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LEVERING UP PERFORMANCE THROUGH QUALITY AND KNOWLEDGE CREATION

Abstract: *The objective of this research is to explore the relationships between values, values' fit, and quality management with organizational performance, and to investigate the mediating role of knowledge management creation between these three antecedents of organizational performance. Aiming this purpose, a mixed-methodology approach was conducted. First step was performing quantitative research through a questionnaire on two different samples (one for the exploratory factor analysis and another for the research model). The second step consisted on qualitative research based on semi-structured interviews. The posited hypotheses are tested statistically through Structural Equation Modelling technique. The results show that quality management and knowledge creation have significant and positive impact on organizational performance. This research makes an original contribution to the existing literature by proposing new scales of the constructs that are analysed. Results suggest ground-breaking and unexpected ideas regarding values, values' congruence and the role of knowledge management with organizational performance. This study also has practical implications for managers.*

Keywords: *Knowledge management creation; Organizational values; Values fit; Quality management; Resource-based view; Organizational performance*

1. Introduction

According to Spender and Grant (1996), the growth of interest in knowledge reflects that this asset is considered to be the primary source of the economy. In the current knowledge-driven economy, to create and use knowledge is a powerful element of sustainable competitive advantages. In this sense, knowledge strategies might encourage the knowledge creation process and take full advantage of the organizational performance (Jasimuddin & Zhang, 2014).

Quality management is considered one of the necessary conditions for increased performance and sustained innovativeness

(Linderman et al, 2004). In the same way, organizational values play a crucial role in the achievement of a higher level of organizational performance because it is increasingly accepted that they guide all of a company's actions and activities (Lencioni, 2002). Moreover, the main stakeholders are increasingly identifying themselves not with products, processes and structures but rather with organizational values, which is why managing values becomes an essential topic in today's business environment.

On the other hand, knowledge management (KM) creation also might affect these relationships. However, the question is how these organizational resources and capabilities impact organizational

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performance. Therefore, the primary objectives of this research are twofold: (1) to explore the relationship between organizational values, values' fit, and quality management with organizational performance and (2) to investigate the mediating role of KM creation between these three antecedents of organizational performance. Both objectives are important issues surrounding this field of research.

The remainder of the paper is organized as follows. The second section starts with a literature review in order to accomplish the following: (i) suggest a theoretical framework based on the *Resource-Based View* (RBV) theory of the firm; (ii) obtain a better understanding of the antecedents of organizational performance, including organizational values, the congruence of personal and organizational values, and quality management; and (iii) assess the mediating role of KM creation between these three variables and organizational performance. Along with this review, all hypotheses and a research model in which all hypotheses are linked are proposed. The third section provides the methodological framework and describes how the constructs are operationalized. The results are reported in the fourth section. A discussion of the findings and concluding remarks are presented in the fifth and last section.

2. Literature review and research model

2.1. Theoretical framework

The ultimate objective of any organization is to be successful, which is best manifested in achieving a higher degree of organizational performance. In this sense, organizational performance means the degree to which an organization realizes its goals and as such is consisted of efficiency, since it includes the level of realization of the set goals within the limited available resources and the ability to adapt to future conditions (Burnes, 2004;

Daft, 2010). Measuring levels of organizational performance includes specific methodology that monitors many aspects of business, and there are many tools and methods used for that purpose. The most known and universally accepted one is the *Balanced Scorecard* (BSC). However, there are also other, considerably simpler but also frequently used approaches for assessing the levels of organizational performance, and one that is also used in this study assesses the perceptions of organizational members about the key performance components (Lee & Choi, 2003; Zheng et al., 2010). In the end, the RBV of performance management helps us to understand how firms achieve effective results with high efficiency.

Quality is considered to be one of the main antecedents of organizational performance (Jeong & Phillips, 2001). Resources related to quality management include innovation, customized products, product flexibility, product reliability, quality standards, and delivery reliability. According to Hitt et al. (2016), when quality management is embedded within a firm's employees and processes, it should be considered a resource that is difficult to imitate.

In addition, human resource management is considered as a critical resource to generate sustainable competitive advantages (Priem & Butler, 2001). Specifically, according to Barney (1991), organizational capital resources comprise a firm's formal structure and the informal relations among groups within a firm, between firms and those in its environment. At this point, cultural issues become relevant sources of competitiveness with VRIO characteristics. Cultural resources include behaviours, attitudes, values and beliefs, and are categorized as one of the most relevant intangible resource within companies (Hall, 1993). The central part of cultural resources are values because they determine our beliefs, which in turn affect our expectations. In next step, there are showed specific attitudes as an outward manifestation of our values, beliefs, and expectations,

which will finally affect our behaviour (Tracy, 2003). However, apart from providing guidelines for organizational behaviour, organizational values support the organization in creating the future that it wants to experience, and they also provide directions in decision making (Barrett, 2006).

Figure 1 encompasses the conceptual model based on this theoretical framework (the shadow areas) and the research model that will result from the aggregation of the hypotheses that will be posed in this section (the relationships among the constructs).

