs shared by the members of a society. Due to its strong influence on attitudes and behaviors of management and employees of an organization it can also affect ISO 9001 internalization, organizational innovativeness, and the relationship between the two (Wiengarten et al., 2011). However, there is a lack of research on the moderating role of national culture on the relationship between ISO 9001 internalization and organizational innovativeness in the literature. In order to shed more light on this

understudied issue, the aims of this paper are:

1. To conceptually define and empirically investigate the proposed relationship between ISO 9001 internalization and organizational innovativeness.
2. To answer the question: How and to what extent do the dimensions of national culture moderate the relationship between ISO 9001 internalization and organizational innovativeness?

SMEs are a key factor in economic development and make up for a significant share of the total firm income and number of employees in most economies in the world (Schuh et al., 2018). Heras-Saizarbitoria & Boiral, (2015) state that organizational effects of ISO 9001 will be more expressed in SMEs, while Kirkman et al. (2017) explain that SMEs are more embedded in the local context and it is therefore expected that national culture will have a stronger impact on them than on large organizations. Following these findings in the literature, to be able to identify and analyze the proposed moderating effects in a better way we conducted our research on a sample of SMEs.

2. Literature review

The widespread use of ISO 9001 has led to its institutionalization. According to Baković (2010), generic implementation of ISO 9001 has resulted in organizations no longer viewing the standard as a tool for achieving competitive advantage but as a qualifying criterion for market entry. However, organizations still differ in the way they implement and use ISO 9001. The implementation itself is a prescribed and documented process, and the organization obtains an ISO 9001 certificate upon the completion of the implementation process. Implementation of ISO 9001 is the first step in achieving business excellence. It signals

that key stakeholders in the organization are familiar with ISO 9001 requirements and its application in the organization. On the other hand, if the organization does not continue to work actively on the application of the standard, it will not necessarily significantly affect the performance of the firm (Naveh & Marcus, 2005). The internalization of ISO 9001, as a second step, implies the active use of ISO 9001 related practices that will influence the behavior and decision-making processes in the organization.

Nonaka et al. (1994) emphasize that management systems (e.g. ISO 9001) are based on explicit and implicit forms of embedded knowledge and identify four ways of transforming information into knowledge: socialization, combination, externalization, and internalization. According to Knight & Liesch (2002), internalization is "the process of absorbing tacit and explicit information in an organization and translating it into knowledge that is then used". Continuous improvement that may result from internalization requires that ISO 9001 related practices be included in daily organizational routines (Huang et al., 1999; Naveh & Marcus, 2004; Briscoe et al., 2005). Internalization of the ISO 9001 standard includes employee training, communication of ISO policies, significant documentation of the process and use of ISO 9001 as a basis for continuous improvement. Internalization of ISO 9001 means that the organization is not only certified but aims to use the QMS in daily practices and familiarize its employees with the QMS for them to use it as a key tool for improving business performance and a basis for further organizational improvement.

Prajogo et al. (2012) identified the basic, advanced and supportive level of ISO 9001 internalization. Basic level internalization signifies that an organization has a crude understanding of ISO 9001 and follows its main guidelines while not using it as a tool for organizational improvement. Advanced level use is present in organizations that have

undergone ISO 9001 implementation and test its appropriateness for achieving higher efficiency. Supportive level is the highest-level ISO 9001 internalization. Organizations that have internalized ISO 9001 at a supportive level are characterized by top management commitment to ISO 9001 utilization, focus on building a quality culture and employee skill development training that is aimed at ensuring the adherence to ISO 9001 principles and continuous improvement.

Higher levels of ISO 9001 internalization were shown to have a positive impact on the operational and financial performance of business organizations (Naveh & Marcus, 2004; Briscoe et al., 2005). Srivastav (2010) concludes that organizations with higher levels of ISO 9001 internalization will have better standardized procedures, clearer separation of duties and responsibilities between departments, systematization of staff training, and greater awareness of quality. Based on the analysis of more than a hundred empirical studies of the impact of ISO 9001 on the operational and financial performance of organizations, Boiral (2012) found a positive relationship between the implementation of ISO 9001 and financial outcomes in 84.2% cases. However, as stated earlier in the paper, the relationship between ISO 9001 and organizational innovativeness still remains unclear.

