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BUSINESS PROCESS MANAGEMENT IN CZECH HIGHER EDUCATION

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Business Process Management, both as a managerial discipline and its supportive information and communication technology, is becoming a concern for many business practitioners and research workers. As organizations develop their processes via modelling, simulation, implementation and continuous improvement, they may demand suitable workforce to secure these initiatives such as process owners, business analysts, process analysts etc. This fact puts demands on higher education institutions to provide these competencies and teach their students. Moreover, to provide quality education and research, universities themselves may utilize benefits of Business Process Management. The main goal of this paper is thus to explore the current state of Business Process Management utilization among Czech higher education institutions. Its purpose is to answer the research questions of how do universities in the Czech Republic apply process approach and what process maturity do they achieve? The second concerns of this paper are process owners and their role in process initiatives of Czech universities.

Key words: Business process management, Competencies, Higher education, Process owner

INTRODUCTION

Business process Management (BPM) refers to the modern managerial discipline which puts processes in the centre of attention. Process centric organizations manage and continuously improve their core processes with regard to added value to their customers. Every organization may be viewed as a collection of processes forming a value chain (Porter, 2004). Complex organizations which understand the power of processes management thus conceptualizes their value chains via process models, assign process owners, develop process measurement systems and follow some methodology of process improvement such as Lean or Six Sigma (Harmon, 2014; Smith and Fingar, 2007).

There is rich body of literature on the BPM topic as well as research oriented on process modelling, simulation, automation, implementation and improvement methodologies etc. Lesser focus is dedicated to the human factor of BPM such as roles and competencies supporting BPM implementation and development where the potential to explore new knowledge may exist (Roeser and Kern, 2014). The main goal of this paper is to discuss BPM and its benefits in the management of non-profit organizations, especially higher education institutions. The literature research provides the basics of current state of the research which build foundations for the methodological and research part of the paper. Research questions which we asked are formulated below:

RQ 1: How do universities in the Czech Republic apply process approach? What process maturity do they achieve?

RQ 2: How do universities in the Czech Republic apply process ownership and what process owners do?

PROCESS ORIENTATION

Process orientation was propagated in 1990s by reengineering proponents such as Michael Hammer or Thomas Davenport (Hammer, 1990; Davenport and Short, 1990) who stressed the importance of customer orientation and defragmentation of activities within functional silos to end-to-end processes across organizational units with support of modern information and communication technology. But the process approach can be dated back to scientific management of

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Frederic Taylor, Total Quality Management, and Six Sigma in the 80s and Lean of Toyota Production System (Harmon, 2014; Jeston and Nelis, 2008).

Process orientation can be conceptualized to a design and documentation of processes, management commitment, process owner role, process performance measurement, aligned corporate culture, application of continuous improvement and process-oriented organization structure (Kohlbacher and Gruenwald, 2011). The cultural aspects supporting process approach were presented by Schmiedel, Brocke and Recker (2013). Among them belong customer orientation defined as proactive and responsive attitude, excellence defined as the orientation on continuous improvement and innovation, responsibility defined as commitment for objectives and decisions, and teamwork viewed as a cross-functional collaboration. According to Hammer and Hershman (2009) the main components of process organization are design of processes, measurement system, process ownership, performers and resources supporting end to end process, aligned leadership and culture, and governance and expertise to continuous improvement and development.

BPM then can be viewed as a systemic discipline where processes represent open systems with inputs and outputs, and which is a part of a higher level system and consist of subsystems i.e. subprocesses, activities etc. (Smith and Fingar, 2007; Segatto, Pádua and Martinelli, 2013). To apply BPM as a managerial discipline into an organization, several principles should be followed (Brocke, 2014):

- Context awareness – BPM should fit organizational needs
- Continuity – BPM as a continuous practice instead of a single project
- Enablement – BPM develops competencies of employees
- Holism – whole organization is included as a system
- Institutionalism – BPM should be developed by assigned department of the organization
- Involvement – BPM involve various stakeholders
- Joint understanding – shared goals of the community instead of a separate elite group
- Purpose – BPM fulfil strategic initiative of an organization
- Simplicity – economic utilization of the discipline
- Technology application – BPM utilize opportune technology

The main effects of process orientation against the functional management according to Kohlbacher (2010) are speed improvement of process' cycle time, increase of customer satisfaction, improvement of quality, cost reduction and improvement of financial performance.