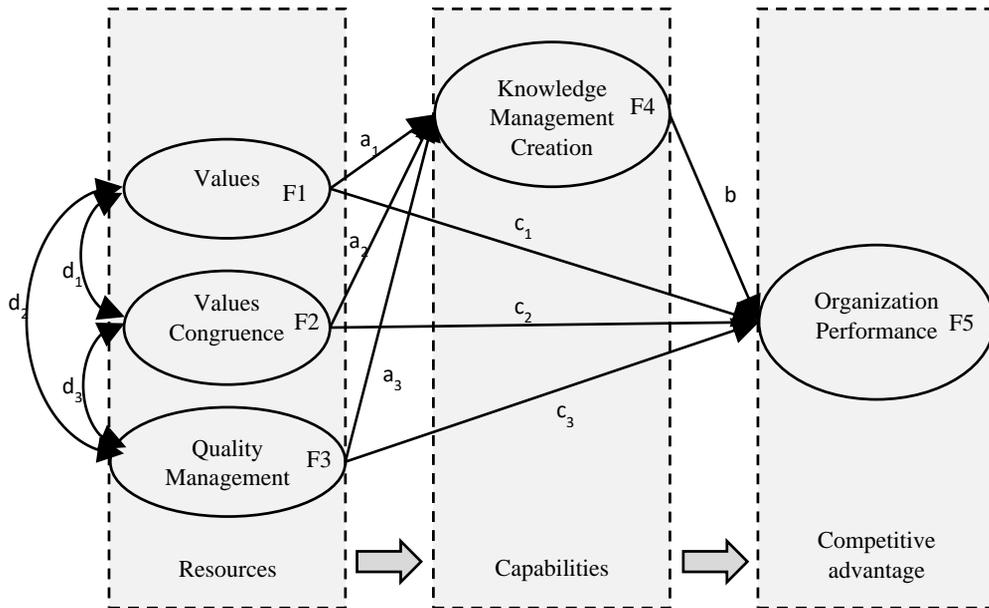


Figure 1. Research Model

2.2. Antecedents of the organizational performance: hypotheses

In recent times, the focus of scientific research and business practice has been increasingly oriented toward several new paradigms of organization and management and, in particular, toward the role and importance of organizational values in doing business. In the context of business, values “belong to whatever is necessary, or makes a positive contribution, for maintaining and improving business” (Melé, 2005, p.101). As such, values are operationalized from the individual to the organizational level of analysis. Organizational values have a significant influence on many aspects of organizational behaviour and organizational culture (Lencioni, 2002; Van den Steen,

2010; Dolan, 2011), thus, they indirectly affect organizational performance. Some authors even say that organizational values are the DNA of an organization’s culture (Barrett, 2006; Dolan & Altman, 2012), and have a dominant influence on all organizational activities and decisions.

Although the concept of values in the business environment is still not sufficiently researched, considering that values are a soft concept that could be viewed from different angles, there are many studies showing that they influence different aspects of business (Dunn et al., 1994; Cha & Edmondson, 2006; Van Beurden & Gössling, 2008; Malbašić et al., 2016). Considering that values are, at their essence, psychological constructs and thus are primarily related to the individual level of analysis, it is important to understand how

employees perceive their role in achieving organizational performance. Although an individual's perception, as a subjective impression, usually determines an individual's attitudes and behaviours (Finegan, 2000), it is reasonable to assume that employees could recognize that certain values promote specific behaviours, which finally leads to better overall performance. Therefore, the following hypothesis is proposed:

Hypothesis 1 (c1): Organizational values positively impact organizational performance.

Another line of research in the field of values is congruence between personal and organizational values, and there is clear evidence that higher levels of values' congruence positively impacts many aspects of organizational behaviour (i.e., Ostroff et al., 2005; Cennamo & Gardner 2008). Conversely, it also seems that the congruence of personal and organizational values enhances the level of organizational performance. Klenke (2005) claims that values can serve as a great unifying force, providing that corporate and individual values are aligned and, as such, connect people together and guide them in the direction of achieving organizational goals. Therefore, another hypothesis is proposed:

Hypothesis 2 (c2): Congruence of personal and organizational values positively impacts organizational performance.

Finally, quality management has also been shown to impact efficiency and results (Krivokapic et al., 2013). Classical authors known as "quality gurus", such as Deming or Juran, among others, established a clear relationship between quality and results. In a recent ample literature review on quality management, Bajaj et al. (2018) reanalyse quality management and its impact on the performance of a business. Kumar et al. (2018) confirm previous findings and provide strong evidence about this cause-effect link, which leads to the third hypothesis:

Hypothesis 3 (c3): Quality management positively impacts organizational performance.

Several authors have already indicated that organizational values, as a core variable of organizational culture, are essential for the KM creation process, thereby influencing specific organizational outcomes (Skyrme & Amidon, 1997; Lee & Choi, 2003; Alavi et al., 2005). Recently, Wang et al. (2011) found that the key antecedent of the knowledge creation capability is organizational culture, while Mojibi et al. (2015) state organizational culture, together with organizational values, is important factor for the success of knowledge management. Therefore, next hypothesis is proposed:

Hypothesis 4 (a1): Values positively impact KM creation.

Organizational culture can impact knowledge creation in different ways. One of these ways is that culture could shape the processes for the creation of new knowledge (De Long & Fahey, 2000). Conversely, the fit between personal and organizational values plays an important role and is related to the job satisfaction, commitment and performance of employees (Finegan, 2000). Person-organization values fit refers to the match between an individual's values and the values of their organization (Cennamo & Gardner, 2008). The conventional wisdom of knowledge creation is that congruence of personal and organizational values will increase the shared knowledge and obtain better organizational performance. Thus, leads to propose:

Hypothesis 5 (a2): Congruence of values positively impacts KM creation.