Before we continue, it is important to conceptually define organizational innovativeness. To achieve conceptual clarity, we will use Crossan and Apaydin (2010) definition of innovation as "production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome". Organizational innovativeness on the other hand can be defined as the ability of an organization to

create new innovations through continuous learning, knowledge transformation, creativity, and exploitation of internal and external resources available to the organization (Iddris, 2016). Organizational innovativeness is therefore the tendency of an organization to innovate or accept innovation and is a type of organizational ability that contributes to competitive advantage (Helfat et al., 2009). Based on all the above, organizational innovativeness can be viewed as an organizational capability, and innovation as the outcome of this capability. It can be expected that organizations with higher levels of organizational innovativeness will be more successful in achieving innovation. In this paper we conceptualize organizational innovativeness as a five-dimensional construct and measure it using a scale developed by Ruvio et al. (2014). The five dimensions are as follows: creativity, openness, future orientation, risk taking and proactivity. Creativity can be defined as an organizational process aimed at generating new ideas (Hughes et al., 2018). Openness relates to readiness of an organization to embrace new ideas and change (Hurley & Hult, 1998). Future orientation measures the willingness of an organization to abandon old knowledge in favor of accumulating new one (Christensen, 2013). Risk taking is related to the willingness for allocating organizational resources in high-risk projects (Miller & Friesen, 1978). Proactivity is defined as the propensity of an organization to seek out new business opportunities (Lumpkin & Dess, 2001).

The impact of QMS on organizational innovativeness was researched by several scientists (Prajogo & Sohal, 2006; Abrunhosa & Sa', 2008; Cole & Matsumiya, 2008; Kafetzopoulos et al., 2013; Manders et al., 2016). However, the results of these studies are often contradictory (Baković & Ledić-Purić, 2011). In some papers, a positive relationship between QMS and organizational innovativeness was found (Pekovic & Galia, 2009; Wu & Chen, 2011,

Prester & Božac, 2012). Other studies found a negative relationship (Benner, 2009; Ratnasingam et al., 2013). In the literature, organizational innovativeness is usually associated with creativity while ISO 9001 implies standardization and focuses on efficiency and effectiveness of existing business processes in an organization (Swann & Lambert, 2010; Viardot et al., 2016). However, this paradigm is changing, and innovation management is becoming more integrated into the principles of quality management (Baković, 2011; Choi et al., 2011). The latest revision of ISO 9001 in 2015 puts a special emphasis on the relationship between quality and organizational innovativeness (Hoyle 2017).

To hypothesize about the direction of this relationship, we will discuss the potential influence of seven principles of ISO 9001 on organizational innovativeness. Key ISO 9001 principles are: Customer focus, Leadership, Engagement of people, Process approach, Improvement, Evidence-based decision making and Relationship management (ISO 9001:2015, 2015). These principles can be divided into soft and hard principles. The soft principles: customer focus, leadership, engagement of people and relationship management, are related to social aspects of an organization. Hard principles: process approach, continuous improvement, and evidence-based decision-making impact the technological system and the resource base of an organization (Khan & Naem, 2018). The predominant view in the literature is that soft ISO 9001 principles will lead to an increase in organizational innovativeness if the organization has internalized them (Santos-Vijande & Alvarez-Gonzalez, 2007; Abrunhosa & Sa', 2008, Khan & Naem, 2018). The key reason for this is that these principles help organizations to focus on continuous improvement while considering the human factor in the organization (Prajogo & Sohal, 2004; Abrunhosa & Sa', 2008). Hard principles of ISO 9001 aim to decrease variation and eliminate waste in an

organization which can have a negative influence on innovativeness (Hindo, 2007). They can also lead to an increase of bureaucracy in an organization (Gotzamani & Tsiotras, 2002). On the other hand, hard principles of ISO 9001 can help organizations standardize their business processes and make them more rational and efficient (Manders et al., 2016) which will result in slack resources. The existence of slack is one of the key prerequisites for successful innovation (Kiss et al., 2018).

It can therefore be stated that the relationship between ISO 9001 and organizational innovativeness is not unidimensional and requires deeper analysis. Following previous work in the literature (Zeng et al., 2017; Khan & Naem, 2018) we argue that ISO 9001 can be viewed as a foundation on which an organization can develop organizational innovativeness and that higher levels of ISO 9001 internalization will correspond to higher organizational innovativeness. To support our argument, we draw on previous work of Naveh & Marcus (2005) who state that ISO 9001 can serve as a catalyst for change and help organizational innovativeness, depending on the level of its internalization. This is supported by the findings of Prakash & Gupta (2008) who argue that ISO 9001 certified organizations are more willing to engage in business processes restructuring and seek to improve cooperation and create shallower management structures as part of their organizational innovation activities. Nair & Prajogo (2009) also claim that organizations implementing ISO 9001 due to internal factors can expect a more dynamic way of implementing the standard and the existence of continuous improvement. However, previous research did not take into account external factors that could moderate the proposed relationship.

