

# Cross Country Comparison: Business Process Management Maturity, Social Business Process Management and Organizational Culture

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**Abstract**—In recent few decades, business process management (BPM) has been in focus of a great number of researchers and organizations. There are many benefits derived from the implementation of BPM in organizations. However, there has been also noticed that lately traditional BPM faces some difficulties in terms of the divide between models and their execution, lost innovations, lack of information fusioning and so on. As a result, there has been a new discipline, called social BPM, which incorporates principles of social software into the BPM. On the other hand, many researchers indicate organizational culture as a vital part of the BPM success and maturity. Therefore, the goal of this study is to investigate the current state of BPM maturity and the usage of social BPM among the organizations from Croatia, Slovenia and Austria, with the regards to the organizational culture as well. The paper presents the results of a survey conducted as part of the PROSPER project (IP-2014-09-3729), financed by Croatian Science Foundation. The results indicate differences in the level of BPM maturity, the usage of social BPM and the dominant organizational culture in the observed organizations from different countries. These differences are further discussed in the paper.

**Keywords**—Business process management, BPM maturity, organizational culture, social BPM.

## I. INTRODUCTION

BPM a holistic discipline which is in a great focus of many both academics and practitioners. Being the core of every organization, business processes need to be properly managed in order to achieve efficiency. BPM is defined by [1] as management discipline which focuses on managing business processes of the organization with the purpose of improving its organizational performance. In that sense, many authors emphasize the importance of BPM and BPM maturity in achieving better organizational performance results (e.g. [2], [3]). However, in last few years, a new trend within the BPM area emerged. It refers to the social BPM as an attempt of overcoming the limitations of classic approach to BPM. A number of authors indicated that classical BPM has reached the point where some problems may occur and offered a social BPM as a way of dealing with those problems (e.g. [4]-[6]). The concept of social BPM is the implementation of social software principles into the BPM, while the key factor is user

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engagement [7]. At the same time, the role of organizational culture in achieving better performance results has also been investigated by many researchers (e.g. [8], [9]). Following this trend, this paper also puts its focus on organizational culture and its possible impact on both BPM maturity and the usage of social BPM. Although there have been some previous researches regarding the role of organizational culture in BPM (e.g. [10], [11]), the literature review revealed the existence of knowledge gaps regarding the link between organizational culture and social BPM. Therefore, this paper focuses on investigating this link as well.

This research has been fully supported by Croatian Science Foundation under the project PROSPER (Process and Business Intelligence for Business Performance, IP-2014-09-3729). Among other objects, PROSPER project aims to explore the extent to which the concepts of BPM and social BPM have been accepted within the organizations in Slovenia, Croatia and Austria. In doing so, the emphasis has also been put on organizational culture of those companies.

Following the objectives of the PROSPER project, this paper aims at investigating the state of BPM maturity and usage of social BPM within the observed big companies in Slovenia, Croatia and Austria with the regards to organizational culture. Therefore, the research questions this paper aims to answer are: (1) What is the current state of BPM maturity and the usage of social BPM within the big companies from Slovenia, Croatia and Austria? and (2) Are there any statistically significant differences between big organizations with different organizational cultures regarding BPM maturity and the usage of social BPM?

With the purpose of meeting the stated goal of the paper, the structure of the paper is following. After the introduction, a short literature review which presents the main three areas of the paper is given. The literature review is followed by methodology section describing research instrument, data collection process, characteristics of the sample and methods employed for data analysis. The fourth section of the paper presents the results of an empirical research and provides a discussion. The paper ends with a short conclusion.

## II. LITERATURE REVIEW

### A. BPM and BPM Maturity

Although there are many different definitions and understanding of BPM, many authors put their emphasis on the holistic and multidisciplinary nature of BPM [10], [12].

Following that trend, it is important to understand BPM as both managerial and technical discipline at the same time. Therefore, BPM could be understood as a multidisciplinary, holistic discipline that puts its focus on improving, designing, measuring and managing business processes of the organization with the aim of enhancing organizational performance [13], [14].

In order to have some kind of a benchmark in BPM, organizations measure BPM maturity. As stated in [15], maturity models refer to “a sequence of levels (or stages) that form an anticipated, desired, or logical path from an initial state to maturity”. Measuring maturity is important since it is the way of evaluating the current state within the organization and could be the means of guiding and controlling improvement initiatives [16]. Numerous different BPM maturity models have been developed over time. To date, several literature reviews of the BPM maturity models have been made (e.g. [15], [17]-[19]). One of the broadly used BPM maturity models is the process performance index (PPI) which has been developed more than 20 years ago by [20].