Quality improvement is a highly desired organizational objective that is related to organizational performance (Dow et al., 1999; Samson & Terziovski, 1999; Ahire & Dreyfus, 2000). To date, the link between quality management and KM was explored more theoretically (Lin & Wu, 2005), than practically (Molina et al., 2004). From the theoretical point of view, quality management

and KM creation share a number of similarities and differences that make possible their effective complementary adoption within the company. According to Asif et al. (2013), quality management practices, especially continuous improvement, customer satisfaction management, process-improvement techniques, individual learning, and new product development methods, are contributing to the knowledge-creating processes of the SECI model (acronym for the knowledge creation model based on: Socialization, Externalization, Combination and Internalization –SECI–). Therefore, it is proposed the following hypothesis:

Hypothesis 6 (a3): Quality management impacts on KM creation.

According to Nonaka (1994), knowledge is created through a dynamic interaction between tacit and explicit knowledge in the SECI process. The four modes of the conversion between tacit and explicit knowledge are the basis of the knowledge creation process from the individual level to the inter-organizational level. The socialization process looks for collective knowledge from individual members. In socialization, firms can foster tacit knowledge to raise the knowledge assets in the organization (Nonaka & Takeuchi, 1995; Nonaka, Toyama & Konno, 2000). Employees better understand the explicit knowledge, rather than the tacit knowledge. Externalization assists employees to articulate in a physical way the ideas that are required for new product development or innovation. The recently explicit knowledge is then unified and disseminated at different organizational levels (Nonaka & Takeuchi, 1995; Nonaka et al., 2000). Therefore, the SECI model of knowledge creation modifies knowledge into business value and innovation (Nonaka et al., 2000).

Several empirical studies suggest a significant relationship between knowledge creation and sharing with organizational performance, such as McEvily and

Chakravarthy (2002) and Zheng et al. (2010). A knowledge-centred organization will emphasize the processes through which organizations access, utilize and apply the knowledge towards a better performance of the daily activities of the firm. To summarize, how the creation and transfer of knowledge within organizations is managed will contribute to the achievement of their primary long-term objectives and goals. Thus, following hypothesis is proposed:

H7 (b): KM creation positively impacts organizational performance.

These seven hypotheses are considered together in the research model (Figure 1).

3. Methodology

It is conducted a mixed-methodology approach. First, a quantitative research through a questionnaire on two different samples (one for the *Exploratory Factor Analyses* (EFAs) analysis and another for *Structural Equation Modeling*, i.e., the SEM research model) is conducted, and second a qualitative research based on four semi-structured interviews with managers of four companies is conducted.

The questionnaire consisted of an introduction section where socio-demographic information of the respondent and information about the organization were collected. Five subsequent sections were inquired about the constructs of the model (see the Appendix). All these sections included up to 49 items. An adaptation of validated scales was used. The first subsection consists of sixteen items, which were based on the literature review previously described that is related to the organizational values and were operationalized by using the construct of Malbašić et al. (2015). It was taken into account that items in the form of concrete organizational values were evenly distributed across four categories of values — business, relational, development, and contribution values. Three items are used for the assessment of the congruence of personal

and organizational values based on Cable and DeRue (2002) in the second subsection. The third subsection assesses quality management using nine items based on the EFQM model. The fourth of these sections consisted of sixteen items to assess KM creation. The scale that was used to evaluate the KM creation was based on the SECI model (Nonaka, Byosiere, Borucki & Konno, 1994) and other KM creation scales (such as Sabherwal & Becerra-Fernandez, 2003; Tsai & Li, 2007; Li et al., 2009). The fifth and last subsection collects the information related to the organizational performance based on Lee

and Choi (2003) which is the dependent construct in the model (five items).

All items in the questionnaire were statements to which respondents indicated their agreement/disagreement based on a five-point Likert-type scale, and they are attached in the Appendix. The questionnaire was first conducted in November 2016 with employees of six different Croatian companies, and 202 valid questionnaires were collected. Table 1 shows the demographic characteristics of the Croatian sample.

Table 1. Demographic characteristics of the samples

	Sample 1 (Croatian)		Sample 2 (Spanish)	
	Number	%	Number	%
Gender				
Female	92	45.5	341	56.7
Male	109	54.0	260	43.3
No answer	1	0.5	-	-
Total	202	100.0	601	100.0
Age				
< 20	1	0.5	2	0.3
21-30	22	10.9	156	26.0
31-40	52	25.7	201	33.4
41-50	70	34.7	155	25.8
51-60	54	26.7	72	12.0
>61	3	1.5	15	2.5
Total	202	100.0	601	100.0
Years in the current company				
0 - 4	16	7.0	279	46.4
5 - 10	20	9.9	133	22.1
11 - 20	62	30.7	117	19.5
> 21	103	51.0	72	12.0
no answer	1	0.5	-	-
Total	202	100.0	601	100.0
Education level				
Basic studies	79	39.1	234	38.9
Vocational qualification	24	11.9	118	19.6
University degree	99	49.0	249	41.4
Total	202	100.0	601	100.0

Table 1. Demographic characteristics of the samples (continued)

	Sample 1 (Croatian)		Sample 2 (Spanish)	
	Number	%	Number	%
Position				
Operations worker	138	68.3	357	59.4
Lower or middle management	52	25.7	226	37.6
Top management	11	5.4	18	3.0
No answer	1	0.5	-	-
Total	202	100.0	601	100.0
Manufacturer / Services				
Manufacturer			75	12.5
Services			481	80.0
Both			45	7.5
Total	202	100.0	601	100.0
Size				
< 10 employees			102	17.0
Between 10 and 49 employees			115	19.1
Between 50 and 249 employees			120	20.0
> 249 employees			264	43.9
Total			601	100.0

All of the items in the questionnaire and the dimensions that they were encompassed by were selected from the relevant literature that was mentioned above. However, these dimensions had to be demonstrated to be consistent. Therefore, this first sample was used to assess the reliability and validity of the five constructs of the research model. Five independent exploratory factor analyses (EFA) using principal component analysis were conducted to explore the dimensionality of the five constructs. The next section shows that these exploratory analyses confirmed the five dimensions.