To gain deeper insights into other factors that influence the relationship between ISO 9001 and organizational innovativeness, we draw on contingency theory literature (Mc

Adam et al., 2019). According to the contingency theory, the success of an QMS will largely depend on contextual and environmental factors of an organization (Sousa & Voss, 2008). These factors can be divided into cultural, political, legal, and economic (Prasad & Tata, 2003). Although all these factors can influence the relationship between ISO 9001 internalization and organizational innovativeness, national culture stands out as a central field of employee organization and their understanding of work, approach to work and the way they expect to be treated at work (Newman & Nollen, 1996). The foundation for this claim can be found in the works of Schein (1983) and Hofstede (1985) which state that the management system within an organization reflects the nationality of the founder and management of the organization. Values, attitudes, and behaviors vary among national cultures, which can lead to variation in the results of ISO 9001 implementation.

National culture is a multi-level construct and can be defined using Schein's onion model (1983). The first level of the model is consisted of symbols, i.e. words, images or objects that have a certain meaning and are recognized by members of a certain culture. Heroes, people who are considered to possess characteristics that are valued in a society and represent role models that members of a society should look up to make up for the second level of the model. Rituals form the third level of the model. They can be defined as collective activities that do not necessarily have a practical purpose but are considered socially necessary within a culture as a means of helping to maintain a culture. Values can be found on the fourth, last and deepest level of the model. Values form the core of culture and can be defined as "broad tendencies of preference of a particular state of affairs over some other less desirable state of affairs" (Schein, 1983). In our paper, we define national culture as a "complex, multi-level construct, the core of which consists of

values, and outwardly manifests itself through practices, symbols, and artifacts. It is shared by individuals who belong to a group or society. It is formed over a long period of time and is relatively stable over time” (Schein, 1983; Hofstede et al., 2010).

The way in which members of a certain society understand and deal with fundamental societal issues such as social inequality, attitudes towards authority, the relationship between the individual and the wider group, gender roles in society and acceptance of insecurity is represented through national culture value dimensions (Hofstede et al., 2010). Dutch anthropologist Geert Hofstede identified six national culture value dimensions: individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long term vs. short term orientation, indulgence vs. restraint and power distance. All dimensions are measured and relatively compared using an index that can take a value from 1 - 100 where the marginal values indicate the poles of the dimensions. Value dimension country scores are based on individual answers which are then aggregated to enable comparison between different countries. Dimensions of the model are briefly described below.

Power distance describes the attitude of individuals in a society towards social inequality. It can be defined as “the extent to which less powerful members of a society expect and accept the fact that power is distributed unevenly” (Hofstede et al., 2010). Individualistic nations can be defined as societies in which “relationships between individuals are loose and each individual is expected to take care of themselves and their immediate family”. Collectivist societies on the other hand are characterized by “individuals who are integrated into strongly connected groups that protect them throughout life in exchange for loyalty” (Hofstede et al., 2010). High masculinity societies have clearly defined gender roles. In such societies assertiveness is valued and

people are striving for material success. Feminine societies are characterized by an overlap of emotional and gender roles and both men and women. Members of feminine societies are expected to be modest and more concerned about overall quality of life and well-being than personal gain (Hofstede et al., 2010). Uncertainty avoidance can be defined as the extent to which members of a particular society feel threatened by ambiguous or unknown situations (Hofstede et al., 2010). Long-term oriented societies are oriented towards future rewards, and value perseverance and thrift. Short-term oriented societies are oriented towards “virtues related to respecting tradition, keeping face and fulfilling social obligations” (Hofstede et al., 2010). Indulgence is defined as “the tendency of society to allow the free satisfaction of basic human desires associated with the enjoyment of life and entertainment”, while restraint is defined as “the belief that the satisfaction of needs must be regulated by strict social norms (Hofstede et al., 2010).

As stated earlier, national culture has a significant influence on business organizations. Previous research has found several culture related QMS implementation and innovation outcomes. Rungtusanatham et al. (2005) have analyzed data from one hundred and forty-three companies from Germany, Italy, Japan and the US and concluded that national specificities have a greater impact on the application of quality management principles than the convergence present in modern markets. According to Lin (2009), national culture with high level of uncertainty avoidance and low level of power distance will have a positive impact on the application of QMS principles in an organization, especially on customer focus, people engagement and leadership, while a high level of uncertainty avoidance will help adhere to the principles of process approach and evidence-based decision making. Kull & Wacker (2010) concluded that uncertainty avoidance and masculinity have a significant impact on quality management practices.

