Propositions on the interaction of organizational culture with other factors in the context of BPM adoption

Structured abstract

Purpose – The paper investigates differences in the success of BPM initiatives and their connection with organizational culture. The goal was to identify propositions on characteristics of BPM initiative that are favourable for its success according to dominant organisational culture. Therefore, our aim was to identify connections of organisational commitment to BPM and dimensions of BPO with dominant organizational culture.

Design/methodology/approach – As a research design, we used a questionnaire to collect data on the BPM adoption practices of organizations in Austria, Croatia and Slovenia with more than 50 employees. BPM adoption was measured with BPO and organizational culture with CVF. Non-parametric tests have been applied for the analysis. On this survey data, we conducted statistical tests to identify those factors that discriminate successful from unsuccessful BPM initiatives.

Findings – The study revealed empirical insights about characteristics of successful BPM initiatives in different organizational cultures. There are several statistically significant differences with respect to the success of BPM adoption. The chance of success appears to be higher:

(1) when the BPM initiative is rolled out in the entire organization if the organization has Clan, Market or Hierarchy culture;
(2) when the BPM is run on a continuous basis in Hierarchy culture and repeatedly in Adhocracy culture;
(3) when a top-down approach is used in organisations with Market or Hierarchy dominant culture;
(4) when the BPM initiative has a strategic role and formal responsibilities are defined in Clan and Hierarchy cultures.

Originality/value – Our empirical findings provide the basis for the formulation of detailed propositions on the interaction of various factors and their impact on BPM adoption in connection to organizational culture. In this way, our contribution is situated in the inductive research cycle and informs theory building for BPM adoption.

Keywords: BPM adoption, BPO, BPM initiative, organizational culture, CVF, OCAI, Non-parametric test

Article type: Research paper

1. Introduction

Business Process Management (BPM) plays an important role for maintaining efficiency and effectiveness of the operations of companies and organizations. The adoption of BPM is a very complex and time-consuming process that requires much effort, time, resources and discipline. Since BPM is a multidisciplinary concept, its success depends not only on different

factors, but likely also on their interaction. Organizational culture has been identified as one of the key factors for a successful BPM adoption (Rosemann and vom Brocke, 2010; vom Brocke and Sinnl, 2011; Alibabaei et al., 2010), but it is still widely under-researched in connection to BPM adoption (vom Brocke and Rosemann, 2014).

Some BPM researchers agree that the organizational culture needs to be suitable for BPM adoption to succeed (Alibabaei et al., 2010; Schmiedel et al., 2014) and that its characteristics should be seen as predecessors for success of BPM projects (Bandara et al., 2009). More specifically, four key cultural values supporting BPM were identified in (Schmiedel et al., 2013), leading to the proposition that organizational culture should fit the characteristics of a BPM initiatives (Schmiedel et al., 2014). However, organizational culture cannot be changed in a short period of time (Grugulis and Wilkinson, 2002) and changing it into a desired direction is difficult (Lee and Dale, 1998). Therefore, it appears to be more promising to investigate options to customize the BPM adoption approach to the organizational culture.

The aim of this paper is to derive propositions that explain in which circumstances a BPM initiative is more likely to be a success. To this end, we investigate the differences in BPM initiatives in connection with the organizational culture according to Competing Values Framework (CVF) culture types (Cameron and Quinn, 2006). In this way, we identify characteristics of BPM initiative that are favourable for its success. Our empirical basis is an explorative survey that we conducted with Slovenian, Croatian and Austrian companies that already have experience with BPM. The four main propositions that we identify complement prior research on BPM and organizational culture, such as (Hribar and Mendling, 2014), (Buh and Indihar Štemberger, 2016), Hernaus et al. (2016) and (Buh, 2016), with a more faceted view on the circumstances in which success emerges.

The rest of the paper is structured as follows. Section 2 discusses the background of prior research on BPM adoption in connection to organizational culture. Section 3 presents our research design and our empirical data. Section 4 describes explorative data analysis and resulting propositions. Section 5 discusses the findings in connection of prior research and implications for research and practice before Section 6 concludes the paper.

2. Background

In this section, we revisit prior research on BPM adoption and organizational culture with a focus on the work by Cameron and Quinn (2006). Furthermore, we summarize findings on the connection between BPM and organizational culture and between closely connected management approaches and organizational culture.

2.1. BPM adoption

Business Process Management (BPM) is a management concept for organizing work in an organization to ensure consistent outcomes and to take advantage of improvement opportunities (Dumas et al., 2013). BPM evolved from different traditions including (Harmon, 2014): (1) the quality control tradition with a focus on improving operational processes, (2) the management tradition focusing on aligning major business processes and strategy and (3)

the IT tradition, which is primarily focused on process automation. We understand BPM as an approach to managing an organization from the view of its processes integrating all of these three traditions with its corresponding approaches.

BPM adoption refers to the process of deploying BPM concepts in an organization (Reijers et al., 2010). The adoption of BPM usually integrates several BPM initiatives like projects or programs that aim to enhance the efficiency and effectiveness of business processes, e.g. business process reengineering, lean management, total quality management, operational excellence programs, six sigma, etc. (Hernaus at al., 2016; Buh and Indihar Štemberger, 2016).

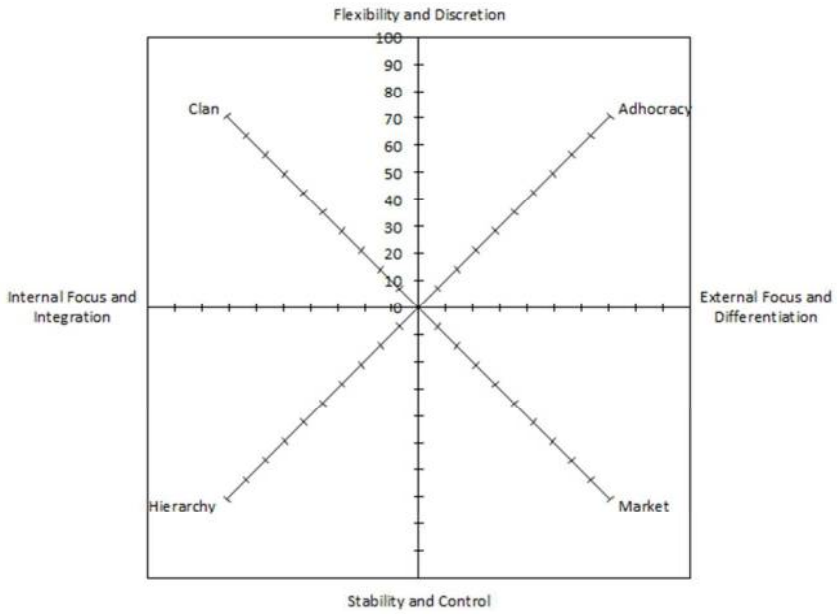
To be able to draw conclusions on the success of BPM adoption, we build on an operational definition that can be measured. In line with (Hribar and Mendling, 2014; Buh and Indihar Štemberger, 2016) we used the Business Process Orientation maturity model (BPO maturity model) developed by McCormack and Johnson (2001) for measuring BPM adoption. Higher levels of BPO indicate more successful BPM adoption and lower levels indicate less successful BPM adoption.

2.2. Organizational Culture

Organizational culture is a complex phenomenon that relates to values, beliefs, attitudes and behaviours that uniquely exist within an organization (Hofstede, 1993; Schein, 1996). Schein (1990) defines it as "a pattern of basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore is to be taught to new members as the correct way to perceive, think, and feel in relation to those problems." Various approaches for measuring organizational culture exist, the Organizational Culture Assessment Instrument (OCAI) proposed by Cameron and Quinn (2006) is one of the most widely adopted.