Once the dimensionality and psychometric characteristics were found to be sound, a second sample was used to confirm the relationships proposed by the seven hypotheses, which was reflected in the research model. This second sample consisted of 601 questionnaires that were collected in December 2016 from employees working in Spanish companies. The research model was analysed using this second and larger sample through SEM techniques.

To assess the mediating role of implementation, the seminal work of Baron and Kenny (1986) inspired the analysis. A model analysis was conducted using the EQS 6.3 software in a similar way that other papers have assessed mediation using SEM (Petnji et al., 2011; Bernardo et al., 2012; Pereira-Moliner et al., 2012). The posterior conceptualization of the mediating role proposed by Zhao et al. (2010) sheds light on the analysis of the three mediating roles of the creation of knowledge.

Finally, four interviews with the top managers of four companies (three in Spain and one in Portugal) provided practical evidence that confirmed the statistical analysis and enriched the research implications.

4. Results

This section starts with the dimensionality analysis of the five constructs (with the first sample), which are used in the second subsection where the research model is analysed (with the second sample). In the

third and last subsection, the mediation analysis of the role of knowledge creation is performed.

4.1. Reliability and validity analyses of the constructs

A set of five independent EFAs using Principal Components Analysis is conducted. Table 2 shows that for each analysis, both the

Kaiser-Meier-Olkin statistic and the Bartlett test forecasted a good result for all these analyses.

All EFAs extracted only one factor with an eigenvalue greater than one, except for the factor analysis of the KM creation, which extracted three factors.

The first factor showed an eigenvalue of 7.66 and extracted 47.87% of the sample variance.

Table 2. The five factors extracted by the five Principal Components Analysis (Sample 1 – Croatian companies): values, congruence, quality management, KM and organizational performance

	1 Values		2 Congruence		3 Quality management		4 Creation of knowledge		5 Organizational effectiveness	
	code	load	code	load	code	load	code	load	code	load
	OV14R4	0.815	VC3	0.938	QM6	0.817	KM13	0.843	OP3	0.908
	OV6R2	0.788	VC2	0.937	QM8	0.804	KM12	0.780	OP4	0.880
	OV15D4	0.774	VC1	0.893	QM7	0.802	KM11	0.769	OP5	0.866
	OV11D3	0.768			QM3	0.791	KM8	0.740	OP2	0.847
	OV5B2	0.767			QM2	0.775	KM4	0.737	OP1	0.820
	OV2R1	0.760			QM4	0.768	KM2	0.736		
	OV10R3	0.754			QM5	0.750	KM15	0.722		
	OV3D1	0.752			QM1	0.676	KM5	0.721		
	OV7D2	0.737			QM9	0.669	KM1	0.704		
	OV12C3	0.737					KM6	0.662		
	OV13B4	0.712					KM3	0.661		
	OV8C2	0.709					KM10	0.652		
	OV1B1	0.625					KM16	0.617		
	OV9B3	0.589					KM14	0.563		
	OV4C1	0.589					KM7	0.552		
	OV16C4	0.587					KM9	0.528		
Number of original (retained) items	16 (12)		3 (3)		9 (7)		16 (9)		5 (5)	
Kaiser-Meyer-Olkin statistic	0.939		0.739		0.911		0.908		0.852	
Bartlett statistic (freedom degree) p-value	1,846.06 (120) 0.000		431.76 (3) 0.000		980.39 (36) 0.000		1,644.07 (120) 0.000		700.95 (10) 0.000	
Eigen-value	8.301		2.555		5.241		7.660		3.737	
Average variance extracted (AVE)	51.88%		85.18%		58.23%		47,86%		74.74%	

Selected items shadowed

Taking into account that the eigenvalues for the second and the third factors were near the Kaiser criterion threshold (1.26 and 1.04, respectively) and that the first factor explained almost 50% of the variance, the analysis was forced to extract only one factor. The only criterion to retain items in all these five EFAs was to exceed the cutoff for a load of 0.7 (Hair et al., 2010).

At this point, the five EFAs were conducted again by taking only the selected items, and five independent reliability and validity analyses were performed. The internal reliability of these factors was confirmed as the retained indicators exhibited loadings of

0.70 or higher. The internal consistency of the constructs reaffirmed our approach by obtaining values that exceeded the recommended threshold value of 0.7 for both the Cronbach's alpha coefficient and the composite reliability (CR). The average variance extracted (AVE) also surpassed the cut-off point of 0.5 (Nunnally & Bernstein, 1994) for all factors. To further corroborate the suitability of the items included in these factors, several tests that removed the items with lower loads were conducted. The results revealed that the Cronbach's alpha value did not improve, and therefore no items were excluded. Table 3 summarizes the reliability analysis of the five constructs.