BUSINESS PROCESS MANAGEMENT OF UNIVERSITIES

BPM is not relevant only for private and profit corporations but also for public and non-profit organization such as healthcare or education institutions. At the first sight, universities are structured to departments according to functions. Even business schools teaching modern management methods are structured to functional units such as finance, marketing, management, logistics etc. Universities therefore themselves reside in functional silos (Hars, 2002). Students then lack the cross-functional and process awareness, they are not accustomed to interconnect several fields and various knowledge, and thus implement and develop process approach in an organization (Seethamraju, 2012). It results from the fact, that study programs correspond with these functional departments and students as graduates do not possess knowledge and abilities required by the business practice, information technology development and flat organizational structures (Walker and Black, 2000).

There are several contributions to the issue of how to apply BPM to higher education. Davis and Mehta (1997) authors classified several steps of Business Process Reengineering (BPR) in business schools: creating adequate culture, set up BPR team and steering committee, complete feasibility study, developing vision, training the team, informing everyone in the organization about BPR efforts, analysing work to be reengineered, selecting and training staff in the reengineered process, training leaders in new roles.

Business leaders must create and communicate a strong, clear vision of what changes in processes will look like. Especially process management and process optimization, known as Lean. Leaders have to connect high-level corporate goals to specific operational goals and metrics. Then they have to champion and enable

the changes required, by assigning people and then allowing them to spend the time necessary to make the changes successful. Leaders have to engage, train, and empower the entire workforce (King, 2009). We can see how important is the role of strategy, leadership, communication and cooperation at a time when we want to implement BPM or change processes by BPR and making strategic and conceptual changes in the processes of the organization.

As was mentioned above, BPR reached its peak in middle 90's and later was rather unpopular. In the revision of BPR was stated that BPR was mismanaged and instead of rigorous process work it was understood as a mere downsizing or automation (Hammer and Stanton, 1995). Smith and Fingar (2007) criticised BPR movement as dogmatic and incapable to provide further continuous improvement. As a result, BPM occurred as an amalgam of previous methods, but still, organizations their business into value chains or end to end processes to provide better value added and continuously improve their performance (Harmon, 2014). And this conceptualization of processes, i.e. creation process architecture, is applicable to other industries and sectors such as e.g. universities. An example of such process architecture for a university is shown in the Figure 1.