Wiengarten et al. (2011) concluded that the dimensions of individualism-collectivism, masculinity, and uncertainty avoidance significantly moderate the relationship between investment in quality practices and production performance. In their more recent work, Wiengarten et al. (2015) state that a stronger dimension of collectivism at both national and organizational level has a positive impact on the relationship between organizational operational performance and LEAN management practices.

A rich body of literature has analyzed the relationship between national culture and innovation as well. High levels of individualism are often associated with higher national and organizational innovation levels (Shane, 1993; Didero et al., 2008; Kaasa & Vadi, 2010; Taylor & Wilson, 2012). Other national culture dimensions often related to innovation are power distance and uncertainty avoidance. Varsakelis (2001) states that a lower level of power distance favorably affects research and development because it signifies a greater willingness of individuals to embrace new technology by reducing the cost of adaptation. Wennekers et al. (2007) believe that a low level of uncertainty avoidance acts as an attractive factor for innovation because individuals are not afraid to take advantage of untapped opportunities. Strychalska-Rudzewicz (2016) concludes that lower levels of power distance and uncertainty avoidance as well as higher levels of individualism correlate with higher levels of innovation. Efrat (2014) analyzed the impact of national culture dimensions on the innovation of individual countries over a period of ten years and concluded that investment in innovation was a mediator of the relationship between power distance and innovation at the national level and that uncertainty avoidance has a negative impact on innovation, while individualism, in the parts of the innovation process related to scientific production, has a positive impact, but at the same time has a negative effect on the number of patents in a particular country.

Based on the above, we draw several conclusions. The first is that certain dimensions of national culture show a significant impact on the relationship between quality management practices and different organizational outcomes as well as on innovation. This can be explained using the concept of “fit as moderation” (Venkatraman, 1989). This concept is based on the idea of strategic fit of an organization, i.e. its alignment with the environment. Strategic fit has long been present in organizational research and is often used to analyze the impact of a range of internal and external factors of an organization on its effectiveness and efficiency (Burton et al., 2002). According to the concept of “fit as moderation” the impact of an independent variable, i.e., internalization of ISO 9001, on a dependent one, i.e., organizational innovativeness, may depend on different values of an external moderator, in our case - national culture value dimensions (Strese et al., 2016). Three dimensions that stand out in this sense are individualism-collectivism, uncertainty avoidance and power distance. National culture dimensions influence organizations primarily through key norms and values of the owner and management (Naranjo et al., 2003). This leads us to our second conclusion. Existing research focused mostly on the way national culture moderates the relationship between QMS and different variables related to operational or financial performance. Very few studies considered other organizational variables, such as organizational innovativeness.

As explained earlier in the paper higher organizational innovativeness is one of the expected outcomes of ISO 9001 internalization in an organization. On the other hand, using the concept of “fit as moderation” we assume that national culture moderates the relationship between ISO 9001 internalization and organizational innovativeness. Based on our literature review we propose the following hypotheses:

H1: Power distance negatively moderates

the relationship between ISO 9001 internalization and organizational innovativeness in small and medium enterprises.

H2: Individualism positively moderates the relationship between ISO 9001 internalization and organizational innovativeness in small and medium enterprises.

H3: Uncertainty avoidance negatively moderates the relationship between ISO 9001 internalization and organizational innovativeness in small and medium enterprises.

3. Results

Research was conducted on a random sample of 1500 ISO 9001 SME-s from Austria, Croatia, Italy and Romania. Data on organizational innovativeness and ISO 9001 internalization was gathered using an on-line survey tool. The research sample was adjusted for multivariate analysis and tested for regression coefficients. Data collection took place in two rounds. Round one was conducted from November 2018 to February 2019, while the second round took place from November 2019 to February 2020. The response rate was 16,47% which accounted to 247 responses. In the final analysis all incomplete questionnaires were eliminated from the sample which led to a total of 185 complete responses.

Geographically, most SMEs came from Croatia (58) followed by Italy (56), Romania (36) and Austria (35). Majority of SMEs, a total of 159, state that industrial products are the main source of their income while 26 SMEs operate in the service sector. Organizational innovativeness and ISO 9001 internalization were measured using scales adopted from existing literature that have already shown high levels of validity and reliability. The questionnaire was sent out in English. Translation was done by experts from all four countries to ensure understanding of questionnaire items by all

the respondents. We used the key informant strategy, collecting answers from individuals in organizations with highest level of knowledge about ISO 9001 internalization and organizational innovativeness, i.e., quality managers and other members of middle and top management. Quality managers amount to 145 respondents, 15 respondents came from top management positions while 12 respondents were middle management. A total of 13 respondents have stated their position to be "other".