Table 3. Reliability and convergent validity analysis of the five constructs (Sample 1 – Croatian companies)

	1 Values	2 Values Congruence	3 Quality Management	4 Creation of knowledge	5 Organizational Performance
Alpha Cronbach	0.934	0.912	0.901	0.906	0.915
Range of Cronbach's alpha if one item is removed	0.927-0.931	0.850-0.918	0.884-887	0.887-0.899	0.881-0.908
Range of correlations between items and total corrected scale	0.952-0.773	0.771-0.852	0.681-0.727	0.644-0.799	0.723-0.848
Composite Reliability	0.941	0.945	0.919	0.921	0.937
Average Variance Extracted	0.572	0.852	0.619	0.564	0.748

Table 4 provides the results for the analysis of discriminant validity, which was performed using linear correlations or standardized covariances between latent factors, by examining whether the

inter-factor correlations were less than the square root of the AVE (Fornell & Larcker, 1981). As seen in Table 4, the square roots of each AVE were greater than the off-diagonal elements. Thus, the discriminant validity was confirmed.

Table 4. Correlation matrix of latent factors

	1	2	3	4	5
1 Values	<i>0.757</i>				
2 Values Congruence	0.544*	<i>0.923</i>			
3 Quality Management	0.611*	0.723*	<i>0.923</i>		
4 Creation of knowledge	0.433*	0.569*	0.519*	<i>0.787</i>	
5 Organizational Performance	0.370*	0.583	0.583*	0.693*	<i>0.865</i>

(*) Correlation significant at the 0.01 level (bilateral)

Diagonal elements are the square roots of the average variance extract

4.2. Research model

The model was estimated using the robust maximum likelihood method from the asymptotic variance-covariance matrix. The fit indices obtained showed an acceptable fit, although they need to be taken with some caution. The Satorra-Bentler χ^2 was 1,104.34 with 583 degrees of freedom and a p-value of 0.000. Since the second sample that was used in this analysis is notably large, it was expected to have a null p-value. For these cases, it is therefore advisable to use the coefficient between the χ^2 and the degrees of freedom, which was 1.89. The comparative fit index (CFI) was 0.952, which is clearly above the general accepted threshold (> 0.9) according to Hair et al. (2010) and Hu and Bentler (1999). Therefore, it is concluded that the global fit is acceptable. An additional

model is conducted in which four control variables were introduced (gender, age, education level and position in the company). The model's Satorra-Bentler χ^2 increases to 1,502.14 with 729 freedom degrees, its CFI decreases to 0.933, and its RMSEA increases to 0.042. Therefore, the model fits the data. Only education is insignificant. The age positively impacts organizational performance and negatively impacts the position. (The top managers have a worse perception of the organization performance than other employees. Perhaps it is because they have better information.) Gender also significantly impacts performance. Men's perception of performance is lower than women's perception, possibly because women's perception is more optimistic.

Table 5 shows the results.

Table 5. Decomposition of the parameters of the model

	Total effect	Indirect effect	Direct effect		Type of mediation (according to Zhao et al. typology)
1 Values → 5 Organizational performance	-0.047 (-0.549)	0.040 (1.957) (a ₁ *b)	-0.087 (-1.108) (c ₁)	H ₁ refused	Non direct effect Non mediation
2 Congruence values → 5 Organizational performance	-0.172 (-2.207)	0.039 (2.158) (a ₂ *b)	-0.211 (-2.934) (c ₂)	H ₂ refused	Direct and indirect effects Competitive mediation
3 Quality management → 5 Organizational performance	0.723 (7.782)	0.045 (1.923) (a ₃ *b)	0.678 (8.028) (c ₃)	H ₃ accepted	Direct only effect Non mediation
1 Values → 4 Creation of knowledge	0.222 (3.168)	-	0.222 (3.168) (a ₁)	H ₄ accepted	
2 Congruence values → 4 Creation of knowledge	0.216 (3.096)	-	0.216 (3.096) (a ₂)	H ₅ accepted	
3 Quality management → 4 Creation of knowledge	0.246 (3.429)	-	0.246 (3.429) (a ₃)	H ₆ accepted	
4 Creation of knowledge → 5 Organizational performance	0.181 (2.609)	-	0.181 (2.609) (b)	H ₇ accepted	
Correlations					
1 Values → 2 Congruence	0.718 (12.323) (d ₁)				
1 Values → 3 Quality management	0.758 (11.652) (d ₂)				
2 Congruence → 3 Quality management	0.726 (12.217) (d ₃)				

Standardized parameter (t-value).

The letters a₁, a₂, a₃, b, c₁, c₂, c₃, d₁, d₂ and d₃ correspond to the notation in Figure 1.

From the four hypothesized antecedents of organizational performance (direct effect), only two have significant and positive impacts (quality management and knowledge creation). It is consistent with the interviews with managers when commenting on empirical results. In response to how quality management impacts organizational performance, a manager of a company that specialized in the genetic improvements of seeds for horticultural and field crops provided the following insight: *“It is evidenced that the higher the specification of the processes, the higher the positive impact on the company’s results. Quality makes us competitive worldwide.”*

Conversely, values do not have an impact, and the congruence of values has significant and negative impacts. In words of one manager, *“Values set up a common culture, fostering a sense of belonging. However, defining and communicating some values do not have a direct impact on the company’s performance, but they are essential to achieve the unity of the company.”* Values *per se* do not directly affect performance because they are a long-term concept. Values are a relevant part of any organization but are not highly related to pure performance, especially from the eyes of employees.

Finally, the following excerpt from the interviews illustrates the negative link between values’ fit and organizational performance: *“Employees who reach high positions by criteria of loyalty in the company rather than by merits do not provide new and renewed ideas to the company. In addition, in a situation of changes in the environment or technology, they are not able to adapt, even though their values are closely aligned with those of the company.”* Their experience was that loyal employees remain long in the company without training and it results in negative performance.

