

Business Process Management and Organizational Culture in Big Companies: Cross-Country Analysis

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Abstract—Business process management (BPM) is widely used approach focused on designing, mapping, changing, managing and analyzing business processes of an organization, which eventually leads to better performance and derives many other benefits. Since every organization strives to improve its performance in order to be sustainable and to remain competitive on the market in long-term period, numerous organizations are nowadays adopting and implementing BPM. However, not all organizations are equally successful in that. One of the ways of measuring BPM success is by measuring its maturity by calculating Process Performance Index (PPI) using ten BPM success factors. Still, although BPM is a holistic concept, organizational culture is not taken into consideration in calculating PPI. Hence, aim of this paper is twofold; first, it aims to explore and analyze the current state of BPM success factors within the big organizations from Slovenia, Croatia, and Austria and second, it aims to analyze the structure of organizational culture within the observed companies, focusing on the link with BPM success factors as well. The presented study is based on the results of the questionnaire conducted as the part of the PROSPER project (IP-2014-09-3729) and financed by Croatian Science Foundation. The results of the questionnaire reveal differences in the achieved levels of BPM success factors and therefore BPM maturity in total between the three observed countries. Moreover, the structure of organizational culture across three countries also differs. This paper discusses the revealed differences between countries as well as the link between organizational culture and BPM success factors.

Keywords—Business process management, BPM maturity, BPM success factors, organizational culture, process performance index.

I. INTRODUCTION

THE area of BPM has intrigued researchers for decades. However, constant need for managing business processes within the organizations in practice still makes BPM an interesting topic for the researchers today. Moreover, although there are many empirical researches regarding BPM (e.g. [1]-[4]), there are still some under investigated areas that need to be tackled. There are also many initiatives and researches that are focused on exploring new BPM opportunities (e.g. [5]-[9]) and are investigating the existent, aiming to shed some more light into the area and to find ways for BPM improvement. Furthermore, it is also important to focus the researches on providing some guidelines for practice.

By the definition provided by [10], BPM is “a management discipline focused on improving corporate performance by

managing a company’s business processes”. In that sense, BPM nowadays comprises analyzing, designing, managing, measuring and improving all business processes of an organization [11], [12]. However, in recent period, a number of authors put their emphasis on the holistic nature of BPM which refers to the need of including all important aspects into BPM and BPM related studies [13], [14]. Furthermore, according to [15], besides holistic view of BPM, it should be also viewed as a multidisciplinary area which means that both managerial approach as well as the information technology driven approach should be taken into consideration. One of the areas which need to be included into researching BPM is the role which organizational culture has in adopting and implementing BPM and reaching higher maturity as means of measuring the success of the BPM within an organization [3], [4], [15].

With the purpose of investigating the current state of BPM within the organizations from several European countries, Process and Business Intelligence for Business Performance project (PROSPER – IP-2014-09-3729) has been started in 2015 and is funded by the Croatian Science Foundation. As part of the named project, this research has been fully supported by the Croatian Science Foundation. PROSPER project gathers researchers from several countries in the region, out of which three countries are participating in the project in the area of BPM: (i) Croatia, (ii) Slovenia and (iii) Austria. Moreover, besides others, one of the objects of the PROSPER project is to explore the link between the organizational culture and BPM within the companies. Therefore, this paper has two main goals: (i) to examine the current state of BPM and its success factors in big organizations operating in Croatia, Slovenia and Austria and (ii) to investigate and analyze the structure of organizational culture in big organizations from selected countries, with the focus on the role of organizational culture in achieving higher levels of BPM success factors.

In order to meet the stated aims of the paper, the structure of the paper is as follows. After this introduction, a brief theoretical background is given. The theoretical background covers the areas of BPM and organizational culture as two main research areas of this paper. Next, the research methodology is presented, providing an overview of the research instrument, data collection and data analysis methods, as well as the characteristics of the sample. Before the conclusion, results of the study as well as the discussion of the results are presented. Finally, the conclusion sums up the main findings of the paper and points out its limitations as well as the ideas for future research.