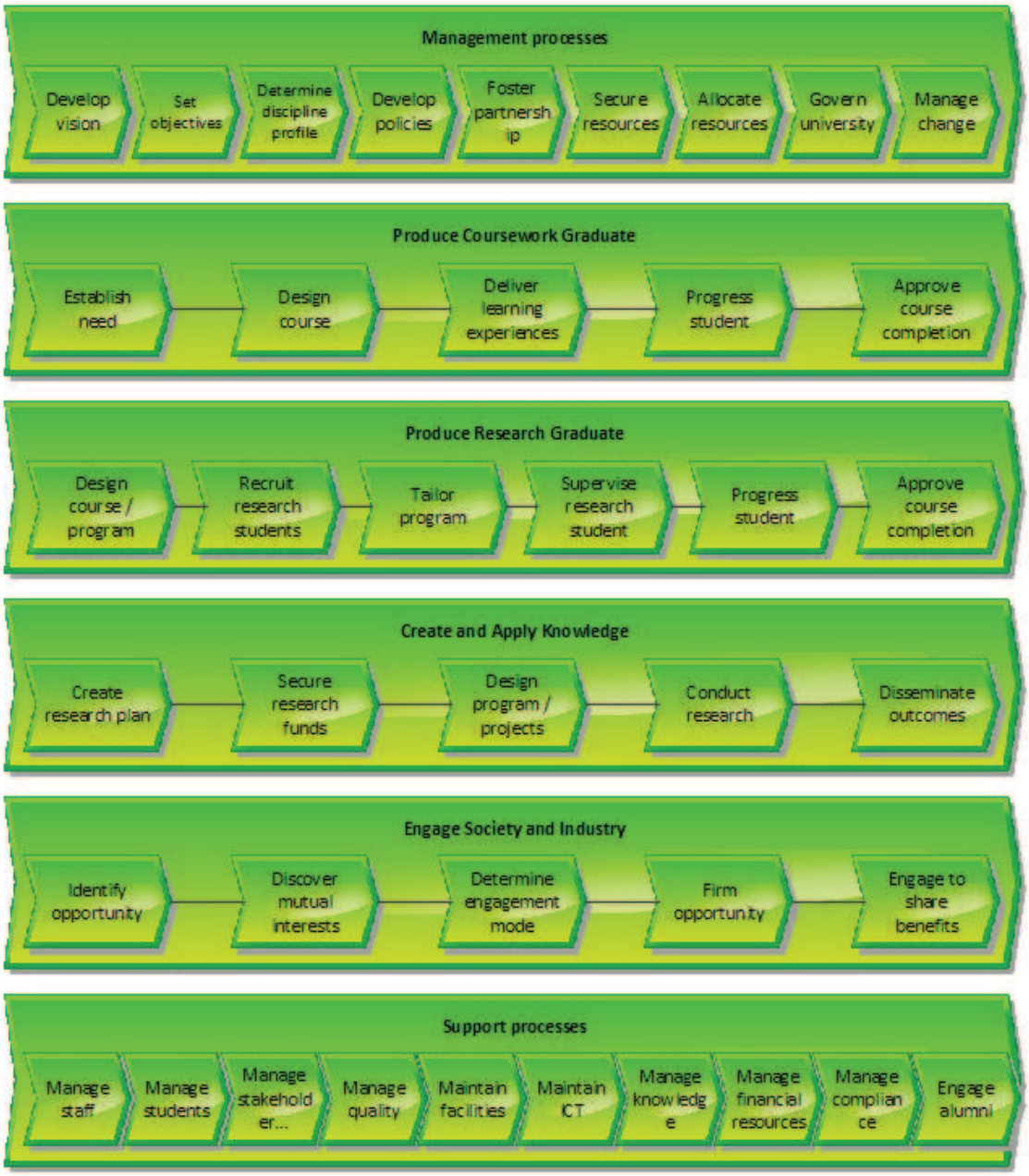

Figure 1: Process architecture of an university (own processing based on Tregear, 2014)

HIGHER EDUCATION OF THE CZECH REPUBLIC

Higher education in the Czech Republic, i.e. tertiary education, is provided by higher education institutions of both university and non-university type. University type of such an institution means that the institution provides education about several various fields of science and is divided to faculties. Besides of an education, universities conduct research, development and artistic activities. Non-university institution of higher education most often provide bachelor study programs or in some cases master programs.

According to a legal form, there are public, state and private higher education institutions. Public schools are established under the law and are financed from the state budget but they have certain academic autonomy. State universities are only two – military and police. They are established and managed by a particular ministry and are in fact government departments with limited academic autonomy. Private higher education institutions can be established with consent of Ministry of Education, Youth and Sports of the Czech Republic. They are financed by their own profits but they can ask for subsidies. Nonetheless, students pay fees for education on private schools but no fees are payed in public and state schools.

Higher education institutions are traditionally managed by rectors voted by academic senates and further, in case of faculties, by deans and subsequent department managers. Study programs must be accredited by Accreditation Commission of the Czech Republic and periodically reaccredited. Recently, several interconnected Individual National Projects were conducted. These projects were focused on various goals and outputs such as e.g. definition of strategy for higher education institutions, proposing new system of evaluation and financing of research, development and innovations, creation of qualification framework of tertiary education etc. One of these projects, EFIN, was dedicated to support and develop effective management of administrative and economic processes within tertiary institutions. One of EFIN´s components is a BPM framework containing assessment of processes. The framework therefore stresses principles such as customer orientation, internal service orientation, service implementation by a process, and efficient use of resources. (Tuček and Basl, 2011) But EFIN framework is focused merely on support processes and not on core processes providing value to customers such as students, industry and other stakeholders. For comparison with above shown example of university process architecture, a typical process framework of Czech tertiary institution is displayed in the Figure 2.