ISO 9001 internalization was measured using a scale developed by Naveh & Marcus (2005). Items measured the degree of familiarity of employees with ISO 9001 principles, alignment of organizational procedures with ISO 9001 requirements, as well as frequency and preparation for internal and external audits. Organizational innovativeness was measured by a five-dimensional scale developed by Ruvio et al. (2014). The measured dimensions were creativity, openness, future orientation, risk-taking, and proactiveness, as mentioned earlier in the paper. We used a five-point Likert scale to measure responses both constructs. The scale value ranged from 1 (strongly disagree) to 5 (strongly agree).

To avoid analysing incomplete values and decrease the possibility for errors in the analysis only complete answers were taken into the final sample. Prior to data collection we conducted a twenty respondent pilot study to test the questionnaire for reliability as well as to adjust parts of the questionnaire that were ambiguous or difficult to understand. Following data collection Cronbach alpha coefficient for each construct was analysed to test reliability.

Acceptable cut-off value for coefficient was estimated at 0,7 according to recommendations by Pallant (2007). Following factor analysis eight items that did not have appropriate factor structure were removed from the research questionnaire. Items used to measure ISO 9001 internalization and organizational

innovativeness have shown high levels of reliability as shown in Table 1.

Table 1. Cronbach Alpha values

Construct	Number of questions in the scale	Cronbach Alpha
Organizational innovativeness	12	0,885
Internalization of ISO 9001	5	0,828

Following reliability test, a main component factor analysis was conducted in order to explore if the research model corresponds to the empirical findings. Kaiser – Meyer – Olkin test cut off value was above 0.8 which indicates that a large proportion of related variables can be explained by a common factor. Relationship between all constructs in the research model were statistically significant according to the Bartlett test of sphericity. Common method variance was excluded using Harman single factor test which accounted for 33,45% of model variations. We identified six factors using Catell’s diagram scree plot. Five of the factors corresponded to organizational innovativeness while ISO 9001 internalization was loaded on a separate factor. Due to cross loading of items with low Cronbach alpha coefficients and disruption of the research model, creativity and openness, dimensions of the organizational innovativeness construct were removed from further analysis. Orthogonal factor rotation yielded a level of significance higher than the minimum 0.5 on the remaining factors, indicating a high level of validity of the questionnaire.

After eliminating redundant items the factor analysis yielded three distinct factors that made up the construct of organizational innovativeness: future orientation, risk taking and proactiveness. After conducting the Harman single factor test we concluded that more than 50% of the construct variance for organizational innovativeness can be explained by a single factor. Following the

previous findings of Ruvio et al. (2014) we conceptualized organizational innovativeness as a second order unidimensional construct

We used multivariate statistical analysis to test the hypotheses due to the possibility of conducting analysis even on smaller research samples (Wiengarten et al., 2011). We added two control variables in the regression equations based on our literature review. The first variable was time elapsed since ISO 9001 implementation. This was taken into account due to heavy resource load required for ISO 9001 implementation, especially in SMEs, which can influence other processes in an organization, including the ones related to innovation (Bourke & Roper, 2017; Sfreddo et al., 2021). However, after the implementation, it is expected that ISO 9001 should be beneficial for organizational performance and lead to slack resources. Time was calculated using a natural logarithm of years passed since ISO 9001 implementation. Natural logarithm use is widely accepted in regression analysis since it allows for interpretation of differences in dependent variable proportion (Gelman & Hill, 2006). Natural logarithm of human development index, a variable that accounts for differences between life expectancy, education and average income, was used as the second control variable. We used HDI as a proxy variable for other environmental factors that could influence the relationship between ISO 9001 internalization and organizational innovativeness.