The OCAI instrument is based on the four-dimensional Competing Values Framework (CVF). Each of these four competing values corresponds to a specific organizational culture and relates to general criteria such as flexibility versus stability and internal focus versus external orientation (Figure 1). Every organization has an individual mixture of these four values and defines the four types of organizational culture (Škerlavaj et al., 2007): Clan culture, Adhocracy culture, Market culture and Hierarchy culture. The OCAI framework has been used as a measurement tool for organizational culture in various studies, correlating it with BPM and other management approaches. Some of these studies employ a different naming of organizational culture types, namely Clan culture is referred to as Group culture, Adhocracy culture as Developmental culture, Market culture as Rational culture, and Hierarchy culture as Hierarchical culture. They essentially capture the same concepts. In the following, we stick to the names as used in OCAI.

Figure 1. Competing values framework and the four types of organizational culture (Cameron and Quinn, 2006)



Clan culture is characterized by a friendly workplace, where teamwork and employee development are emphasized and the organization promotes loyalty, tradition, participation, and commitment. Adhocracy culture is characterized by a dynamic, entrepreneurial, and creative working environment, where people take risks and value innovation, agility and experimentation. Such organizations emphasize acquiring new resources, creating new opportunities and rapid growth. Market culture is a result-oriented workplace focused on goals and creating the competitive advantage. The main values that dominate market organizations are profitability, competitiveness, productivity, and goal achievement. Hierarchy culture is characterized by a formal work environment, where structure, control, coordination, and efficiency are emphasized and procedures govern people`s activities. Stability, predictability, and efficiency characterize the long-term concerns of this organization (Cameron and Quinn, 2006).

2.3. Organizational Culture and BPM

Several studies describe how organizational culture may have a substantial impact on BPM adoption (e.g. Rosemann and vom Brocke, 2010; vom Brocke and Sinnl, 2011; Alibabaei et al., 2010) or that it might be connected with failure and success (Bandara et al., 2009; Ravesteyn and Batenburg, 2010). It is argued that cultural characteristics in organizations may provide either suitable conditions or hindrances for success in BPM adoption (Bandara et al., 2009). Also certain values are mentioned as being supportive of BPM objectives or as road blocks (vom Brocke and Sinnl, 2011). Some BPM researchers claim that there should be a fit between BPM and organizational culture (vom Brocke and Sinnl, 2011; Schmiedel et al., 2013; Kohlbacher and Gruenwald, 2011). Also Armistead and Machin (1997) point out that the approach to BPM needs to initially fit with the culture of the organization and that culture drives the appropriate initial approach to BPM adoption.

A structured literature review was conducted to provide insights into the relationship between BPM and organizational culture, specifically the different types of organizational culture defined by Cameron and Quinn (2006). Corresponding to the requirements of such a literature review (Webster and Watson, 2002; Recker and Mendling, 2016), the review process is documented as transparently as possible. In order to provide a comprehensive review of the relevant literature, the focus is on papers in scientific, peer-reviewed journals.

First, the appropriate journal databases were selected, i.e. Emerald database, SCOPUS, EBSCO Business Source Premier, and Web of Science. Next, relevant keywords were identified. To cover articles dealing with BPM and culture, we searched for "process management" and "cultur*" in the title, abstract or keywords of the papers. Then, the titles and abstracts of identified papers were analysed to determine which papers are relevant to the research topic. Papers not fitting the topic of interest, due to not containing thematically relevant content in the abstracts, were removed. The whole text of all relevant papers was analysed in order to identify those relevant for our study. Altogether, 24 papers were selected and manually coded using Atlas.ti as a data management tool. We followed the two-step coding process beginning with basic coding in order to distinguish overall themes, followed by a more in-depth interpretive coding, in which more specific trends and patterns were interpreted (Hay, 2005).

Based on the coding, relevant papers were categorised in three groups. First, the focus was on papers elaborating on the role of organizational culture in BPM. Next, papers dealing with the concept of BPM culture were considered. Finally, papers that mention or discuss the relationship between BPM and different organizational culture types under CVF are analysed. Table 1 presents the main findings from the papers selected for the literature review (the column Times cited presents the number of citations found on Google Scholar as at 27 January 2017).

Table 1. Papers selected for the literature review

Papers elaborating on organizational culture's role in BPM:

Author(s)	Year	Key results	Times cited
Armistead et al.	1999	The organizational culture shapes the way BPM works. The cultural fit is a very important issue. For BPM adoption to be successful, "the approach to BPM should fit with the culture of the organization".	200
Zhao	2004	Organizational culture cannot be proclaimed or forced by managers. It also cannot be changed in a short period of time.	25
Rad	2006	Employees are more reluctant to accept a new approach if it conflicts with the culture of the organization. For TQM programmes to succeed, a collaborative culture should be developed.	224
Lai and Lee	2007	Organizational culture develops over time and does not change quickly. The cultural characteristics should be compatible with the BPM project.	80
Alibabaei et al.	2010	Organizational culture has to be compatible with the culture that is built in BPM; otherwise, the adoption of the concept is unlikely to be successful. Changing the organizational culture is difficult. "Hierarchical organizations have different policies and procedures that are clearly in contrast with business process concepts."	9

Baird et al.	2011	The cultural dimension teamwork/respect for people is the most important factor in enhancing the use of TQM practices, while more outcome oriented and innovative business units were also found to use TQM practices to a greater extent.	159
Kohlbacher and Gruenwald	2011	Only a culture based on teamwork, willingness to change, a customer orientation, personal accountability, and a cooperative leadership style goes hand in hand with the process approach.	85
da Silva et al.	2012	Inappropriate culture may be the main reason BPM projects fail. The method chosen should be adjusted to the context of the organization.	34
Kohlbacher and Reijers	2013	Organizational culture in line with the process approach is significantly and positively associated with organizational performance.	45
Grau and Moormann	2014	BPM adoption success is interwoven with the culture of the organization. Despite its relevance, little research systematically addresses culture in the context of BPM.	11
Wong et al.	2014	Organizations with a supportive culture would most likely achieve BPM success, whereas organizations with a non-supportive culture would have great difficulties adopting BPM.	22

Papers elaborating on organizational culture's role in BPM that also deal with the concept of BPM culture:

Author(s)	Year	Key results	Times cited
Zairi	1997	BPM culture is a culture based on process management. The achievement of a BPM culture depends on establishing total alignment with the corporate goals and being focused on adding value to the end customer.	508
vom Brocke and Sinnl	2011	The topic of culture in BPM is still widely under-researched. BPM culture is a facet of organizational culture and refers to a certain set of values considered directly supportive of BPM objectives.	134
Gimenez-Espin et al.	2013	The authors propose "culture for quality," which, falling between the Clan and Adhocracy cultures, has a double orientation – external and internal, and promotes flexibility.	39
Schmiedel et al.	2013	Four opposing BPM values (i.e. CERT values: customer orientation, excellence, responsibility and teamwork) that define BPM culture, a culture supportive of BPM objectives, are identified. They are linked to all culture types according to CVF.	56
Schmiedel et al.	2014	The authors develop the BPM culture construct and propose a validated measurement instrument that enables an assessment of the degree to which an organizational culture supports BPM.	54

Papers mentioning BPM/TQM in connection to different organizational culture types:

Author(s)	Year	Key results	Times cited
Dellana and Hauser	1999	TQM success is positively correlated to the Clan and Adhocracy culture types and negatively correlated to the Market and Hierarchy culture types. Adhocracy culture appears to be "the ideal cultural profile for supporting TQM".	106
Prajogo and McDermott	2005	Different subsets of TQM practices are determined by different types of cultures. Three organizational culture types (Clan, Market and Adhocracy) have a significant relationship with TQM practices, with Clan culture being the dominant one, followed by the Market and Adhocracy cultures. In contrast, the Hierarchy culture does not show a significant relationship with TQM practices.	297

Yong and Pheng	2008	Organizations with a Clan culture highly implement the element of process management while organizations with a Hierarchy culture implement all elements lowly to moderately.	48
Zu et al.	2010	The results reveal the different effects of the culture types on the implementation of TQM/Six Sigma practices. The Market and Clan cultures have a significant effect on most of the 10 TQM/Six Sigma practices. The Adhocracy culture is significantly related to the implementation of Six Sigma role structure and the Hierarchy culture has no significant effect.	193
Prajogo and McDermott	2011	Adhocracy culture has the strongest relationship with product quality, product innovation and process innovation, whereas Market culture shows a relationship with product and process quality. Clan and Hierarchy cultures were also found to predict process quality.	103
Ruževičius et al.	2012	Adhocracy culture has an important impact on the quality and time aspects of BPM success. The Market culture has a strong influence on BPM success in the costs field. No significant correlation was found between the Clan or Hierarchy culture type and the success of BPM.	10
Gambi et al.	2015	Continuous improvement techniques are supported in the Clan, Adhocracy and Market cultures, but not in the Hierarchy culture. On the other hand, the Market and Hierarchy cultures are positively associated with measurement techniques, whereas the relationship between the Clan culture and measurement techniques is negative.	8
Buh and Indihar Štemberger	2016	Formal and well-organized approach with an emphasis on the benefits of BPM contributed to BPM adoption success in the studied organization with a Hierarchy-Market culture.	0

The tables show how the identified papers discuss the relationship between organizational culture and BPM. Most notably, the concept of BPM culture is defined as a culture supportive of BPM, including the values of customer orientation, excellence, responsibility and teamwork (Schmiedel et al., 2013). The values served as the basis for developing an instrument that can measure how far an existing cultural context is supportive of BPM (Schmiedel et al., 2014).

However, only a few papers elaborate on the role of different organizational culture types in BPM initiatives. We describe briefly their findings, which explore the relationship between CVF culture types and BPM adoption; extensive literature review can be found in Buh (2016).

Dellana and Hauser (1999) examined the relationship between TQM and organizational culture. The authors conducted a survey among members of the American Society for Quality to determine which culture type (based on CVF) is associated most with successful TQM programmes. For assessing the TQM success, they used the Baldrige Award criteria, comprising seven categories, namely leadership, information and analysis, strategic quality planning, human resource development and management, management of process quality, quality and operational results, and customer focus and satisfaction. Their findings suggest that TQM success is positively correlated with Clan and Adhocracy culture and negatively correlated with Hierarchy and Market culture. Adhocracy culture was found to be most strongly connected with TQM success, followed by Clan culture.

Prajogo and McDermott (2005) study the relationship between TQM and organizational culture in order to identify the impact of culture types on the successful implementation of TQM practices. Based on the survey of 194 middle and senior managers in Australia, they found that different subsets of TQM practices are determined by different types of cultures. The results of their study show that three organizational culture types (Clan, Market and Adhocracy) have a significant connection with TQM practices, with Clan culture being the strongest one, followed by Market and Adhocracy cultures. In contrast, there were no significant results for Hierarchy culture. Their results support a pluralist view of the TQM/culture relationship, which is multi-dimensional with different cultural characteristics in turn being associated with different elements of TQM.

Yong and Pheng (2008) researched the relationship between organizational culture and the implementation of TQM practices. Based on the survey among 145 certified medium- to large-sized local contractors in Singapore, they found that organizations tend to select TQM practices that are consistent with their existing culture. More specifically, TQM practices of organizations with different dominant cultural types were found to be significantly different and that these TQM practices differ in how they are emphasized. Organizations with a Clan culture tend to implement the element of process management while organizations with a Hierarchy culture implement lowly to moderately all elements. Further, they claim that only those TQM practices congruent with the organizational culture are retained over time. They recommend changing the organizational culture in order to be more supportive of TQM practices.

Zu et al. (2010) investigated how organizational culture influences the implementation of different practices incorporated in the recent Six Sigma approach as well as those associated with traditional total quality management (TQM). They employed the CVF to capture the underlying value orientations of organizational culture. Using survey data collected from 226 US manufacturing plants, the relationships between four culture types and 10 TQM and SixSigma practices were examined. The results revealed the differential effects of the culture types on the implementation of TQM and Six Sigma practices.

Prajogo and McDermott (2011) examined the relationship between the four organizational culture types of CVF and four types of performance, namely: product quality, process quality, product innovation, and process innovation. Based on the survey of 194 middle and senior managers in Australia, they found that Adhocracy culture has the strongest relationship with product quality, product innovation and process innovation, whereas Market culture shows a relationship with product and process quality. Clan and Hierarchy cultures were also found to predict process quality.

Ruževičius et al. (2012) analysed the impact of organizational culture on the success of BPM in the public sector. The authors conducted a survey in order to study the connection between culture type and the benefits gained in terms of quality-cost-time improvements as measures of BPM success. The authors found that Adhocracy culture correlates significantly with benefits in the fields of quality and time. Market culture significantly correlated with cost

benefits. They found no significant correlation between the Clan or Hierarchy culture type and the success of BPM.

Gambi et al. (2015) investigated the relationship between organizational culture and the use of quality techniques with operational performance. For this, they used four cultural profiles adopted from the CVF, four quality technique groups, and a set of operational performance indicators. Based on the survey among a random sample of 250 Brazilian and Danish manufacturing firms, they found that organizational culture affected the use of quality techniques. They concluded that continuous improvement techniques are supported in the Clan, Adhocracy and Market cultures, but not in the Hierarchy culture. On the other hand, they found Market and Hierarchy culture to be positively associated with measurement techniques, whereas the relationship between Clan culture and measurement techniques is negative.

The literature suggests that different organizational cultural types have varying connections with BPM initiative. All included studies agree that Adhocracy culture seems to be appropriate for adopting BPM. Clan culture is also recognized as one of the most appropriate organizational culture types. With the exception of the studies by Ruževičius et al. (2012) and Gimenez-Espin et al. (2013), which found no significant correlation between the Clan organizational culture and BPM success, all other studies agree that the Clan culture appears to fit with BPM. Flexibility (a characteristic of both the Clan and Adhocracy cultures) therefore seems to be an important cultural dimension in line with BPM. Gimenez-Espin et al. (2013) also proposed the concept of "culture for quality," which appears the most appropriate for quality management initiatives. It is in between Clan and Adhocracy culture and has a double orientation on external and internal, and promotes flexibility.