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II. THEORETICAL BACKGROUND

A. BPM and Its Maturity

BPM is a discipline which has many different understandings, views, definitions and perspectives [16]. As previously mentioned, it is important to understand the multidisciplinary and holistic nature of BPM and include it into BPM related researches. There are many definitions of BPM, besides already mentioned one provided by [10]. For example, [11] defines it as “supporting business processes using methods, techniques and software to design, enact, control and analyze operational processes involving humans, organizations, applications, documents and other sources of information”. Another definition is given by [17] who views BPM as “a holistic management approach focused on organizational processes as opposed to organizational functions”. However, regardless of its definition, the aim behind implementation of BPM within the organizations in practice is performance enhancement and/or gaining and maintaining competitive advantage [10], [18], [19]. Still, the adoption and implementation of BPM within the organizations in practice is not always equally successful.

Measuring BPM maturity can be understood as one of the ways of assessing the success of the BPM implementation and adoption within an organization. Moreover, the purpose of BPM maturity models is to provide both internal and external benchmarking for the organization [20]. Nowadays, there is a number of different BPM maturity models developed. For example, [20] and [21] present an overview and discussion of developed BPM maturity models over time, while [22] presents a systematic literature review of the developed models. Among presented BPM maturity models, there is also a model called PPI developed by [23]. This BPM maturity model proposes three stages of BPM maturity; (i) process management initiation, (ii) process management evolution and (iii) process management mastery [23]. According to [24], the process management initiation stage of the PPI maturity model understands companies as beginners in the BPM as they have traditional job functions and unstructured processes, without proper process measures. Nevertheless, there is a willingness to get involved into BPM within those companies [24]. The next stage of BPM maturity, process management evolution, refers to the companies which have defined process metrics and indicators and whose organizational structures have process aspect [24]. Process management mastery, as the highest level of BPM maturity according to PPI, is present within the companies which have fully aligned BPM initiatives with the strategy of the organization as well as defined process jobs and structures [24]. With the purpose of assessing the level of BPM maturity within an organization, the authors of the PPI maturity model defined ten BPM success factors; (i) alignment with strategy, (ii) holistic approach, (iii) process awareness by management and employees, (iv) portfolio of process management initiatives, (v) process improvement methodology, (vi) process metrics, (vii) customer focus, (viii) process management, (ix) information systems and (x) change management [23].

B. Organizational Culture

According to [25], organizational culture is “a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”. Another definition of organizational culture is given by [26]: “The collective programming of the mind that distinguishes the members of one organization from others”. However, to define it in more simple way, an organizational culture is the way of life within the organization. It is a set of common organizational values, customs and beliefs that produce behavioral norms and patterns in interaction with the formal organizational structure [27]. Besides values, customs and beliefs, organizational culture is comprised of ethics, spoken and unspoken language, knowledge, rituals, understandings, management and employees’ characteristics and life styles, and can be considered as a display of organizational personality [28]. Furthermore, organizational culture influences the everyday life, directs the activities of employees and determines their behavior by providing them the sense of belonging and purpose [28], [29].

As there are different definitions of the organizational culture, there are different typologies of it. For example, [25] views organizational culture as three dimensional phenomena, defining three dimensions of the organizational culture; (i) artefacts – physical attributes and organizational structures, (ii) espoused values – organizational strategies and goals, and (iii) basic underlying assumptions – perceptions, feelings and thoughts of the collective. Another typology of organizational culture is given by [30], who proposes four types of organizational cultures: (i) power culture – centralized power which spreads to the rest of the organization, (ii) role culture – focused on procedures, rules, responsibilities and work, (iii) task culture – problem solving teams and expertise based power, and (iv) person culture – employees consider to be superior to the organization. Furthermore, [31] proposes five types of organizational culture: (i) power distance – less powerful employees accept unequal organizational power distribution, (ii) individualism vs. collectivism – the extent of group integration, (iii) uncertainty avoidance – the level of employees’ comfort in unstructured situations, (iv) masculinity vs. femininity – distribution of emotional gender roles, and (v) long vs. short-term orientation – level of employees’ acceptance of delayed needs fulfilment. Besides the named classifications, there are more examples in the literature. However, for the purpose of this research, a typology proposed by [32] has been used, which distinguishes four types of organizational culture: (i) clan, (ii) adhocracy, (iii) market and (iv) hierarchy culture. This typology is based on the Competing Values Framework developed by [33] and [34], which is represented by four quadrants, where vertical axis refers to the extent of flexibility or control within the organization, while horizontal one refers to the internal or external orientation of the organization [35]. Following Competing Values Framework, clan culture is dominant in