4.3. Analysis of the mediation of KM creation

The research model suggests that the creation of knowledge is mediating in three different ways by considering the three antecedents isolated: (i) between organizational values and organizational performance, (ii) between the congruence of values and organizational performance, and (iii) between quality management and organizational performance. Zhao et al. (2010) proposes some mediation typologies attending to the significance between the three variables that are affected in this analysis (the dependent variable, the mediator and the dependent variable). Attending to this typology, the creation of knowledge plays three different mediating roles.

First, there is no effect (direct or indirect) between organizational values and organizational performance. This finding should be taken with caution because the t-value for indirect effect is just under the threshold of significance at 0.05. Therefore, it leads to conclude that although there is no direct effect between organizational values and organizational performance, it can be assumed with some certainty that there is an indirect effect of organizational values on organizational performance through KM creation. These results are in congruence with De Long and Fahey (2000) when they suggested that culture creates the context for social interaction that defines how effective an organization should be at creating, sharing, and applying knowledge. Therefore, the organizational culture might affect the performance of improving and fostering the KM creation process.

Second, there is a significant and negative effect of the values’ congruence and organizational performance, but conversely, there is a positive and significant indirect effect through the creation of knowledge. Both significant effects are pointing in opposite directions and it results in a significant negative total effect. This is a case

of competitive mediation (Zhao et al., 2010). In this case, the direct effect is stronger than the indirect effect and the overall result is negative.

The overall effect of cultural constructs (their values and the congruence of these values) on organizational performance is negative. Mainly, the higher the values' congruence is, the lower the perception of organizational performance. However, the intensities of these effects are really low, with a standardized total effect of -0.047 and -0.172, respectively. It is something that deserves future research, although the interviews with some managers commenting these results might shed some light on it.

Third, there is only a direct effect between quality management and organizational performance, and consequently there is no mediation of the creation of knowledge (although the indirect effect could be considered by slightly relaxing slightly the significance criterion since the t-value is 1.923, which is not far off the 1.96 threshold that is commonly applied). This total effect is really strong (0.723) and is significantly higher than the total effects of the cultural constructs.

Therefore, by analysing the three antecedents of organizational performance, the main conclusion is that quality management plays the main role in order to explain organizational performance. Even the direct effect of KM creation has a lower intensity with a significant standardized effect of 0.181.

5. Theoretical and practical contribution

From the theoretical point of view, this study contributes to the development of the scales of these variables (especially organizational values and knowledge creation). In this sense, the present paper is a first step to bring the original Nonaka model (SECI) into the 21st century. In addition, this research strengthens the scope of the theoretical framework of the

RBV, *Dynamic-Capabilities View* (DCV) and *Knowledge-Based View* (KBV) of the firm. Specifically, it is explored how some critical resources, such as organizational values, quality management, and the dynamic capabilities of knowledge creation, impact organizational performance.

The identification of the different relationships (direct and indirect effects) that are the most significant for organizational performance has certain implications for management practices. From the practical point of view, it allows to suggest some interesting points to shed light on the indirect role of organizational values and the direct impact of quality management on organizational performance.

Managers must invest in values not for their direct impacts on organizational performance. The primary reason to promote and enhance the values within employees relies on the positive indirect effects on a knowledge-friendly culture, openness to change, innovation and agility in growth in the competitive market. However, findings suggest that the congruence of values could be a double-edged sword in the sense that loyal employees lose their freshness, originality and the capacity to address new challenges.

Finally, it is relevant for practitioners to understand the relevance of the mediating role of KM creation between these three antecedents and organizational performance. Managers will work on knowledge creation for numerous reasons studied by the literature. However, in the research model, there is a limited role of KM creation to increase organizational performance. The main mediating role is in the case of values' congruence. If managers achieve high levels of fit between organizational and personal values, they will obtain better levels of knowledge creation and, in fact, increased levels of organizational performance. However, values' congruence will create negative levels of performance, thus forcing a competitive mediation among these two

opposite positions. The findings suggest that the overall effect is negative. Therefore, managers will work hard to reinforce the knowledge creation process to compensate for the negative effects of values' fit and organizational performance.

6. Conclusions

Research results suggest that from the four hypothesized antecedents of organizational performance, only two have significant and positive impacts: quality management and knowledge creation. Regarding the mediation of knowledge creation, next three points are found out the: (i) there is no effect (direct or indirect) between organizational values and organizational performance, (ii) there is a significant and negative total effect of the values' congruence and organizational performance, and (iii) there is a primarily direct effect between quality management and organizational performance.

Several limitations are identified in this study. First, the datasets are limited to companies from Croatia and Spain. Second, it should be noted that the KM creation scale is still based on Nonaka et al. (1994). Although several items related to new technologies have been addressed in this study, it still depends heavily on the old SECI model, which needs to be updated and modified considerably to fit today's society.

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However, this study unveils several topics that future researchers could further explore. For example, quality management is still (by far) the most powerful antecedent of organizational performance. There is no novelty in this topic at all. What is significant is the finding of the low impact of organizational values on organizational performance, along with the poor role of KM creation in the proposed research model. Managing values cannot be something that is occurring occasionally and under control. Although all values have positive connotations, the fact that some company is promoting some specific values does not mean anything in itself. It is important to what extent the company's values are in line not with the values of the employees and to what extent they support the key goals and purpose of the organization. On the other hand, there is a necessity to reshape the old values and find ones that result in real performance and enhance the increase of KM creation. According to Alavi et al. (2005), there is still a lack of knowledge about the connection between specific values with knowledge creation and organizational performance.