Based on Chan et al. (2010) and Strese et al. (2016) the moderated regression models were created progressively. The first regression consisted only from the control variables (time since ISO 9001 implementation and HDI). In the second model we added the independent variable (ISO 9001 internalization). The moderator variables (power distance, individualism vs. collectivism and uncertainty avoidance values) as well as interaction terms (multiplication of the independent variable

and moderator) were added in models 3 and 4. The fourth model was used for testing the hypotheses on the moderating role of national culture

The explained variance percentage in the first four regression models for the first hypothesis can be seen in Table 2. The moderator variable was present only in model 4. The percentage of explained variance in this model was 18,6%. ISO 9001 internalization has shown a significant and positive relationship with organizational innovativeness in models 2 - 4 that included it ($\beta = 0,435$ to $0,439$ $p < 0,01$). Time elapsed since ISO 9001 implementation has shown a significant and negative relationship with organizational innovativeness in models

2 - 4 ($\beta = -0,121$ to $-0,92$, $p < 0,1$), contrary to our assumptions regarding this relationship. HDI was not significant in the model and led to an increase of variance inflation factor. It was therefore removed from models 1 – 4. The results of model 4 show that power distance does not have significant effects on the relationship between ISO 9001 internalization and organizational innovativeness. Therefore our first hypothesis is rejected. Tolerance analysis ($> 0,1$) as well as VIF index value (< 10) point out that there is no multicollinearity issue. The results of the regression analysis for the first hypothesis are shown in table 3.

Table 2. Explained variance for the first four regression models

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,092 ^a	,008	,003	8,19599
2	,447 ^b	,200	,191	7,38107
3	,448 ^c	,200	,187	7,40036
4	,451 ^d	,204	,186	7,40488

a. Predictors: (Constant), T_LN

b. Predictors: (Constant), T_LN, INT

c. Predictors: (Constant), T_LN, IND, PD

d. Predictors: (Constant), T_LN, INT, PD, INT * PD

Table 3. Analysis of the first four regression models

Model		Unstandardized Coefficients		Standard. Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,035	1,741		1,169	,244
	T_LN	-,926	,745	-,092	-1,244	,215
2	(Constant)	2,593	1,570		1,651	,100
	T_LN	-1,179	,672	-,117	-1,755	,081
	INT	,843	,128	,439	6,606	,000
3	(Constant)	2,646	1,591		1,663	,098
	T_LN	-1,203	,681	-,119	-1,765	,079
	INT	,842	,128	,438	6,576	,000
	PD	-,005	,021	-,015	-,230	,819
4	(Constant)	2,663	1,592		1,672	,096
	T_LN	-1,222	,682	-,121	-1,791	,075
	INT	,836	,128	,435	6,517	,000
	PD	-,002	,021	-,007	-,102	,919
	INT * PD	-,005	,005	-,059	-,883	,379

a. Dependent Variable: INNO

The explained variance percentage for the regression models 5 - 8 (second hypothesis) can be seen in Table 4.

Table 4. Explained variance for regression models 5 - 8

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	,092 ^a	,008	-,002	8,21839
6	,448 ^b	,200	,187	7,40010
7	,456 ^c	,208	,190	7,38673
8	,467 ^d	,218	,196	7,35778

- a. Predictors: (Constant), HDI_LN, T_LN
- b. Predictors: (Constant), HDI_LN, T_LN,
- c. Predictors: (Constant), HDI_LN, T_LN, INT, IND
- d. Predictors: (Constant), HDI_LN, T_LN, INT, IND, INT * IND

The moderator variable was present only in model 8. The percentage of explained

variance in this model was 19,6%. ISO 9001 internalization has shown a significant and positive influence on organizational innovativeness in models 6 - 8 that included it ($\beta = 0,435$ to $0,447$ $p < 0,01$). Time elapsed since ISO 9001 implementation has shown a significant and negative relationship with organizational innovativeness in model 6 ($\beta = -0,114$ $p < 0,1$) while it was not significant in models 7 and 8. The results of model 8 show that individualism vs. collectivism does not have a significant effect on the relationship between ISO 9001 internalization and organizational innovativeness. Therefore our second hypothesis is rejected. Tolerance analysis ($> 0,1$) as well as VIF index value (< 10) show that there is no multicollinearity issue. The results of the regression analysis for the second hypothesis are shown in table 5.

Table 5. Analysis for the regression models 5 - 8

Model		Unstandardized Coefficients		Stanadrd. Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	1,893	2,969		,638	,525
	T_LN	-,918	,758	-,091	-1,211	,227
	HDI_LN	-,792	13,327	-,004	-,059	,953
6	(Constant)	2,040	2,673		,763	,446
	T_LN	-1,149	,684	-,114	-1,680	,095
	HDI_LN	-3,072	12,005	-,017	-,256	,798
	INT	,844	,128	,439	6,594	,000
7	(Constant)	4,844	3,445		1,406	,161
	T_LN	-1,051	,687	-,104	-1,530	,128
	HDI_LN	15,984	19,050	,090	,839	,403
	INT	,858	,128	,447	6,693	,000
	IND	-,059	,046	-,139	-1,287	,200
8	(Constant)	4,174	3,459		1,207	,229
	T_LN	-,928	,688	-,092	-1,349	,179
	HDI_LN	13,913	19,022	,078	,731	,465
	INT	,836	,128	,435	6,509	,000
	IND	-,057	,045	-,135	-1,254	,211
	INT * IND	,010	,007	,104	1,555	,122