flexible and internally focused organizations and is characterized by friendly workplace, loyalty, commitment, tradition, teamwork and collaboration [32]. In organizations which are also flexible, but externally focused, the dominant organizational culture is adhocracy, characterized by dynamic workplace, innovations, agility, risk taking and creativity [32]. On the other hand, if the focus of the organization is internal and if the organization strives for stability and control, the dominant organizational culture is hierarchy, characterized by formal and structured workplace, rules, policies, regulations, stability and predictability [32]. Market organizational culture is dominant in organizations that are externally focused and that strive for stability and control. This type of organizational culture is characterized by competitive and results-oriented workplace, strong focus on performance and business goals, productivity and profitability [32].

III. RESEARCH METHODOLOGY

A. Research Instrument

The research instrument for the purpose of this study has been developed as a part of the already mentioned PROSPER project. A questionnaire containing total of 12 parts has been developed. Those parts referred to: (i) BPM maturity, (ii) Social BPM, (iii) business intelligence (BI) maturity, (iv) corporate performance management (CPM), (v) BPM/CPM alignment, (vi) BPM/BI alignment, (vii) BI/CPM alignment, (viii) assessment of process performance, (ix) assessment of organizational performance, (x) assessment of organizational culture, (xi) characteristics of the organization and (xii) demographic characteristics of the respondents. This paper presents the results of the BPM maturity and the assessment of the organizational culture parts of the questionnaire, taking into consideration the characteristics of the organizations as well.

First aim of this research refers to the examination of the current state of BPM success factors in big companies in Slovenia, Croatia and Austria. Therefore, for the purpose of this study, the already mentioned PPI maturity model has been employed as the research instrument. As it has been previously discussed, the PPI comprises ten BPM success factors identified by [23]. Each of those factors is represented by one statement within the designed questionnaire. This research instrument is based on the 5 points Likert scale, where grade 1 refers to complete disagreement, while grade 5 refers to complete agreement. By grading each of the ten BPM success factors, respondents are assessing the BPM maturity level of their organization. The cumulative of all grades represents the PPI of the company which puts an organization at one of the previously described BPM maturity stages. Organizations with PPI ranging from 10 to 25 are at the lowest BPM maturity stage; those with PPI ranging from 26 to 40 are at the middle stage, while those with PPI ranging from 41 to 50 are at the highest stage of the BPM maturity according to [23].

Second goal of this paper refers to analysis of the structure of organizational culture in big companies operating in

Croatia, Slovenia and Austria. In order to meet the stated goal, the assessment of the organizational culture has been made by using the Organizational Culture Assessment Instrument (OCAI) developed by [32]. Following already mentioned four types of organizational cultures proposed by [32], OCAI is comprised of six group statements in which there is total of four statements, where each represents one of the proposed organizational culture types. The respondents allocate 100 points among those four statements for each group. The statement groups refer to: (i) dominant characteristics, (ii) organizational leadership, (iii) management of employees, (iv) organizational glue, (v) strategic emphasis and, (vi) criteria for success [32]. The dominant organizational culture is the one with the highest sum of points. Originally, OCAI is used to assess both current and preferred organizational culture. However, in this research, only the current dominant organizational culture has been assessed.

B. Data Collection and Sample Description

The data collection for the purpose of this research has been conducted in two phases. First phase has been conducted in February 2016 aiming to test the developed questionnaire in order to check if all questions are clear enough and well written. After the testing phase and slight corrections of the original questionnaire, the main data collection phase has been conducted in the period from March 2016 till December 2016. In that period, questionnaires have been distributed in paper versions by post and as on-line versions by e-mails and through LinkedIn. Invitations for participating in the research have been sent to companies with more than 50 employees, operating in Slovenia, Croatia and Austria.