PPI is a BPM maturity model which is based on ten critical success factors measuring how well the organization is managing its business processes. The ten success factors are represented by ten statements, respectively: (1) alignment with strategy, (2) holistic approach, (3) process awareness by management and employees, (4) portfolio of process management initiatives, (5) process improvement methodology, (6) process metrics, (7) customer focus, (8) process management, (9) information systems and (10) change management [20]. According to the [20], there are three levels of BPM maturity that an organization can achieve. The lowest maturity level is the process performance initiation and it assumes the organization is a beginner in BPM [20]. The middle level is process management evolution while the highest one is process management mastery and it presumes there are a high understanding, success and usage of BPM within the organization [20].

### *B. Social BPM*

In the last few years, examples from practice indicate the existence of certain shortcomings of the traditional BPM approaches. Moreover, [21] stresses out that traditional BPM approaches are no longer enough to meet and follow the needs of new business processes which have emerged due to the rapid and intensive development of digital technologies. In that sense, several problems have been reported on the field. Probably the most the most widespread problem is the divide between designed models and those which are executed in reality. This problem is called the model-reality divide and is presented by [5] who emphasizes that although business process models could be very well designed, they are often not accepted or not understood enough by employees who therefore continue to execute them in their own way. Other problems related to traditional BPM approaches include loss of innovation, lack of information fusioning and information pass-on threshold [4], [5]. Loss of innovation includes ignorance of knowledge regarding business process

improvement within the organization due to the deficiency of awareness of process owner about it [5], while lack of information fusioning implies the absence of involvement of employees and other stakeholders into BPM in a proper way [4]. By excluding relevant stakeholders from designing and modelling business processes, they can be considered as only process users who are forced to follow the designed process without being able to give their opinion or share the knowledge they might have on improving the processes which are being designed for them [5]. Further to this occurs the information pass-on threshold problem where employees are indifferent or afraid to share their thoughts or ideas of a process improvement or where there is too difficult to submit the idea to the people responsible for BPM [5].

Having all that in mind, social BPM was offered as an answer to the stated limitations of the classical BPM. Social BPM is based on the idea of exploiting the principles and features of social software and Web 3.0 as collaborative Web in order to create a platform for individuals and groups to work together and collaborate on BPM projects [7]. It could also be understood as the intersection of social software and BPM, aiming the integration of social features and principles throughout different stages of BPM lifecycle [7].

### *C. Organizational Culture Assessment and Its Role in BPM Maturity and Social BPM*

Organizational culture is a very important aspect in every organization. Simply said, organizational culture is the way of life within the organization. It determines common goals, values and work life styles which are shared among employees of an organization as written and/or unwritten rules.

To date, several instruments for assessing organizational culture have been developed (e.g. [22]-[24]). For the purpose of this study, Organizational culture assessment instrument (OCAI) developed by [24] has been used. OCAI is an instrument for assessing current and preferred organizational culture of an organization through 24 statements arranged in six groups. The groups refer to: (1) dominant characteristics, (2) organizational leadership, (3) management of employees, (4) organizational glue, (5) strategic emphasis and, (6) criteria for success [24]. Each of the defined groups contains total of four statements where in each group each statement describes the state in the organization according to one of the four organizational culture types. According to OCAI, the organization culture types are: (1) clan, (2) adhocracy, (3) market and (4) hierarchy [24].

In recent period of time, there is a number of studies investigating the role of organizational culture in BPM implementation, adoption and achieving higher levels of BPM maturity (e.g. [10], [11], [25]). According to [26], organizational culture is a central issue when it comes to the BPM implementation, while [27] claims it to be one of the success factors of BPM. On the other hand, [28] argues BPM to be embedded in the governance, systems, people, methods, strategy and culture of an organization. In terms of the most favourable organizational culture for BPM, [29] uses OCAI and present empirical evidence that clan culture is the one that

is the most favourable for BPM implementation.

There are also some studies concentrating on organizational culture in the field of social BPM (e.g. [30], [31]). Previous studies investigate the role of organizational culture in the usage of social BPM in an IT company with knowledge intensive business processes [30]. However, although there exist some studies on this topic, the link between organizational culture and social BPM is much under-investigated and needs further attention.