- a. Dependent Variable: INNO

The explained variance percentage for the regression models 9 - 12 (third hypothesis) can be seen in Table 6. The moderator variable was present only in model 12. The percentage of explained variance in this

model was 22,1%. ISO 9001 internalization has shown a significant and positive influence on organizational innovativeness in models 10 - 12 that included it ($\beta = 0,411$ to $0,439$ $p < 0,01$). Time elapsed since ISO 9001 implementation has shown a significant

and negative relationship with organizational innovativeness in models 10 - 12 ($\beta = -0,117$ to $-0,113$, $p < 0,1$). HDI was not significant as a control variable in the model and led to an increase of variance inflation factor. It was therefore removed from models 9 – 12. The results of model 12 show that uncertainty avoidance has a significant and negative effect ($\beta = -0,148$, $p < 0,05$) on the relationship between ISO 9001 internalization and organizational innovativeness. Therefore our third hypothesis is confirmed. Tolerance analysis ($> 0,1$) as well as VIF index value (< 10) show that there is no multicollinearity issue.

The results of the regression analysis for the third hypothesis are shown in table 7.

Table 6. Explained variance for regression models 9 - 12

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
9	,092 ^a	,008	,003	8,19599
10	,447 ^b	,200	,191	7,38107
11	,448 ^c	,201	,188	7,39749
12	,470 ^d	,221	,203	7,32669

a. Predictors: (Constant), T_LN

b. Predictors: (Constant), T_LN, INT_C

c. Predictors: (Constant), T_LN, INT_C, UA_C

d. Predictors: (Constant), T_LN, INT_C, UA_C, UA_C_MOD

Table 7. Analysis for the regression models 9 - 12

Model		Unstandardized Coefficients		Stanardr. Coefficients	t	Sig.
		B	Std. Error	Beta		
9	(Constant)	2,035	1,741		1,169	,244
	T_LN	-,926	,745	-,092	-1,244	,215
10	(Constant)	2,593	1,570		1,651	,100
	T_LN	-1,179	,672	-,117	-1,755	,081
	INT	,843	,128	,439	6,606	,000
11	(Constant)	2,510	1,585		1,584	,115
	T_LN	-1,141	,679	-,113	-1,682	,094
	INT	,840	,128	,437	6,565	,000
	UA	,036	,083	,029	,439	,661
12	(Constant)	2,640	1,571		1,680	,095
	T_LN	-1,176	,672	-,116	-1,750	,082
	INT	,790	,129	,411	6,131	,000
	UA	,089	,086	,072	1,041	,299
	INT * UA	-,051	,024	-,148	-2,125	,035

a. Dependent Variable: INNO

4. Discussion

Following previous findings in the literature (Černe et al., 2013; Engelen et al., 2015; Bachmann et al., 2016) we constructed a research model with two control variables, the time elapsed since ISO 9001 implementation and human development index of the country within which the observed organizations operate. HDI values, which served as a proxy for general macroeconomic and institutional factors, did not show a significant effect in any of the 12 analyzed models. One of the possible

reasons for this is the fact that all four countries in the research model are EU member states with relatively high HDI values. On the other hand, the time elapsed since ISO 9001 implementation was shown to have a significant and negative impact in all models except 7 and 8. Bourke & Roper (2017) state that time elapsed since ISO 9001 implementation should have a positive impact on innovation. One of the reasons for this is that the implementation of the ISO 9001 standard itself requires significant organizational resources, which in the short term negatively affects the possibility of

developing new products and services. In addition, it takes some time for the procedures and routines of the ISO 9001 standard to get internalized in an organization, so it can be expected that the full benefits of implementing the standard will be visible only over time.

Our results suggest the possibility that the time elapsed since ISO 9001 implementation may have a negative effect on the development of organizational innovativeness. This may be since organizations that have recently adopted ISO 9001 have recent experience of introducing new knowledge into the organization which they can consequently easily replicate to acquire new information outside the organization. New knowledge acquisition is one of the antecedents of organizational innovativeness. However, the prolonged use and internalization of ISO 9001 could lead to a decrease of this trait and a stronger focus on internal information. This is an interesting avenue for future research.