At the end of the data collection period, the data cleansing has been conducted. In that process answers with more than 5 missing values have been removed. Next, only companies which have reported a turnover of more than 50 million euros in 2015 have been selected for the further analysis. In terms of the turnover, those companies can be understood as big companies. After the data cleansing and filtering, the overall sample consisted of 77 big companies operating in Slovenia, Austria and Croatia.

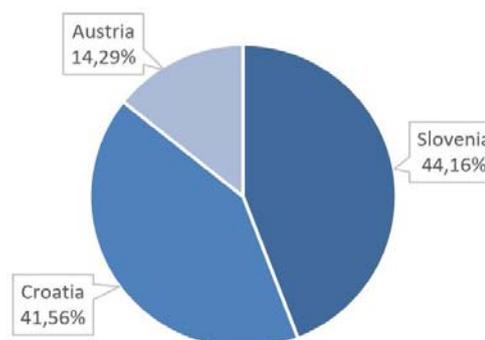


Fig. 1 Sample structure according to the country

Fig. 1 presents the structure of the final sample with the regards of the country in which observed companies are operating in. Majority of the surveyed companies (44.16%)

are operating in Slovenia, followed by those operating in Croatia (41.56%). Minority of the observed companies (14.29%) of the observed big companies are operating in Austria.

Fig. 2 presents the structure of the sample according to the number of employees of the observed companies. As it is visible from Fig. 2, the majority of the companies in the sample have more than 1000 employees (46.75%). On the other hand, minority of the observed companies have between 50 and 249 employees (15.58%), followed by the 37.66% of the companies which have between 250 and 1000 employees.

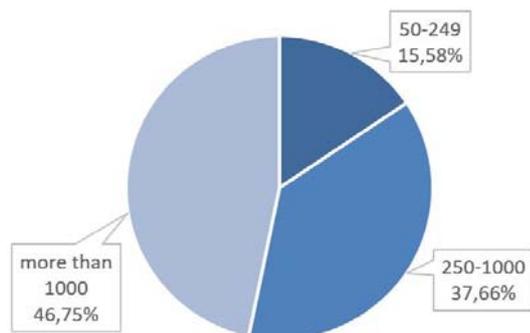


Fig. 2 Sample structure according to the number of employees

C. Data Analysis Methods

The collected data have been statistically analyzed by employing several methods of descriptive and inferential statistics. First, the reliability of the research instrument has been tested. Hence, the Cronbach's alpha coefficient has been calculated for each part of the research instrument and presented in Table I. According to [36], the recommended cut-off value for reliability check by using Cronbach's alpha coefficients is 0.7. As it is visible from Table I, all of the calculated Cronbach's alpha coefficients are higher than that recommended cut-off value. Therefore, the reliability of the research instrument is confirmed.

TABLE I
CRONBACH'S ALPHA COEFFICIENTS

Scale	Number of items in a scale	Cronbach's alpha coefficient
BPM maturity	10	0,816549282
Clan organizational culture	6	0,744183535
Adhocracy organizational culture	6	0,866767240
Market organizational culture	6	0,799989090
Hierarchy organizational culture	6	0,870957918

The validity of the research instrument is also confirmed through various different previous researches which have been using PPI and OCAI (e.g. [3], [4], [6], [24], [28]). Aiming to test the normality of the distributions and the assumption of the homogeneity of variance, the Kolmogorov-Smirnov (K-S) and Levene's tests have been used. According to the conducted tests, both the assumption of normality of the data distribution and the assumption of the homogeneity of variance are tenable. Therefore, one-way ANOVA has been used for the further analysis of the collected data.

IV. RESULTS AND DISCUSSION

This section of the paper presents the results of the empirical research which has been conducted as part of the PROSPER project regarding the BPM success factors and the structure of organizational culture within the big companies (in terms of sales revenue) operating in Slovenia, Croatia and Austria.