### III. METHODOLOGY

#### A. Research Instrument

For the purpose of the PROSPER project, research group has developed a questionnaire based on the available literature. Original PROSPER questionnaire consisted of 12 sections, respectively: (1) BPM maturity, (2) Social BPM, (3) business intelligence (BI) maturity, (4) corporate performance management (CPM), (5) BPM/CPM alignment, (6) BPM/BI alignment, (7) BI/CPM alignment, (8) assessment of process performance, (9) assessment of organizational performance, (10) assessment of organizational culture, (11) characteristics of the company and (12) demographic characteristics of the respondent. With the purpose of meeting the aims of this paper, BPM maturity, social BPM and organizational culture assessment sections of the questionnaire have been taken into consideration, as well as the characteristics of the company.

Within the designed questionnaire, BPM maturity has been assessed by using PPI as already known and validated instrument which has been developed by [20] and described earlier in the paper. PPI comprises ten statements (see previous section) for which respondents indicate the level of their agreement for each of the statements. In doing so, the respondents use the five level Likert scale, where grade 1 represents strong disagreement with the statement and grade 5 represents the strong agreement. This way, respondents indicate the level of BPM maturity within their organizations since the cumulative grade score of the ten statements represents the PPI of the organization. As stated earlier, there are three levels of BPM maturity according to [20]. PPI score defines at which level of BPM maturity is the respondent's organization. PPI score ranging from 10 to 25 defines the organization being at the process management initiation level, which is the lowest level of BPM maturity. Next, PPI in the range from 26 to 40 points means that the organization is at the process management evolution level. Finally, if PPI score is between 41 and 50 points, that puts the organization into the highest level of BPM maturity, called process management mastery.

The second part of the research instrument for this paper refers to the assessment of the usage of social BPM within the organizations. It consists of four statements representing the principles of social BPM, which have been comprised based on the extensive literature review on social BPM conducted by the research group. Those principles refer to: (1) egalitarianism, (2) collective intelligence, (3) self-organization and (4) social production, as comprised from the available

literature [4]-[6], [32], [33]. Like in the case of PPI, a five point Likert scale is also used where respondents state their level of agreement with the offered statements in a way that 1 represents strong disagreement while 5 stands for strong agreement with the statement. The level of social BPM usage is calculated as an average grade of awarded points. Higher average indicates a higher level of usage of social BPM within the surveyed company.

Finally, the third part of the research instrument comprises already mentioned OCAI developed by [24]. OCAI requests from the respondents to allocate 100 points among four statements and repeat it through total of six groups of statements. In each group every statement represents one of the four organizational cultures as presented in [24] and respondents are supposed to assess the current and preferred state of culture in their organizations so that the most similar situation gets higher number of points. However, for the purpose of this study, only current organizational culture has been assessed throughout the questionnaires. The dominant organizational culture is the one with the highest average of allocated points throughout all of the six groups of statements.

#### B. Data Collection

In a period from March 2016 till December 2016, PROSPER research group conducted a data collection by distributing questionnaires to organizations in Slovenia, Croatia and Austria. Prior to the main data collection process, a preliminary study has been conducted with the purpose of testing the developed questionnaire. After testing the clarity of the questions some minor modifications have been made and the final questionnaire has been distributed as an online survey via e-mails and through post. The questionnaire has been sent to the companies with more than 50 employees and was addressed to the person in charge of the BPM within the surveyed organizations. For the purpose of this study, only organizations with sales revenue larger than 50 million euros have been taken into consideration. Overall, total of 77 responses from Slovenia, Croatia and Austria have been further analysed.

#### C. Sample Description

After the checking and cleaning the data, the final sample consisted of companies from Slovenia, Croatia and Austria which have reported to have turnover in 2015 of more than 50 million euros and can therefore be considered as big companies. Among those companies, 44.16% are Slovenian companies, 41.56% are operating in Croatia, while 14.29% of the companies are from Austria. In terms of the number of employees, 15.58% of the surveyed companies have between 50 and 249 employees while 37.66% of them have more than 250 and 1000 employees. Nevertheless, majority of the observed companies have more than 1000 employees (46.75%). The overall sample characteristics are shown in Table I.