On the other hand, there are somewhat diverging and even contradictory findings in the literature concerning the Hierarchy and Market cultures. For example, Zu et al. (2010) find that Market culture has a significant effect on most of the TQM/Six Sigma practices, Prajogo and McDermott (2005, 2011) find that Market culture is positively related to process quality, and Ruževičius et al. (2012) find it has a strong influence on BPM success in the area of costs. However, Dellana and Hauser (1999) find that TQM success is negatively correlated to the Market culture type. Similarly, Hierarchy culture was found to highly correlate with certain practices of TQM, like strategic planning and analysis (Prajogo and McDermott, 2005), process quality (Prajogo and McDermott, 2011) and process measurement (Gambi et al., 2015). In contrast, Dellana and Hauser (1999) found that TQM success is negatively correlated to the Hierarchy culture type, Also, Alibabaei et al. (2010) describe hierarchical organizations as in conflict with business process concepts. According to Ruževičius et al. (2012), Hierarchy culture is not the best way to achieve success in adopting BPM.

Recent research studies empirical connections between BPM and organizational culture. Hribar and Mendling (2014) showed that organizations with Clan dominant culture is the most favourable for BPM adoption and that Hierarchy dominant culture is the least favourable based on the data collected in Slovenia. Moreover, based on a case study of a large insurance company in Central-Eastern Europe with a Hierarchy-Market culture, Buh and Indihar

Štemberger (2016) found that a formal, well-organized approach with an emphasis on the benefits of BPM contributed to BPM adoption success in the studied organization.

Although we agree that certain culture types are more suitable for BPM adoption, we believe that BPM can be adopted in any organization. This is in-line with the finding of Schmiedel et al., (2013) that BPM culture has characteristics of all culture types according to CVF. We argue that the approach to BPM adoption has to be different depending on the organizational culture. Therefore, we investigate how BPM initiatives can be implemented according to the dominant culture of particular organization.

3. Methodology

This section presents the research method of our study. First, we present the general research design, the measurement instrument and the data collection.

3.1. Research Design

Our research design targets the inductive research cycle with the aim to inform the formulation of propositions regarding the circumstances in which BPM adoption is likely to be successful. To this end, an explorative survey design was chosen with structured questionnaire items. We specifically focused on contextual factors of the phenomenon of interest (Åhlström and Westbrook, 1999), which is BPM adoption in our case. While an explorative survey design cannot provide a definitive validation of research hypotheses, it provides a basis to formulate refined propositions (Wohlin et al, 2003). In this way, we follow a research approach that is similar to inductive theory refinement in artificial intelligence (e.g. Oursten and Mooney, 1994).

3.2. Measurement instrument

The research instrument was developed in cooperation with researchers from the Faculty of Economics – University of Ljubljana, the Faculty of Economics – University of Zagreb and the Vienna University of Economics and Business. The survey was structured to cover a broad spectrum of the BPM concept including four different perspectives on BPM: business process orientation (12 questions), organizational culture (24 questions), process performance (10 questions) and characteristics of BPM initiative (31 questions). For each of these perspectives, several dimensions were defined, each consisting of several items. The survey included demographic questions about the individual respondents' knowledge of BPM (7 questions) and about the characteristics of the company (3 questions).

BPM adoption was measured with BPO, which consists of three dimensions: Process View, Process Jobs, and Process Management. The items were adopted from the BPO maturity model used during previous studies (McCormack and Johnson, 2001; Škrinjar et al., 2008; 2011; Hernaus et al., 2012). The BPO value is calculated as the mean value of expressed agreement with statement, measured on 5-point Likert scale, with 1 indicating complete disagreement and 5 indicating complete agreement.

Dominant culture is identified for each organisation based on the answers to 24 questions during the OCAI assessment (Cameron and Quinn, 2006). For each of 6 groups of questions, a participant divides 100 points over a number of descriptions that correspond to the four organizational culture types, reflecting their perceptions of their organization. A final score for each culture type is calculated as an average of the points assigned to each culture type. Dominant culture is the one with the highest score.

3.3. Data collection and analysis

A survey was conducted in organizations from the public and private sector with more than 50 employees in Slovenia, Croatia and Austria. Our research population consisted of 2148 organizations in Croatia, 2180 in Slovenia and 6194 in Austria. We prepared an online survey as well as printed copies of the questionnaire in Slovene, Croatian and German. The questionnaire was addressed to top managers and (where applicable) process owners, who should have the best understanding of BPM adoption in their company. All participants were guaranteed complete anonymity. The data collection period lasted from the beginning of March 2013 to end of May 2014.

In Slovenia, the questionnaire was sent to the whole populations and a total of 115 survey responses were received, yielding a 5.3% response rate. The targeted population of Croatian organizations was similar in size, although we decided to randomly invite a half of population to take a part in research. Eventually, 91 organizations provided feedback leading to an 8.5% response rate. In Austria, we invited representatives of the largest 500 companies. The final cross-national sample was shortened to 187 organisations after eliminating answers with no BPM initiative and those, for which dominant culture could not be assigned. Among them 40 organisations had Clan dominant culture, 25 Adhocracy, 55 Market and 67 Hierarchy. However, in some analysis the total number of organisations is lower than 187 because of missing values.

In order to investigate the differences in BPM initiatives regarding organizational culture type we conducted different statistical tests on the data sample. The results of the survey were analysed by applying different statistical methods by using IBM SPSS Statistics 20. BPM adoption was measured with BPO, but for looking to differences in BPM initiative that should be suitable to specific organizational cultures we also used other dependents variables (i.e. Process View, Process Jobs, Process management and measurement and Process Ownership). We tested all of them for normality by Kolmogorov-Smirnov and Shapiro-Wilk test. The results show (see Table 2), that none of them is normally distributed. Therefore, non-parametric tests were used for the analysis.

Table 2. Tests of normality for dependent variables

Variable	Test	Statistics	df	Sig.
BPO	Kolmogorov-Smirnov	0.065	187	0.045
	Shapiro-Wilk	0.978	187	0.004
Proces View	Kolmogorov-Smirnov	0.106	182	0.000
	Shapiro-Wilk	0.974	182	0.002
Proces Jobs	Kolmogorov-Smirnov	0.136	182	0.000
	Shapiro-Wilk	0.956	182	0.000
Process management	Kolmogorov-Smirnov	0.106	182	0.000

and measurement	Shapiro-Wilk	0.955	182	0.000

4. Findings

In order to investigate the characteristics of BPM in different organizational cultures we first checked which dominant organizational culture is most favourable for BPM adoption. Table 3 shows that BPO was the highest for organizations with Clan dominant culture and the lowest for organisations with Hierarchy dominant culture. Since there were four groups, we used the Kruskal-Wallis test for the analysis. Kruskal-Wallis test is a non-parametric test for the one-way analysis of variance used to determine if three or more samples originate from the same distribution (Hair, 2009). As we can see, differences are statistically significant ($p<0.01$); Clan culture has again been found the most favourable and Hierarchy culture the least favourable for adopting BPM.

Table 3. Mean values and results of Kruskal-Wallis tests for BPO

Dominant culture type	Mean	N	Mean Rank
Clan (A)	3.895832	40	120.69
Adhocracy (B)	3.540001	25	95.44
Market (C)	3.590634	55	95.55
Hierarchy (D)	3.320048	67	76.25

H(3) = 17.002, Sig. = 0.001

We continued the statistical analysis with a focus on differences associated with dominant organisational culture in three aspects: characteristics of BPM initiative, organizational commitment to BPM and dimensions of BPO.

4.1. Characteristics of BPM initiative

We continued the analysis by testing if there are any differences in BPO according to different characteristics of the BPM initiative (volume, extent, iteration, duration, approach and strategic role of BPM initiative).