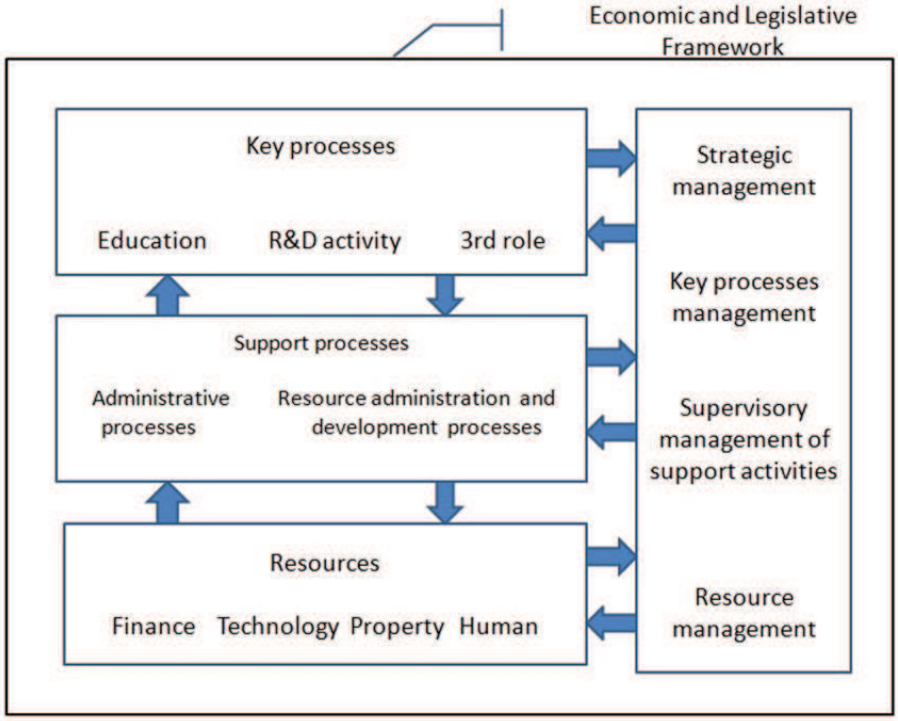

Figure 2: Typical Czech tertiary education process architecture (Tuček a Basl, 2011)

METHODOLOGY

During the research universities and colleges in the Czech Republic were addressed. Currently, there are 26 public, 3 state and 44 private higher education institutions. Overall, twenty of them participated in the survey and filled the questionnaire. Fourteen respondents were public, five were private and one was state university or college. The survey was conducted via web based questionnaire and distributed via e-mails to rectorates´ offices in the Czech Republic. The summary of the research sample is shown in the Table 1.

Table 1: Research sample (own processing

Type of an institution	Frequency	Relative frequency
Public university	14	70 %
Private college	5	25 %
State university	1	5 %

The questionnaire was designed to gather data about the process maturity, types of processes and tasks and competencies of process owners. Distribution of questionnaires lasted from September 2015 to January 2016. In the period afterwards, the results were analysed altogether with a case study of process modelling in the Faculty of Management and Economics in Tomas Bata University in Zlín.

RESULTS

To determine BPM maturity of universities we have defined four levels of maturity. They are:

1. Not all process are mapped
2. Processes are mapped but without responsibility matrix and KPIs
3. All processes are mapped and with responsibility matrix and KPIs
4. University has implemented and utilizes BPM software

According to respondents, the BPM maturity of universities is mostly in the first and second level as is shown in the Figure 3. It can be seen that dominant is level 1 and 2 maturity, followed by the highest – fourth level, and finally third.

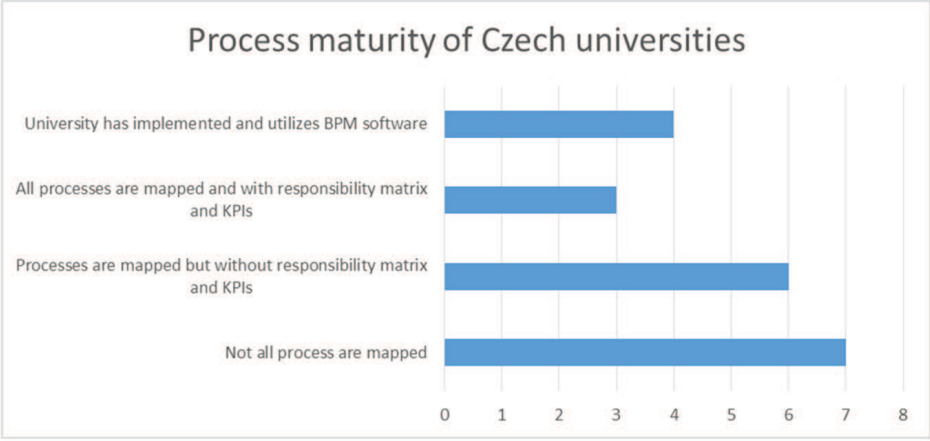

Figure 3: Process maturity of Czech universities (own processing)

The most often mapped main processes are educational processes, followed by research and development. Some universities also defined their process of cooperation with business practice. There are also other processes which are modelled e.g. lifelong learning, supporting processes such as purchasing, administration or management processes. In the table 2 and subsequent Figure 4 are plotted maturity levels by a type of an institution.