#### D. Data Analysis Methods

The data analysis for this paper has been started by checking the reliability of the research instrument. In order to

do so, Cronbach's alpha coefficient has been calculated and compared to the cut-off value of 0.7, as recommended by [34]. Based on the fact that all calculated Cronbach's alpha coefficients for the scales used in this research are above the cut-off value, the overall reliability of the research instrument has been confirmed. On the other hand, since PPI and OCAI are well known instruments for assessing BPM maturity and organizational culture and were used many times in previous researches (e.g. [11], [35]), the validity of the research instrument has also been confirmed. However, since the social BPM part of the research instrument has been developed by the PROSPER research group, the validity of the scale has been tested throughout the process of preliminary questionnaire testing among both practitioners and academics. Next, Kolmogorov-Smirnov (K-S) test has been used to check the normality of the distributions and the Levene's test has been used in order to test the assumption of the homogeneity of variance. The results revealed that both the assumption of normality of the data distribution and the assumption of the homogeneity of variance were tenable, so one-way ANOVA analysis has been used for the further data analysis.

TABLE I  
 SAMPLE CHARACTERISTICS

Criteria	Characteristic	N	%
Country	Slovenia	34	44,16%
	Croatia	32	41,56%
	Austria	11	14,29%
Number of employees	50-249	12	15,58%
	250-1000	29	37,66%
	>1000	36	46,75%

#### IV. RESULTS AND DISCUSSION

For the purpose of answering the first research question regarding the current state of BPM maturity and the usage of social BPM within the observed companies in Slovenia, Croatia and Austria, the overall PPI scores have been calculated for each country. The results of the analysis of BPM maturity across the three observed countries are given in Table II and graphically presented by Fig. 1. As it is visible, the lowest total PPI score of 25.00 is calculated for big companies operating in Croatia. That score puts Croatian companies at the upper limit of the lowest BPM maturity level, process performance initiation. Nevertheless, the results revealed that majority of the surveyed Croatian companies (59.38% of them) are at the middle BPM maturity level, which is called process management evolution. In comparison to other observed countries, Croatia is the only one where there are some big companies still in the lowest BPM maturity phase (9.38% of them). On the other hand, on the sample of Austrian big companies, majority of them are also in the middle BPM maturity phase, almost 82%, while 18% of them reached the highest BPM maturity level. The results from Slovenia revealed that 41.18% of the surveyed companies are at the highest BPM maturity level, called process performance mastery. Still, the majority of the surveyed Slovenian companies (58.82%) are still at the middle BPM maturity level. Both Slovenia and Austria reached middle BPM

maturity level according to the calculated overall PPI, which is 38.85 for Slovenia and 37.00 for Austria. One of the explanations for the lower results in case of Croatia could be in the fact that both Austria and Slovenia are the members of European Union for a much longer period of time than Croatia. This also means that doing business was, in a way, easier for the companies within the European Union due to the open borders and financial aids, as well as the better overall economic state of the country. Therefore, it is no surprise that Croatian companies are at the lower level of BPM maturity than those from other two observed countries.

TABLE II  
 BPM MATURITY ACROSS THE OBSERVED COUNTRIES

BPM maturity level/PPI	Slovenia (N=34)	Croatia (N=32)	Austria (N=11)
1-process management initiation	0,00%	9,38%	0,00%
2-process management evolution	58,82%	59,38%	81,82%
3-process management mastery	41,18%	31,25%	18,18%
Total PPI score	38,85	25,00	37,00