First, we wanted to see if there are any differences in BPM adoption results according to the volume of BPM initiative. We use the term volume of BPM initiative to describe if the BPM initiative has been conducted in some parts of the organization or in the entire organization. Since there are two response options, the Mann-Whitney U test was used for the analysis. This test compares differences between two independent groups when the dependent variable is either ordinal or continuous, but not normally distributed (Field, 2009). The results of the Mann-Whitney U test for BPM initiative volume show in Table 4 that BPM adoption results are generally better ($p<0.01$), if BPM initiative has been conducted in the entire organization.

Table 4. Reports on BPM initiative volume

	In the entire organization		In some parts of the organization		Mann-Whitney U test	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**U**	**Sig.**
All	77	3.787	100	3.429	2744.000	0.001
Clan	18	4.203	19	3.553	96.500	0.011

Adhocracy	13	3.423	11	3.781	51.000	0.123
Market	20	3.847	34	3.479	233.500	0.028
Hierarchy	26	3.634	36	3.209	277.000	0.003

In addition, we used the Mann-Whitney U test to explore differences in BPO results according to BPM initiative volume and dominant culture type. Table 4 shows that for Hierarchy culture the results of BPO are statistically significantly better ($p<0.01$), if the BPM initiative has been conducted in the entire organization. We can observe the same for organisations with Clan or Market dominant culture, as we see that these organisations achieved statistically significant better results ($p<0.05$) of BPO, if BPM initiative has been conducted in the entire organisation. For Adhocracy culture results of BPM adoption are better, if BPM initiative has been conducted in some parts of the organization, however the difference is statistically insignificant ($p>0.05$). The reason for this might be the low sample size of 24 organizations in this group of dominant culture type therefore further investigation is needed in order to draw any conclusions.

Next, we test if there are any differences in BPO results according to the BPM initiative extent. The extent of the BPM initiative implies that a BPM initiative covered all or only some processes in the organization. The results of Mann-Whitney U test showed that BPO has statistically significantly better results ($p<0.01$), if the BPM initiative covered all processes. Again, we used the Mann-Whitney U test to see differences in BPO results according to the BPM initiative extent in different dominant culture types (see Table 5). We can conclude that the results of BPO are statistically significantly better ($p<0.01$) for Market and Hierarchy culture and also Clan dominant culture ($p<0.05$), if the BPM initiative covered all processes. For Adhocracy culture the results of BPO are better, if BPM initiative covered some processes, however the difference is not statistically significant ($p>0.05$).

Table 5. Reports on BPM initiative extent

	Covered all processes		**Covered some processes**		**Mann-Whitney U test**	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**U**	**Sig.**
All	44	3.825	135	3.462	2199.000	0.009
Clan	9	4.379	29	3.764	64.500	0.011
Adhocracy	7	3.429	17	3.652	45.000	0.186
Market	11	3.803	40	3.489	159.000	0.002
Hierarchy	17	3.708	49	3.195	251.500	0.007

Further analysis investigated the differences in BPO results according to the BPM initiative iteration. The BPM initiative iteration denotes how many times BPM initiative has been carried out (once, repeatedly or continuously). Since we had three groups, we conducted Kruskal-Wallis test. The results (see Table 6) indicate that mean values of BPO differ based on BPM initiative iteration and are the best in case of carrying out the BPM initiative continuously ($p<0.01$). Additionally, we used the Kruskal-Wallis test to analyse the difference in BPO between the four culture types regarding the BPM initiative iteration. For Clan, Adhocracy and Market culture the mean value of BPO is the highest in the case that the BPM initiative is conducted repeatedly, but the differences are statistically significant ($p<0.05$) only

for Adhocracy culture. For organisations with Hierarchy dominant culture type results of BPO are statistically significantly better ($p<0.01$) in the case of carrying out the BPM initiative continuously.

Table 6. Reports on BPM initiative iteration

	Once		Repeatedly		Continuously		Kruskal-Wallis test	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**N**	**BPO Mean**	**H(2)**	**Sig.**
All	26	3.106	61	3.558	81	3.727	15.548	0.001
Clan	2	2.958	15	4.083	17	3.794	2.805	0.246
Adhocracy	3	2.333	9	3.771	12	3.722	6.032	0.049
Market	8	3.292	17	3.525	23	3.572	1.644	0.440
Hierarchy	13	3.192	21	3.135	29	3.708	13.594	0.001

Next, we analyse characteristics of the BPM initiative in connection with the duration of the BPM initiative. By duration of the BPM initiative we mean how long it lasted (several weeks, several months, several years). The Kruskal-Wallis test shows in Table 7 that there are no statistically significant differences in BPO according to the duration of BPM initiative for any of dominant culture types and also for all organizations ($p>0.5$).

Table 7. Reports on BPM initiative duration

	Several weeks		Several months		Several years		Kruskal-Wallis test	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**N**	**BPO Mean**	**H(2)**	**Sig.**
All	14	3.357	85	3.565	64	3.553	1.389	0.449
Clan	1	2.000	23	3.920	7	4.036	3.008	0.222
Adhocracy	-	-	11	3.803	12	3.479	6.032	0.051
Market	5	3.633	21	3.485	21	3.625	0.336	0.845
Hierarchy	8	3.354	30	3.262	24	3.386	0.263	0.877

The adequacy of BPM initiative approach (top-down or bottom-up) was tested in similar way, the results are presented in Table 8. First of all, we can observe that a top-down approach to BPM initiative was more common than bottom up approach in general and for all culture types, especially for Hierarchy culture. The results of the Mann-Whitney U test also show that organizations, which used top-down approach to BPM initiative, have statistically significantly better results ($p<0.05$) than those which used bottom-up approach. We can also observe that the results of BPO are statistically significantly higher for Market culture ($p<0.01$) and for Hierarchy culture ($p<0.05$), in the case of a top-down approach of the BPM initiative. For Clan and Adhocracy culture the results are statistically insignificant ($p>0.05$).

Table 8. Reports on Approach to BPM initiative

	Top-down		Bottom-up		Mann-Whitney U test	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**U**	**Sig.**
All	127	3.614	35	3.218	1621.500	0.014
Clan	26	3.974	9	3.472	76.500	0.125
Adhocracy	16	3.464	5	3.550	34.000	0.619
Market	37	3.705	12	3.181	103.500	0.006
Hierarchy	48	3.399	9	2.831	123.000	0.042

Further analysis examined if there are any differences in BPO according to strategic role of the BPM initiative. We used a variable called Strategic role of BPM initiative that was developed in (Hernaus et al., 2016). It has value "yes" for organizations where members of the board/owners or top management initiated the BPM initiative and BPM is key strategic commitment by top management, and value "no" for other organizations. Again we applied the Mann-Whitney U test for the analysis; the results are presented in Table 9. We can see that the results of BPO are statistically significantly better ($p<0.01$) in the case that the role of BPM initiative is strategic. We can also conclude that the results of BPO are statistically significantly higher for Clan culture ($p<0.05$) and for Hierarchy culture ($p<0.01$), in the case of strategic role of the BPM initiative. For Adhocracy and Market culture types the results are statistically insignificant ($p>0.05$).

Table 9. Reports on Strategic role of BPM initiative

	Yes		**No**		**Mann-Whitney U test**	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**U**	**Sig.**
All	50	3.818	137	3.455	2550.000	0.004
Clan	13	4.147	27	3.774	108.500	0.026
Adhocracy	8	3.927	17	3.357	44.000	0.085
Market	12	3.534	43	3.606	221.500	0.232
Hierarchy	17	3.713	50	3.186	243.000	0.004

4.3. Organizational commitment to BPM

Hernaus et al. (2016) show that BPM initiatives are more successful if there is an organizational commitment to BPM. It was covered in our survey with reference to formal process organizational structures, in our case through formal responsibility for BPM, and process ownership. In this paper we used the same variables: Formal responsibility for BPM and Process ownership.