Table-2. Level of process maturity of universities (own processing)

	Process	**Maturity**	**Level**		
Type of an Institution	**1**	**2**	**3**	**4**	**Total**
Private college	1	2	1	1	5
Public university	6	3	2	3	14
State university		1			1
Total	7	6	3	4	20

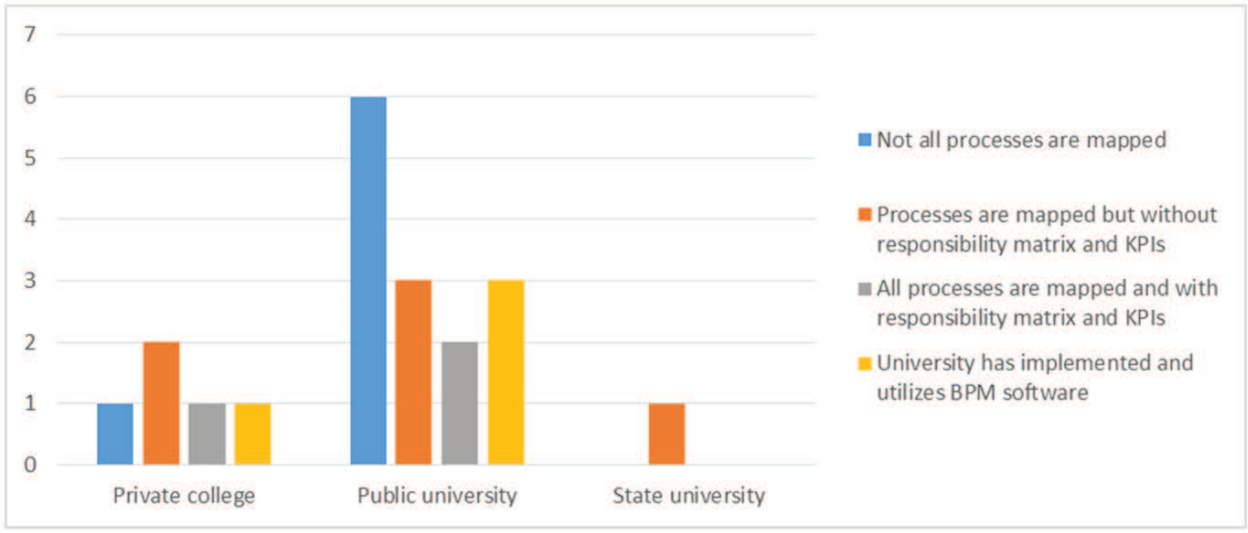

Figure 4: Level of process maturity of universities (own processing)

If we compare the size of schools according to numbers of students and the declared process maturity, we can propose an assumption that bigger tertiary institutions show higher process maturity and also better performance results (according to their self-assessment). Generalization cannot be done because of limited research sample and the fact that many smaller tertiary institutions especially smaller ones did not participate in the research. Another limitation consists in the difference between individual faculties within some universities. In the figure 5 are shown level of process maturity according to the number of students of tertiary institutions.