Our base assumption was that ISO 9001 internalization has a significant and positive relationship with organizational innovativeness, and our research has confirmed it. Several studies show that quality management principles, such as ISO 9001 principles, if applied correctly, have a positive impact on organizational innovativeness (Prajogo & Sohal, 2003; Perdomo - Ortiz et al., 2006; Prajogo & Hong, 2008; Kim et al., 2012). Naveh & Marcus (2005) state that ISO 9001 internalization does not only serve as a measure of the level of implementation of the standard but can be viewed as a catalyst for change and a “stepping stone” for further innovation. This is in line with the goals of continuous improvement, and organizations that higher levels of ISO 9001 internalization are expected to have a more dynamic way of implementing the standard and the existence of continuous improvement (Nair & Prajogo, 2009).

The regression analysis has shown that power distance and individualism vs. collectivism do not moderate the relationship between ISO 9001 internalization and organizational innovativeness, contrary to our hypotheses. Khazanchi et al. (2007) state that a higher level of power distance can negatively affect the development of innovation in an organization as it places too much emphasis on process control and efficiency while neglecting flexibility within business processes. This assumption has not been confirmed in this paper, and it is possible that the influence of power distance is less effective within SMEs characterized by a shallower structure and shorter communication channel, which may consequently nullify the assumed negative impact of power distance on the relationship between ISO 9001 internalization and organizational innovativeness.

To hypothesize about the reasons for the lack of moderating effects of individualism vs. collectivism we draw on national culture and innovation literature. Some studies state that specific configurations of national culture value dimension can lead to collectivism having a significant and positive impact on the development of innovation (Smale, 2016). Collectivist individuals can be more open to accepting new ideas and practices aimed at helping the organization to achieve better business results (Yang et al., 2015). However, most research shows that a higher level of individualism associated with creativity, propensity to develop new solutions and risk-taking is generally highly correlated with the innovation (Shane et al., 1995; Didero et al., 2008; Kaasa & Wadi, 2010). Building on these ambiguous findings we conclude it is possible that specific national and organizational culture configurations, rather than individual national culture value dimensions moderate the relationship between ISO 9001 internalization and organizational innovativeness.

Uncertainty avoidance, the third national culture value dimension in our model has shown a significant and negative influence on the relationship between ISO 9001 internalization and organizational innovativeness as hypothesized. Higher levels of uncertainty avoidance were shown to promote a rigid process approach to business activities (Naor et al., 2010) while having a negative influence on innovation at the same time (Kaasa & Vadi, 2010; Efrat, 2014). The combination of these two expected effects could lead to an inhibition of soft ISO 9001 principles and a stronger process focus which will in turn lead to a weaker relationship between ISO 9001 internalization and organizational innovativeness.

5. Conclusion

There is an ongoing debate regarding the ambiguous relationship between ISO 9001 and organizational innovativeness. The aim of this paper was to introduce national culture value dimensions as potential moderators that help explain under which conditions does ISO 9001 have a stronger or weaker influence on organizational innovativeness. The study was conducted on SMEs due to their stronger embeddedness in the local cultural context.

We confirmed that ISO 9001 internalization has a positive influence on organizational innovativeness. We also found out that time since ISO 9001 implementation has a negative influence on organizational innovativeness. However, we found that only power distance has a moderating effect on the relationship between ISO 9001 internalization and organizational innovativeness. There are several possible reasons for this.

It is possible that ISO 9001 principles, if internalized in the right way have a stronger influence on the way things are done in an organization than the cultural context of the organization. Another possible reason is that we should have analyzed specific country culture configurations that interact with one another, rather than individual national culture dimensions (Kaasa & Vadi, 2010).

The findings of this study are relevant for policymakers and practitioners as well. Although ISO 9001 is universally applicable and widely used, we show that the outcomes of ISO 9001 implementation are dependent on national culture value dimensions to a certain degree. Incumbent organizations looking for better ways to integrate ISO 9001 principles in their organizational cultures as well as new organizations that have not yet implemented ISO 9001 should take this into account to achieve the desired outcomes of ISO 9001 implementation.

National culture is only one of the factors that affects organizations. Formal institutions, customer pressure and the macroeconomic environment also have a significant effect on the organization. These factors can also influence the relationship between ISO 9001 internalization and organizational innovativeness. Therefore, future studies should try to analyze their effects as well.

To gain more fine-grained insights into the moderating effect of national culture on ISO 9001 and organizational innovativeness future research should try to broaden the research sample, both in term of the number of countries as well as the number of organizations included. Future research should try to explore in more depth the impact of the time component of ISO 9001 acceptance on different organizational outcomes.

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