For the purpose of investigating the BPM success factors, the average scores have been calculated for each of the BPM success factors within the PPI maturity model and for each participating country. The results are presented in Table II. Moreover, the results are graphically presented by Fig. 3.

TABLE II
AVERAGE BPM SUCCESS FACTORS ACROSS COUNTRIES

BPM success factor	Slovenia	Croatia	Austria
Alignment with strategy	4,55882	3,87500	3,45455
Holistic approach	4,55882	3,81250	3,63636
Process awareness by management and employees	4,02941	3,59375	3,72727
Portfolio of process management initiatives	4,02941	3,90625	3,72727
Process improvement methodology	3,50000	3,28125	4,27273
Process metrics	3,61765	3,43750	3,45455
Customer focus	3,76471	3,93750	4,18182
Process management	3,47059	3,37500	4,00000
Information systems	3,61765	3,37500	3,54545
Change management	3,70588	3,18750	3,00000

It is visible that the highest results within Slovenian companies have been achieved in the area of alignment with strategy and holistic approach, while the highest results within the Croatian companies have been achieved in the customer focus area. In case of Austria, the highest results have been achieved in the area of process improvement methodology. On the other hand, the lowest average result within the BPM success factors of Slovenian companies is present in the area of process improvement methodology, while both Croatian and Austrian companies are the weakest in case of change management. Presented results of the Slovenian companies mean that there is a high direct link of the business processes to organizational strategy and critical success factors within the Slovenian companies. Also, there is a high definition of organizational business processes prior to the improvement initiations launching. However, there are still lots of room for improvements in the area of the process improvement methodology, indicating the need for more standard approaches in navigation of process analysis and design. In case of Croatian companies, there is a high level of process analysis and design efforts which are focused on delivering value to the customer. On the other hand, relatively low grades in case of change management success factor indicate that the people and cultural issues while introducing process changes are still not addressed as effectively as they should be, which is also the case in Austrian companies. Contrary to Slovenian results, results from Austrian companies indicate high level of usage of standard approaches to navigate analysis and design of the processes by process management teams.

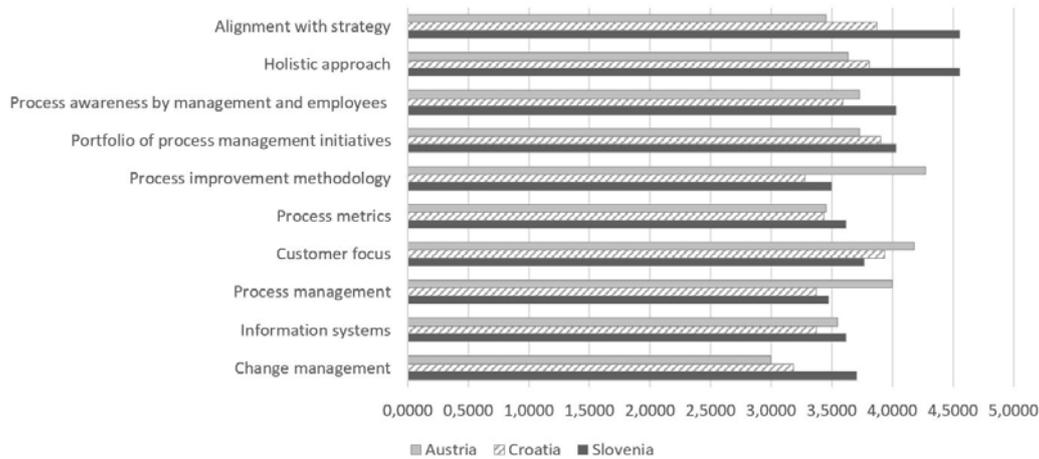


Fig. 3 BPM success factors across countries

One-way ANOVA has been used for the cross country comparison of the results for each of the ten stated BPM success factors. The results indicated that there are statistically significant differences between three observed countries at the 5% level in the areas of alignment with the strategy (p-value of 0.000062), holistic approach (p-value being 0.005291) and process improvement methodology (p-value of 0.016837). Also, the results of the one-way ANOVA analysis revealed statistically significant differences between three observed countries at the 10% level in the area of change management, with calculated p-value being 0.066549.