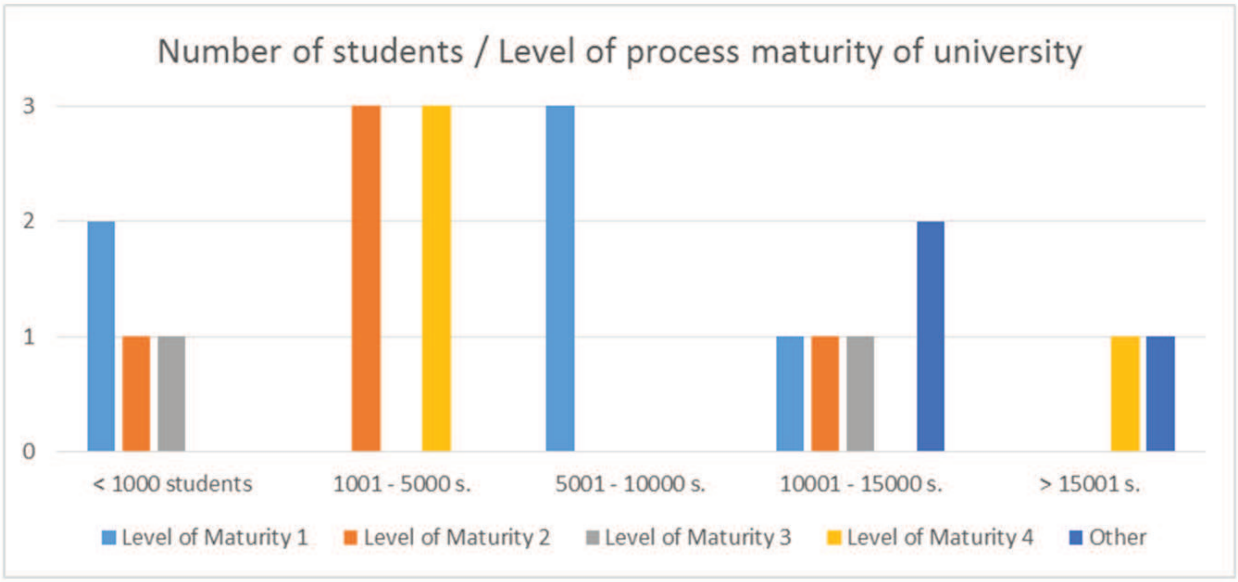

Figure 5: Process maturity according to number of students (own processing)

One of the main distinguishing factors of process oriented organizations is process ownership. Process owner is a role responsible for the design, management, monitoring and improvement of the assigned process. But even if an organization assigns process owners, the process orientation, or process maturity specifically, need not to develop because of the scope of process owner´s responsibilities. In case that process owners are identified with functional managers or departmental managers, the process may remain in the functional silos. But in case that process owners are defined at the level of a core process (e.g. educational process, research and development process etc.) the process orientation and overall effectiveness may develop.

In our survey, we asked the institutions whether they have assigned the role of a process owner. Overall ten out of twenty respondents stated they have some form of process ownership. In

some cases the role has another name such as process sponsor or may coincide with project manager. From the frequency distribution it is obvious that the institutions with higher process maturity have also institutionalized process ownership. Universities with no or a little process documentation have no process owner and universities on the third or fourth level of process maturity have always assigned responsible process owner. Frequencies are plotted in the Table 3 and the Figure 6.

Table 3: Process owners assignment in universities (own processing)

	Process Owner		
Type of an Institution	**No**	**Yes**	**Total**
Not all processes are mapped	7		**7**
Processes are mapped but without responsibility matrix and KPIs	3	3	**6**
All processes are mapped and with responsibility matrix and KPIs		3	**3**
University has implemented and utilizes BPM software		4	**4**
Total	**10**	**10**	**20**

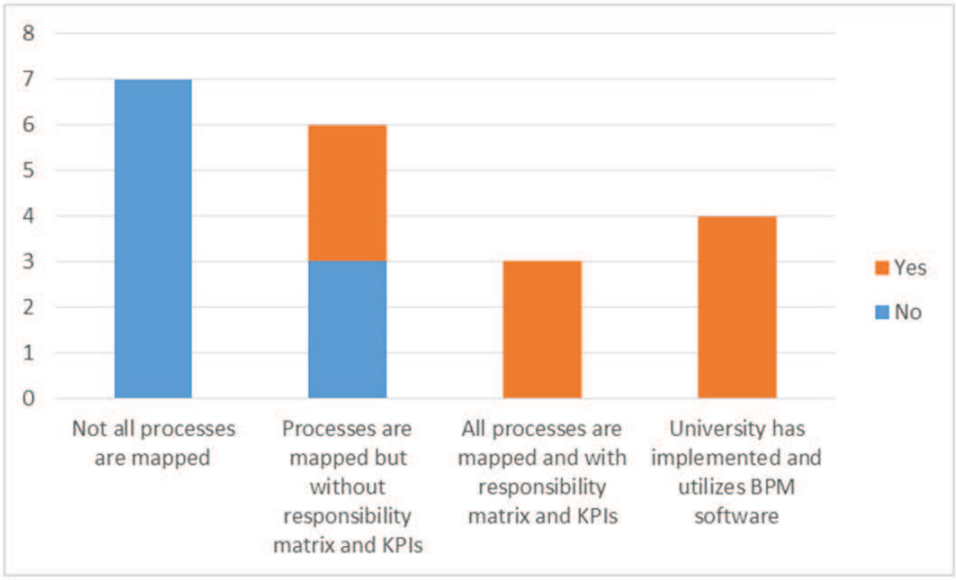

Figure 6: Process owners' assignment in universities (own processing)

To the role of process owner are mostly appointed rector of the university and vice-rectors. In some cases even bursar, project managers or departmental managers. On the level of faculties are processes assigned to deans and vice-deans, in more detailed structures also departmental managers. Process owners report to their supervisors, mostly directly to the rector, in the particular faculties to the dean. Among their responsibilities are maintenance of a process documentation, monitoring execution and metrics, and continuous improvement.