Finally, as previously explained, the construct of organizational performance is used. This measure is a subjective and not an objective measure, which could explain certain unexpected results. Therefore, suggestion for future research could also be to include objective measurements of organizational performance to assess the model.

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Appendix

Table A1. Questionnaire

SECTION	CODE	ITEM
ACTUAL ORGANIZATIONAL VALUES	OV01_Bus_1	Cost consciousness - Responsible and careful use of the company's assets
	OV02_Rel_1	Teamwork - Promoting and encouraging the spirit of oneness, togetherness, and co-operation
	OV03_Dev_1	Innovation - Promoting and encouraging new, better, and changing solutions and ways of doing things
	OV04_Con_1	Environmental protection - Care for clean and healthy environment
	OV01_Bus_2	Diligence - A positive attitude towards work and engagement in business activities
	OV02_Rel_2	Respect for people - Respect for the values and uniqueness of each individual
	OV03_Dev_2	Creativity - Developing new ideas and applying innovative approaches
	OV04_Con_2	Social responsibility - Supporting a variety of efforts to improve development of society
	OV01_Bus_3	Results achievement - Focus on outcomes or final positive effect of effort
	OV02_Rel_3	Good interpersonal relationships - Harmonious and pleasant relations between employees and management
	OV03_Dev_3	Learning - Passion for learning and sharing ideas
	OV04_Con_3	Integrity - Uncompromising adherence to moral values
	OV01_Bus_4	Professionalism - Performing activities in accordance with the rules and standards of the profession
	OV02_Rel_4	Working environment - Promoting positive and optimistic work environment
	OV03_Dev_4	Continuous improvement - Striving for continuous improvements in everything we do
	OV04_Con_4	Customer satisfaction - Customer delight and satisfaction drive our action
VALUE CONGRUENCE	VC_1	The things that I value in life are very similar to the things that my organization values.
	VC_2	My personal values match my organization's values and culture.
	VC_3	My organization's values and culture provide a good fit with the things that I value in life.
QUALITY MANAGEMENT	QM_1	In my company, leaders shape the future and make it happen through their values and ethics.
	QM_2	In my company, policies, plans, objectives and processes are developed and deployed to deliver the strategy.
	QM_3	My company values their people and creates a culture that allows the mutually beneficial achievement.
	QM_4	My company plans and manages external partnerships, suppliers and internal resources.

	QM_5	My company designs, manages and improves processes, products and services to generate increasing value for customers and other stakeholders.
	QM_6	My company achieves and sustains outstanding results that meet or exceed the need and expectations of their customers.
	QM_7	My company achieves and sustains outstanding results that meet or exceed the need and expectations of their employees.
	QM_8	My company achieves and sustains outstanding results that meet or exceed the need and expectations of relevant stakeholders within society.
	QM_9	My company achieves and sustains outstanding results that meet or exceed the need and expectations of their shareholders.
CREATION OF KNOWLEDGE	KM_01	Through my working activities, I am able to obtain internal and external information of the company.
	KM_02	Through interaction with my colleagues I find new business opportunities.
	KM_03	The employees' rotation among departments enables me sharing knowledge.
	KM_04	I share ideas with customers, suppliers and competitors.
	KM_05	The work atmosphere allows me transmitting "Know-how" to other employees.
	KM_06	I share my ideas and new concepts with others using comparisons or metaphors.
	KM_07	I openly express my opinions and ideas through dialogue with my colleagues.
	KM_08	I participate in team works to analyze and generate new ideas.
	KM_09	I use social networks to share information.
	KM_10	I use data provided by the information systems of the company in my usually working activities.
	KM_11	The use of the external and internal information of the company helps me to take decisions.
	KM_12	I create reports based on available information in the company, such as manuals or other institutional documents.
	KM_13	I transfer concepts, opinions and ideas to my colleagues through presentations and documents.
	KM_14	I am learning in my daily work and improving it (learning by doing).
	KM_15	I am familiar with the best practices implemented in my company, through the procedures and information provided by the company.
	KM_16	Managers encourage the use of trial and error process in my daily work.
ORGANIZATIONAL PERFORMANCE	OP_1	Compared with key competitors, our company is more successful.
	OP_2	Compared with key competitors, our company has a greater market share.
	OP_3	Compared with key competitors, our company is growing faster.
	OP_4	Compared with key competitors, our company is more profitable.
	OP_5	Compared with key competitors, our company is more profitable.

Table A2. Demographic characteristics of the samples

	Sample 1 (Croatian)		Sample 2 (Spanish)	
	Number	%	Number	%
Gender				
Female	92	45.5	341	56.7
Male	109	54.0	260	43.3
No answer	1	0.5	-	-
Total	202	100.0	601	100.0
Age				
< 20	1	0.5	2	0.3
21-30	22	10.9	156	26.0
31-40	52	25.7	201	33.4
41-50	70	34.7	155	25.8
51-60	54	26.7	72	12.0
>61	3	1.5	15	2.5
Total	202	100.0	601	100.0
Years in the current company				
0 - 4	16	7.0	279	46.4
5 - 10	20	9.9	133	22.1
11 - 20	62	30.7	117	19.5
> 21	103	51.0	72	12.0
no answer	1	0.5	-	-
Total	202	100.0	601	100.0
Education level				
Basic studies	79	39.1	234	38.9
Vocational qualification	24	11.9	118	19.6
University degree	99	49.0	249	41.4
Total	202	100.0	601	100.0
Position				
Operations worker	138	68.3	357	59.4
Lower or middle management	52	25.7	226	37.6
Top management	11	5.4	18	3.0
No answer	1	0.5	-	-
Total	202	100.0	601	100.0
Manufacturer / Services				
Manufacturer			75	12.5
Services			481	80.0
Both			45	7.5
Total	202	100.0	601	100.0
Size				
< 10 employees			102	17.0
Between 10 and 49 employees			115	19.1
Between 50 and 249 employees			120	20.0
> 249 employees			264	43.9
Total			601	100.0