Formal responsibility for BPM has value "yes" for organisations that have a specialized group (department/unit) or C-level manager formally responsible for BPM, and value "no" for organisations where there is no formal responsibility for BPM. We used the Mann-Whitney U test for the analysis; the results are presented in Table 10. As we can see, the results of BPO are statistically significantly better ($p<0.01$) in the case that there is a formal responsibility for BPM. We can also observe that the results of BPO are statistically significantly higher for Clan culture ($p<0.01$) and for Hierarchy culture ($p<0.05$) in the case of formal responsibility for BPM. For Adhocracy and Market culture types the results are statistically insignificant ($p>0.05$).

Table 10. Reports on Formal responsibility for BPM

	Yes		**No**		**Mann-Whitney U test**	
Dominant culture type	**N**	**BPO Mean**	**N**	**BPO Mean**	**U**	**Sig.**
All	150	3.633	37	3.224	1866.000	0.001
Clan	32	4.076	8	3.177	40.500	0.001
Adhocracy	21	3.627	4	3.083	30.000	0.200
Market	44	3.622	11	3.466	210.000	0.255
Hierarchy	53	3.378	14	3.101	248.000	0.029

Besides that we also looked to differences of process ownership implementation according to the dominant organisational culture. In the survey process owners were understood as managers accountable for the performance of business processes with authority to make decisions on business processes. A depending variable was Process ownership, which presents the average of the statements related to the presence, authority and accountability of such positions within an organization, which were measured on a five-point Likert scale (Hernaus et al., 2016). In order to test whether differences in mean values across four groups of dominant culture types are statistically significant Kruskal-Wallis test was applied again; results are presented in Table 11. We can see that differences in process ownership are statistically significant ($p<0.05$) concerning dominant organisational culture. Again the results are best for Clan dominant culture and worst results are for Hierarchy dominant culture.

Table 11. Mean values and results of Kruskal-Wallis tests for process ownership

Dominant culture type	Mean	N	Mean Rank
Clan (A)	4.283	40	111.60
Adhocracy (B)	4.147	25	98.50
Market (C)	3.933	55	89.65
Hierarchy (D)	3.897	65	82.28

H(3) = 8.103, Sig. 0.044

4.4. Dimensions of BPO

One might expect that the separate dimensions of BPO (Process view, Process jobs, Process management and measurement) differ based on dominant culture type in an organization, because it has been reported that certain BPM practices are better implemented in particular cultures, e.g. process measurement in Market and Hierarchy culture (Gambi et al., 2015). Therefore, we examined mean values measuring each dimension of BPO for all dominant culture types in order to test whether differences across four groups of dominant culture types are statistically significant. Again we applied the Kruskal-Wallis test, the results are presented in Tables 12, 13 and 14.

Table 12. Mean values and results of Kruskal-Wallis tests for Process view

Dominant culture type	Mean	N	Mean Rank
Clan (A)	3.794	40	114.95
Adhocracy (B)	3.470	25	90.80
Market (C)	3.514	54	92.11
Hierarchy (D)	3.319	67	82.82

H(3) = 9.176, Sig. = 0.027

Table 13. Mean values and results of Kruskal-Wallis tests for Process jobs

Dominant culture type	Mean	N	Mean Rank
Clan (A)	4.067	40	110.61
Adhocracy (B)	4.027	25	106.72
Market (C)	3.812	55	92.13

Hierarchy (D)	3.652	67	80.87

H(3) = 9,378, Sig. = 0.025

Table 14. Mean values and results of Kruskal-Wallis tests for Process management and measurement

Dominant culture type	Mean	N	Mean Rank
Clan (A)	3.875	40	117.45
Adhocracy (B)	3.304	25	89.76
Market (C)	3.502	55	97.21
Hierarchy (D)	3.095	65	75.64

H(3) = 15.668, Sig. = 0.001

The Kruskal-Wallis test indicated that differences in all dimensions of BPO concerning dominant culture type of an organization are statistically significant, for Process view and Process jobs with ($p<0.05$) and Process management and measurement even with ($p<0.01$). However, for all dimensions the results are the best for organisations with Clan dominant culture and the worst for organisations with Hierarchy dominant culture.

5. Discussion

In this section, we discuss the implications of our study. First, we summarize the findings. Then, we present implications for research and practice. Finally, we discuss potential limitations.

5.1 Analysis of the findings against the background of related work

The paper presents findings on differences in BPM initiatives in relation to their dominant organizational culture. Table 15 summarizes those results that are significant. These results inform our understanding of the connection between BPM and organizational culture and extend the body of knowledge on TQM.

Table 15. Statistically significant findings

Characteristic	Measurement	Clan culture	Adhocracy culture	Market culture	Hierarchy culture
Volume of BPM initiative	Conducted in some parts of the organization or in the entire organization	BPO higher, if conducted in entire organization		BPO higher, if conducted in entire organization	BPO higher, if conducted in entire organization
Extent of BPM initiative	Has covered all processes or only some processes	BPO higher, if covered all processes		BPO higher, if covered all processes	BPO higher, if covered all processes
Iteration of BPM initiative	Carried out once, repeatedly or is being carried out continuously		BPO higher, if conducted repeatedly		BPO higher, if carried out continuously
Duration of BPM initiative	How long BPM initiative lasted: several weeks, several months, several years	No statistically significant differences in BPO according to duration of BPM initiative for any of dominant culture types			
Approach to BPM initiative	Top-down or bottom up			BPO higher, if top-down	BPO higher, if top-down

Strategic role of BPM initiative	BPM is a key strategic commitment by top management and members of the board/shareholders, or top management has initiated the BPM initiative	BPO higher, if approached strategically			BPO higher, if approached strategically
Formal responsibility for BPM	Specialised group (department/unit) or C-level manager formally responsible for BPM	BPO higher, if formal responsibility for BPM is established			BPO higher, if formal responsibility for BPM is established
Process ownership	Presence of process owners, their authority to make decisions on business processes and accountability of for the performance of business processes.	Best results of process ownership for Clan culture and worse for Hierarchy culture			
Dimensions of BPM	3 dimensions of BPO (process view, process jobs, management and measurement)	Best results in all dimensions of BPO for Clan culture and worse for Hierarchy culture regarding all dimensions			

These findings allow us to formulate four major propositions. BPM adoption appears to be more likely to be successful in the following circumstances:

(1) When the BPM initiative is rolled out in the entire organization if the organization has Clan, Market or Hierarchy culture: except for organizations with Adhocracy dominant culture, the statistical tests are significant.

(2) When the BPM is run on a continuous basis in Hierarchy culture and repeatedly in Adhocracy culture: continuous improvement approach appears to be better suited for hierarchical organizations, which is in line with the suggestions by Harmon (2014). There is also an interesting nexus with the concept of "culture for quality", which should promote flexibility (Gimenez-Espin et al., 2013), and with excellence and customer orientation that characterize BPM culture (Schmiedel et al., 2014).

(3) When a top-down approach is used in organisations with Market or Hierarchy dominant culture: The emphasis of hierarchical and market culture on the stability and control appears to fit a top-down approach to BPM better. This is in line with previous findings on planning-related TQM practices correlating with these two culture types (Prajogo and McDermott, 2005).