As shows the Figure 7, main tasks of a process owner are according to respondents the process design, reporting to supervisors, process innovation, and process audit. Other important activities are performance monitoring and communication with other process owners and managers. The answer "others" was specified as the tasks are determines by the nature of the process and in the second case responsibilities were not yet defined.

To ensure that process owners perform their tasks efficiently they need certain competencies. The most required competencies respondents stated analytical and systemic thinking, sense for justice and responsibility. Former practice in management and computer literacy with BPMS knowledge are minor. The frequencies of answers are shown in the Figure 8.

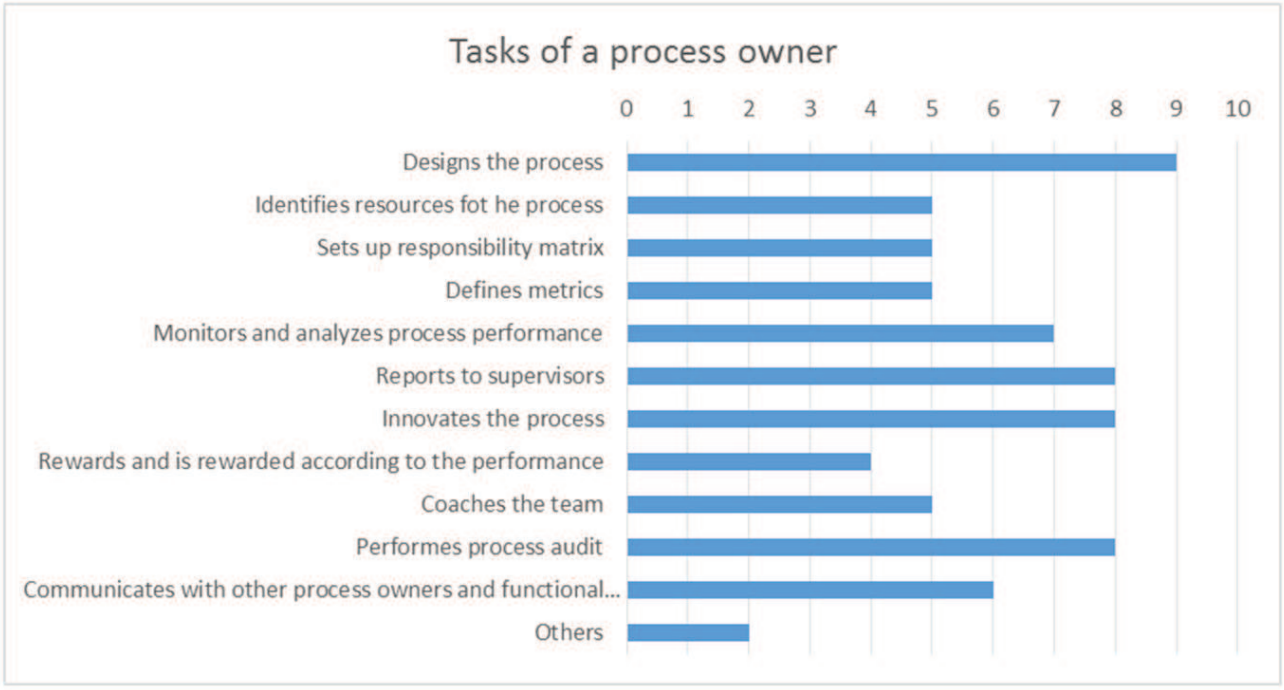

Figure 7: Tasks of process owners in universities (own processing)