Next, the structure of dominant organizational cultures within big companies operating in Slovenia, Croatia and Austria has been analyzed. As it has been already stated, the assessment of current dominant organizational culture has been made by using OCAI. The results are presented by Fig. 4, which shows the axes of Competing Values Framework as well as the four organizational cultures, as described by [32]. The results indicate that the current dominant culture among majority of the surveyed companies from all three observed countries is hierarchy culture. The highest percentage of hierarchy organizational culture is visible in case of Austrian companies (63.64%), then in case of Croatian companies (46.88%) and the lowest percentage is visible in case of Slovenian companies (41.18%). The lowest results are visible with the adhocracy organizational culture as there are no such companies among the observed ones from Croatia and Austria and there are 14.71% of them in Slovenia. There are 27.27% of Austrian companies with dominant clan organizational culture and 9.09% of them with dominant market organizational culture. In Croatia, there are 21.88% of companies with dominant clan organizational culture and 31.25% of them with dominant market organizational culture. Among the surveyed Slovenian companies, there are 11.76% of those with dominant clan organizational culture and 32.35% of those with dominant market organizational culture.

The revealed high percentages of companies with dominant hierarchy organizational culture can be explained by the size of the surveyed companies. Historically looking, big

companies from the three observed countries (in terms of both number of employees as well as the yearly sales revenue) have usually been slow and strongly focused on following strict rules and hierarchical job functions, which is in accordance with the previously mentioned characteristics of the hierarchy organizational culture.

When talking about BPM success factors, and having in mind previously mentioned characteristics of clan culture, low grades achieved in the area of change management and addressing people issues can be explained by fairly low percentages of dominant clan culture. Moreover, mentioned low grades in case of change management BPM success factor could also find its explanation in high percentages of dominant hierarchy organizational culture as it is, by its characteristics, formal, structured, stable and predictable [32]. Therefore, it is logical that introducing changes in that kind of companies can produce certain issues which result in lower grades in that area. In case of Austrian companies, very high percentage of dominant hierarchy culture can explain high level of usage of standard approaches in process analysis and design by the process management teams within a company.

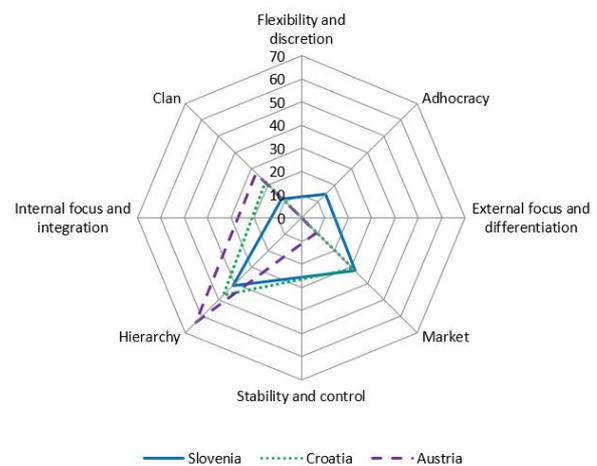


Fig. 4 Structure of the dominant organizational cultures across countries

V. CONCLUSION

This paper aimed to shed some light into the topics of BPM success factors and structure of the dominant organizational cultures within the companies operating in Slovenia, Croatia and Austria that can be considered as big companies in terms of their yearly revenue. The results revealed hierarchy organizational culture to be dominant in all three observed companies, while the lowest percentages have been revealed in case of adhocracy organizational culture. In terms of BPM success factors, statistically significant differences between observed countries have been confirmed for the following BPM success factors: (i) alignment with the strategy, (ii) holistic approach, (iii) process improvement methodology and (iv) change management.

The limitations of this paper include disproportion of number of companies across countries. Moreover, the research could be stronger if the number of observed companies is bigger, which would also strengthen the ability to generalize the findings. In further research, more detailed investigation in terms of strengthening the sample size is going to be conducted, as well as more detailed insight into the link between organizational culture and BPM success factors, aiming to provide guidelines for the practice.

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