(4) When the BPM initiative has a strategic role and formal responsibilities are defined in Clan and Hierarchy cultures: This confirms previous findings (Prajogo and McDermott, 2005; Gambi et al., 2015), that describe both Clan and Hierarchy culture to fit such a strategic approach to BPM. Formal responsibility for BPM also seems to be important for organisations with these organizations that impose an internal focus

(Cameron and Quinn, 2006). It confirms the findings in (Buh, Indihar Štemberger, 2016).

The results confirmed findings from Hribar and Mendling (2014) that organizations with Clan dominant culture should be most favourable and organizations with Hierarchy dominant culture as least favourable for BPM adoption. This is also in line with previous findings (e. g. Prajogo and McDermott, 2005; Zu et al., 2010; Gambi et al., 2015). As we can see, organizations with Clan dominant culture have also reached the highest score of BPO regarding all 3 dimensions and organizations with Hierarchy dominant culture the lowest score. Since Hierarchy culture was found to be suitable for process measurement (Prajogo and McDermott, 2005; Gambi et al., 2015), one might expect that process management and measurement dimension would have higher score for organizations with Hierarchy dominant culture. However, this dimension of BPO can only be implemented in organizations with higher level of BPM maturity (McCormack and Johnson, 2001). Processes cannot be managed and measured, if they are not defined and documented first, so high level of process view dimension is a prerequisite for high level in process management and measurement dimension.

5.2 Implications for Research and Practice

Our findings have implications for research and practice. Our study informs research on organizational culture and its connection with the success of management approaches. The statistical results and the corresponding discussion provides the basis for defining new and more nuanced propositions on the impact of organizational culture on BPM adoption. While we find further evidence for the connection between both factors as posited in by e.g. Rosemann and vom Brocke (2010), vom Brocke and Sinnl (2011) or Alibabaei et al. (2010), it is unlikely that a certain dominant culture will always bear success or failure. BPM adoption offers a rich set of configuration parameters, with certain configurations being better suited for specific organizational settings. This has strong implications for future research on BPM and organizational culture. Our findings emphasize the need to conceptualize BPM adoption in such a way that various interactions between its context and configuration have to be taken into account.

The findings in this paper have also preliminary implications for practice, even though further evaluative studies are needed in the future. In general, organizations should evaluate their organizational culture to identify their dominant culture type. Our findings suggest that certain configurations of BPM adoption might better fit their organization. This is in line with what prior research suggests. However, an organization might still decide to adopt BPM in a way that is reported to be less fitting. Our results should be seen as an indication of increased risk in such a circumstance. Additional change management measures should be taken in order to facilitate a smooth and successful adoption.

5.3 Limitations and future research

Our findings have to be interpreted bearing some potential limitations in mind. First, organizational culture is a complex construct. Our study focuses on only on organizations from three countries in Central and Eastern Europe. It might be argued that differences in

national culture (see Hofstede, 1993) might restrict the generalization of our findings to other countries. Therefore, future studies should replicate the research design in countries with different profiles of national culture. Second, our sample is limited in its coverage of companies with Adhocracy dominant culture. This is problematic from a statistical angle and restricts the comparison with the other culture types that are included with a larger number. It is desirable to obtain a larger amount of data from organizations of this culture type in the future for studying its connection with BPM adoption. Third, the data of our questionnaire stems from one representative answering on behalf of the entire organization. While this approach to data collection is common, it bears the risk of biased perceptions. Fourth, dominant culture does not fully capture the organizational culture, because most organizations have a mixture of cultures. Finally, our argument builds on survey data and hypothesis testing. However, our analysis builds on a correlation argument. This is important to keep in mind. Our data does not permit any interpretation in terms of causality.

6. Conclusions

In this paper, we investigated the differences in the success of BPM initiatives and their connection with organizational culture. We used an explorative survey design and collected data on the BPM adoption from organizations in Austria, Croatia and Slovenia with more than 50 employees. Our study provides empirical insights about characteristics of successful BPM initiatives in different organizational cultures. Specifically, the chance of success appears to be higher:

(1) when the BPM initiative is rolled out in the entire organization if the organization has Clan, Market or Hierarchy culture;
(2) when the BPM is run on a continuous basis in Hierarchy culture and repeatedly in Adhocracy culture;
(3) when a top-down approach is used in organisations with Market or Hierarchy dominant culture;
(4) when the BPM initiative has a strategic role and formal responsibilities are defined in Clan and Hierarchy cultures.

Our findings have strong implications for research and for how organization should approach BPM adoption. Our propositions provide the basis for future studies on the interaction of various factors and their impact on BPM adoption in certain organizational cultures.

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References

1. Åhlström, P. and Westbrook, R. (1999), "Implications of mass customization for operations management: an exploratory survey", *International Journal of Operations & Production Management*, Vol. 19 No. 3, pp. 262-275.
2. Alibabaei, A., Aghdasi, M., Zarei, B. and Stewart, G. (2010), "The Role of Culture in Business Process Management Initiatives", *Australian Journal of Basic and Applied Sciences*, Vol. 4 No. 7, pp. 2143-2154.
3. Armistead, C., Pritchard, J. P. and Machin, S. (1999), "Strategic business process management for organisational effectiveness", *Long range planning*, Vol. 3 No.1, pp. 96-106.
4. Armistead, C. and Machin, S. (1997), "Implications of business process management for operations management", *International Journal of Operations & Production Management*, Vol. 17 No. 9, pp. 886–898.
5. Baird, K., Hu, K. J. and Reeve, R. (2011), "The relationships between organizational culture, total quality management practices and operational performance", *International Journal of Operations and Production Management*, Vol. 31 No. 7, pp. 789-814.
6. Bandara, W., Alibabaei, A. and Aghdasi, M. (2009), "Means of achieving Business Process Management success factors", in *Proceedings of the 4th Mediteranian Conference on Information Systems, Athens, Greece, 2009*, Athens University of Economics and Business. pp. 1348-1363.
7. Buh, B., Indihar Štemberger, M. (2016), "Approach towards BPM adoption under hierarchy-market culture: a case study", *Economic and business review*, Vol. 18 No. 2, pp. 151-182.
8. Buh, B. (2016), "Approaches towards business process management adoption under different organizational cultures", Doctoral dissertation, University of Ljubljana, Faculty of Economics.
9. Cameron, K.S. and Quinn, R.E. (2006), *Diagnosing and changing organizational culture: Based on the competing values framework*. Addison-Wesley, Reading, MA.
10. da Silva, L. A., Martins Damian, I. P. and Dallavalle de Pádua, S. I. (2012), "Process management tasks and barriers: functional to processes approach", *Business Process Management Journal*, Vol. 1 No. 5, pp. 762 – 776.
11. Dellana, S. A. and Hauser, R. D. (1999), "Toward Defining the Quality Culture", *Engineering Management Journal*, Vol. 11 No. 2, pp. 11-15.
12. Dumas, M., La Rosa, M., Mendling, J. and Reijers, H. A. (2013), *Fundamentals of Business Process Management*. Springer, Heidelberg.
13. Field, A. (2009), *Discovering Statistics Using SPSS (3rd ed.)*, SAGE Publications.
14. Gambi, L. N., Boer, H., Gerolamo, M. C., Jørgensen, F. and Carpinetti, L. C. R. (2015), "The relationship between organizational culture and quality techniques, and its impact on operational performance". *International Journal of Operations & Production Management*, Vol. 35 No. 10, pp. 1460-1484.
15. Gimenez-Espin, J. A., Jiménez-Jiménez, D. and Martínez-Costa, M. (2013), "Organizational culture for total quality management", *Total Quality Management and Business Excellence*, Vol. 24 No. 5-6, pp. 678 – 692.
16. Grau, C. and Moormann, J. (2014), "Investigating the Relationship between Process Management and Organizational Culture: Literature Review and Research Agenda", *Management and Organizational Studies*, Vol. 1 No. 2, pp. 1-17.
17. Grugulis, I. and Wilkinson, A. (2002), "Managing Culture at British Airways: Hype, Hope and Reality", *Long Range Planning*, Vol. 35, pp. 179-194.
18. Hay, I. (2005), *Qualitative research methods in human geography*, Oxford University Press, Oxford.

19. Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2010), *Multivariate Data Analysis – a global perspective*, Pearson, New York, USA.
20. Harmon, P. (2014), *Business process change, Third Edition*. The MK/OMG Press.
21. Hernaus, T., Pejić Bach, M. and Bosilj-Vukšić, V. (2012), "Influence of strategic approach to BPM on financial and non-financial performance", *Baltic Journal of Management*, Vol. 7 No. 4, pp. 376-396.
22. Hernaus, T., Bosilj-Vukšić, V. and Indihar Štemberger, M. (2016), "How to go from strategy to results?: institutionalising BPM governance within organisations", *Business process management journal*, Vol. 22 No. 1, pp. 173-192.
23. Hofstede, G. (1993), "Culture constraints in management theories", *Academy of management executive*, Vol. 7 No. 1, pp. 81-94.
24. Hribar, B. and Mendling, J. (2014), "The correlation of organizational culture and success of BPM adoption", in *Proceedings of the 22nd European Conference on Information Systems (ECIS)*, Association for Information Systems, Tel Aviv, pp. 1-16.
25. Kohlbacher, M. and Gruenwald, S. (2011), "Process orientation: conceptualization and measurement", *Business Process Management Journal*, Vol. 17 No. 2, pp. 267-283.
26. Kohlbacher, M. and Reijers, H. A. (2013), "The effects of process-oriented organizational design on firm performance", *Business Process Management Journal*, Vol. 19 No. 2, pp. 245 – 262.
27. Lai, M-F. and Lee, G-G. (2007), "Relationships of organizational culture toward knowledge activities", *Business Process Management Journal*, Vol. 13 No. 2, pp. 306-322.
28. Lee, R. G. and Dale, B. G. (1998), "Business process management: a review and evaluation", *Business Process Management Journal*, Vo. 4 No. 3, pp. 214-225.
29. McCormack, K. P. and Johnson, W. C. (2001), *Business process orientation – gaining the e-business competitive advantage*, St. Lucie Press, Florida.
30. Prajogo, D. I. and McDermott, C. M. (2005), "The relationship between total quality management practices and organizational culture", *International Journal of Operations & Production Management*, Vol. 25 No. 11, pp. 1101-1122.
31. Prajogo, D. I. and McDermott, C. M. (2011), "The relationship between multidimensional organizational culture and performance". *International Journal of Operations & Production Management*, Vol. 31 No. 7, pp. 712-735.
32. Rad, A. M. M. (2006), "The impact of organizational culture on the successful implementation of total quality management", *The TQM Magazine*, Vol. 18 No. 6, pp. 606 – 625.
33. Ravesteyn, P. and Batenburg, R. (2010), "Surveying the critical success factors of BPM-systems implementation", *Business Process Management Journal*, Vol. 16 No. 3, pp. 492-507.
34. Recker, J. and Mendling, J. (2016), "State of the Art of Business Process Management Research", as Published in the BPM Conference - Recommendations for Progressing the Field, *Business & Information Systems Engineering*, Vol. 58 No. 1, pp. 55-72.
35. Reijers, H. A., van Wijk, S., Mutschler, B. and Leurs, M. (2010), "BPM in Practice: Who Is Doing What?", in Hull, R., Mendling, J. and Tai, S. (Eds.), *Business Process Management: Lecture Notes in Computer Science*, Springer, Berlin, pp. 45-60.
36. Rosemann, M. and vom Brocke, J. (2010), "The Six Core Elements of Business Process Management", in vom Brocke, J. and Rosemann, M. (Eds.), *Handbook on Business Process Management 1: Introduction, Methods and Information Systems*, Springer, Berlin, pp. 107-122.

37. Ruževičius, J., Klimas, D. and Veleckaite, R. (2012), "Influence of organizational culture on the success of business process management", *Lithuanian public sector organizations. Current Issues of Business and Law*, Vol. 7 No. 1, pp. 1-16.
38. Schein, E. H. (1996). "Three cultures of management: the key to organizational learning", *Sloan Managment Review*, pp. 9-20.
39. Schmiedel, T., vom Brocke, J. and Recker, J. (2013), "Which cultural values matter to business process management? Results from a global Delphi study", *Business Process Management Journal*, Vol. 19 No. 2, pp. 292-317.
40. Schmiedel, T., vom Brocke, J., and Recker, J. (2014), "Development and Validation of an Instrument to Measure Organizational Cultures' Support of Business Process Management", *Information and Management*, Vol. 51 No. 1, pp. 43-56.
41. Škerlavaj, M., Indihar Štemberger, M., Škrinjar, R. and Dimovski, V. (2007), "Organizational learning culture - the missing link between business process change and organizational performance", *International Journal of Production Economics*, Vol. 106 No. 3, pp. 346-367.
42. Škrinjar, R., Bosilj-Vukšić, V. and Indihar Štemberger, M. (2008), "The Impact of Business Process Orientation on Financial and Non-financial performance", *Business Process Management Journal*, Vol. 14 No. 5, pp. 738-754.
43. vom Brocke, J. and Sinnl, T. (2011), "Culture in Business Process Management: A Literature Review", *Business Process Management Journal*, Vol. 17 No. 2, pp. 357-378.
44. vom Brocke, J. and Rosemann, M. (2014), *Handbook on Business Process Management 2: Strategic Alignment, Governance, People and Culture*. Springer Publishing Company.
45. Webster, J. and Watson, R.T. (2002), "Analyzing the past to prepare for the future: Writing a literature review". *MIS Quarterly*, Vol. 26 No. 2, pp. 13–23.
46. Wohlin, C., Höst, M. and Henningsson, K. (2003), "Empirical Research Methods in Software Engineering", in Conradi, R.and Wang, A.I. (Eds.): *ESERNET 2001-2003, LNCS 2765*, pp. 7–23.
47. Wong, W. P., Tseng, M-L. and Tan, K. H. (2014), "A business process management capabilities perspective on organisation performance", *Total Quality Management & Business Excellence*, Vol. 25 No. 5-6, pp. 602-617.
48. Yong, K. T. and Pheng, L. S. (2008), "Organisational culture and TQM implementation in construction firms in Singapore", *Construction Management and Economics*, Vol. 26 No. 3, pp. 237-248.
49. Zairi, M. (1997), "Business process management: a boundaryless approach to modern competitiveness", *Business Process Management Journal*, Vol. 3 No. 1, pp. 64-80.
50. Zhao, F. (2004), "Management of information technology and business process re-engineering: A case study", *Industrial Management & Data Systems*, Vol. 104 No. 8, pp. 674-680.
51. Zu, X., Robbins, T. L. and Fredendall, L. D. (2010), "Mapping the critical links between organizational culture and TQM/six sigma practices", *International Journal of Production Economics*, Vol. 123, pp. 86-106.

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