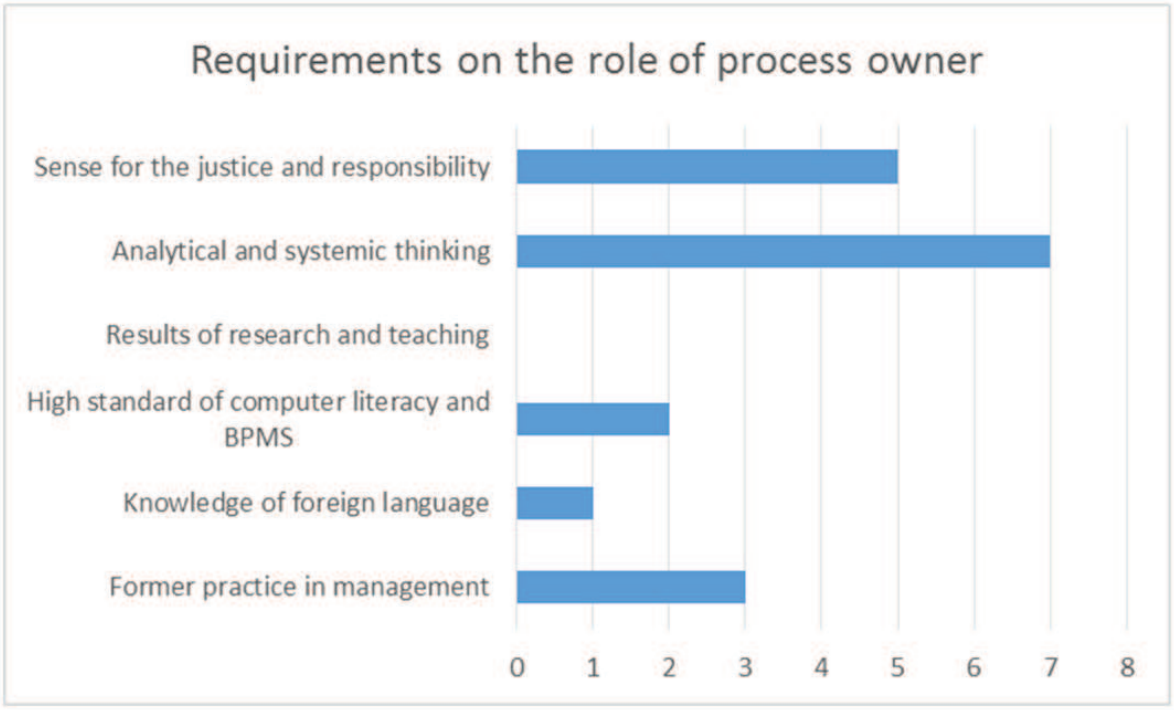

Figure 8: Requirements on process owners in universities (own processing)

DISCUSSION AND CONCLUSION

The results of the conducted survey provided insight into the state of process management of Czech tertiary institutions especially to the level of their process maturity and character of process ownership. But the survey is limited by the size of research sample which do not allow generalizing on the whole.

In spite of individual national projects which provided also methodology for process management (but only for finance and administration processes), generally tertiary institutions vary in their BPM maturity. We can suppose that number of institutions with no process management would be much higher if they had provided data about their management system.

From the results can be inferred that tertiary in-

stitutions which have implemented and further develop their BPM governance system have better results in BPM maturity as they have also appointed process owners into function. Some universities have also their process models published on portal available via login to registered users – employees and students.

Answer on the first research question - How do universities in the Czech Republic apply process approach? What process maturity do they achieve? – consist of the fact that 35% of tertiary institutions do not have mapped all processes, 30% have mapped process but without responsibilities and metrics, 15% have both mapped processes and defined responsibilities and KPI's for them, and 20% achieved implementation of BPMS and perform continuous process management.

The second research question asked on how do universities in the Czech Republic apply process ownership and what process owners do? Process owners play important role in BPM and in case of universities they are appointed to superior positions such as rectors and vice-rector, or to deans and vice-deans on particular faculties. In more detailed structured organizations even to project and department managers. Their task is to design and innovate their process, communicate with stakeholders, monitor performance and report to supervisors. Their managerial practice, results in teaching and research or BPMS knowledge are not so important but analytical and systemic thinking and responsibility of their character is vital.

Further research may be focused on more detailed benchmarking of BPM practices among universities and their influence on teaching, and research and development results. Further integration of activities into core processes, their alignment, customer focus and other pillars of BPM can help tertiary institutions to adapt to dynamic changes in the market and technologies. It would also provide valuable experience for students so they are better prepared for business practice in modern organizations or even for the role of business analysts, process analysts and architects, industrial engineers or process owners and managers.

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