Table A3. The five factors extracted by the five Principal Components Analysis (Sample 1 – Croatian companies): values, congruence, quality management, KM and organizational performance

	1 Values		2 Congruence		3 Quality management		4 Creation of knowledge		5 Organizational performance	
	code	load	code	load	code	load	code	load	code	load
	OV14R4	0.815	VC3	0.938	QM6	0.817	KM13	0.843	OP3	0.908
	OV6R2	0.788	VC2	0.937	QM8	0.804	KM12	0.780	OP4	0.880
	OV15D4	0.774	VC1	0.893	QM7	0.802	KM11	0.769	OP5	0.866
	OV11D3	0.768			QM3	0.791	KM8	0.740	OP2	0.847
	OV5B2	0.767			QM2	0.775	KM4	0.737	OP1	0.820
	OV2R1	0.760			QM4	0.768	KM2	0.736		
	OV10R3	0.754			QM5	0.750	KM15	0.722		
	OV3D1	0.752			QM1	0.676	KM5	0.721		
	OV7D2	0.737			QM9	0.669	KM1	0.704		
	OV12C3	0.737					KM6	0.662		
	OV13B4	0.712					KM3	0.661		
	OV8C2	0.709					KM10	0.652		
	OV1B1	0.625					KM16	0.617		
	OV9B3	0.589					KM14	0.563		
	OV4C1	0.589					KM7	0.552		
	OV16C4	0.587					KM9	0.528		
Number of original (retained) items	16 (12)		3 (3)		9 (7)		16 (9)		5 (5)	
Kaiser-Meyer-Olkin statistic	0.939		0.739		0.911		0.908		0.852	
Bartlett statistic (freedom degree) p-value	1,846.06 (120) 0.000		431.76 (3) 0.000		980.39 (36) 0.000		1,644.07 (120) 0.000		700.95 (10) 0.000	
Eigenvalue	8.301		2.555		5.241		7.660		3.737	
Average variance extracted (AVE)	51.88%		85.18%		58.23%		47,86%		74.74%	

Selected items shadowed

Table A4. Reliability and convergent validity analysis of the five constructs (Sample 1 – Croatian companies)

	1 Values	2 Values Congruence	3 Quality Management	4 Creation of knowledge	5 Organizational Performance
Alpha Cronbach	0.934	0.912	0.901	0.906	0.915
Range of Cronbach's alpha if one item is removed	0.927-0.931	0.850-0.918	0.884-887	0.887-0.899	0.881-0.908
Range of correlations between items and total corrected scale	0.952-0.773	0.771-0.852	0.681-0.727	0.644-0.799	0.723-0.848
Composite Reliability	0.941	0.945	0.919	0.921	0.937
Average Variance Extracted	0.572	0.852	0.619	0.564	0.748

Table A5. Correlation matrix of latent factors

	1	2	3	4	5
1 Values	0.757				
2 Values Congruence	0.544*	0.923			
3 Quality Management	0.611*	0.723*	0.923		
4 Creation of knowledge	0.433*	0.569*	0.519*	0.787	
5 Organizational Performance	0.370*	0.583	0.583*	0.693*	0.865

(*) Correlation significant at the 0.01 level (bilateral)

Diagonal elements are the square roots of the average variance extracted

Table A6. Decomposition of the parameters of the model

	Total effect	Indirect effect	Direct effect		Type of mediation (according to Zhao et al. (2010) typology)	
1 Values → 5 Organizational performance	-0.047 (-0.549)	0.040 (1.957) (a1*b)	-0.087 (-1.108) (c1)	H1 refused	Non direct effect Non mediation	
2 Congruence values → 5 Organizational performance	-0.172 (-2.207)	0.039 (2.158) (a2*b)	-0.211 (-2.934) (c2)	H2 refused	Direct and indirect effects Competitive mediation	
3 Quality management → 5 Organizational performance	0.723 (7.782)	0.045 (1.923) (a3*b)	0.678 (8.028) (c3)	H3 accepted	Direct only effect Non mediation	
1 Values → 4 Creation of knowledge	0.222 (3.168)	-	0.222 (3.168) (a1)	H4 accepted		
2 Congruence values → 4 Creation of knowledge	0.216 (3.096)	-	0.216 (3.096) (a2)	H5 accepted		
3 Quality management → 4 Creation of knowledge	0.246 (3.429)	-	0.246 (3.429) (a3)	H6 accepted		
4 Creation of knowledge → 5 Organizational performance	0.181 (2.609)	-	0.181 (2.609) (b)	H7 accepted		
Correlations						
1 Values → 2 Congruence	0.718 (12.323) (d1)					
1 Values → 3 Quality management	0.758 (11.652) (d2)					
2 Congruence → 3 Quality management	0.726 (12.217) (d3)					

Standardized parameter (t-value). The letters a1, a2, a3, b, c1, c2, c3, d1, d2 and d3 correspond to the notation in Figure 1.