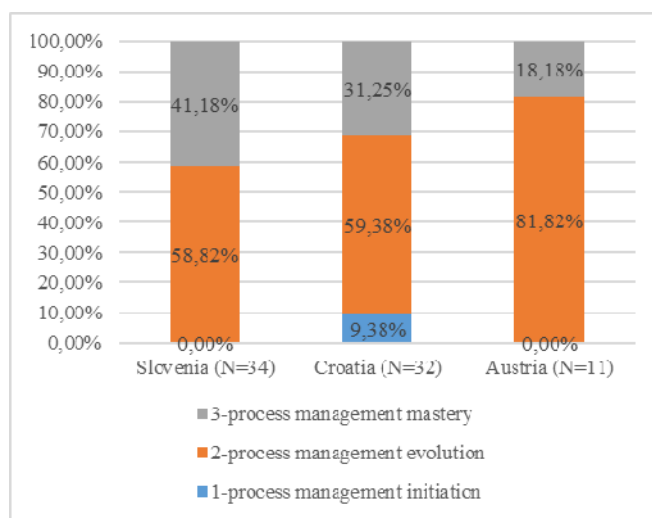


Fig. 1 BPM maturity levels across the observed countries

Next, the average scores on the usage of social BPM have been calculated as well. The results are shown in Table III and graphically presented by Fig. 2. In a comparison to other observed countries, Austria has the highest percentage of the companies with high usage of social BPM (36.36%), although the same number of companies from Austria has also the low level of social BPM usage. In Croatia, majority of the observed big companies have the low level of social BPM usage (40.36%), while minority of them are at the highest level of social BPM usage (28.13%). On the other hand, in Slovenia, majority of the surveyed big companies (52.94%) are at the middle level of social BPM usage, while minority of them (11.76%) are at the lowest level of social BPM usage. These results indicate the willingness of the observed companies for using social BPM and also reveal a growing trend in shifting from classical BPM approaches to implementing the principles of social software within managing business processes of the companies.

TABLE III  
 SOCIAL BPM ACROSS THE OBSERVED COUNTRIES

Social BPM average score	Slovenia (N=34)	Croatia (N=32)	Austria (N=11)
Low level (average grades 1 & 2)	11,76%	40,63%	36,36%
Middle level (average grade 3)	52,94%	31,25%	27,27%
High level (average grades 4 & 5)	35,29%	28,13%	36,36%

TABLE V  
 ONE-WAY ANOVA RESULTS FOR THE USAGE OF SOCIAL BPM ACROSS DIFFERENT ORGANIZATION CULTURE TYPES

Social BPM	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6,2744	3	2,0915	3,43862	0,021160
Within Groups	44,4009	73	0,6082		
Total	50,6753	76			

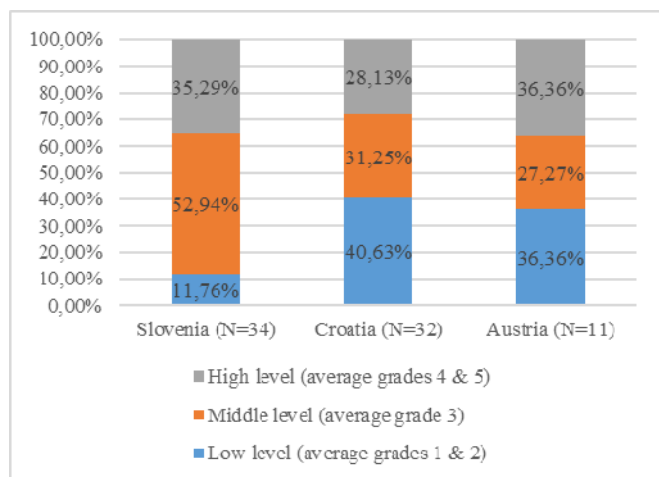


Fig. 2 Average usage of social BPM across the observed countries

The second research question focuses on existence of statistically significant differences between organizations with different dominant organizational culture types in the achieved levels of BPM maturity and the average usage of social BPM. For the purpose of answering the second research question, and since the assumption of normality of the data distribution and the homogeneity of variance were met, the one-way ANOVA analysis has been used. The results of the ANOVA analysis of the BPM maturity across the different organization culture types reveal the existence of statistically significant differences between companies with different dominant organizational cultures regarding BPM. These differences are statistically significant at the 5% level with the p-value of 0.001424, as presented in Table IV.

TABLE IV  
 ONE-WAY ANOVA RESULTS FOR BPM MATURITY ACROSS DIFFERENT ORGANIZATION CULTURE TYPES

BPM maturity	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	553,6364	3	184,5455	5,7208	0,001424
Within Groups	2354,8831	73	32,2587		
Total	2908,5195	76			

The results of the ANOVA analysis of the usage of social BPM across the different organization culture types are presented in Table V. As it is visible from the table, the analysis shows that there are statistically significant differences at the 5% level in the levels of usage of social BPM between companies with different dominant organizational culture types.

## V. CONCLUSION

This paper focused on investigating BPM maturity and the usage of social BPM across different organizational cultures and across three observed countries, respectively Slovenia, Croatia and Austria. The results revealed differences in the achieved levels of BPM maturity and the usage of social BPM within the surveyed companies from different countries. Furthermore, the statistically significant differences in the levels of BPM maturity and the usage of social BPM have been confirmed between companies with different dominant organizational culture types.

Although this study extends the body of knowledge, there are some limitations that need to be recognized. The major limitation of this research is the unequal and rather small number of surveyed companies across the countries, so the generalisation of the findings is limited and needs to be further researched. Further research plans also include investigating the revealed differences in more detail with the purpose of explaining them and offering some guidelines for the practice.

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