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SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS
**MANAGEMENT OF HR PROCESSES: CURRENT
IMPLEMENTATION AND FURTHER IMPROVEMENTS IN THE
COMPANY COSMIC DEVELOPMENT**

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LIST OF ABBREVIATIONS:

- HR – Human Resources
- HRM - Human Resource Management
- BPM - Business Process Management
- AI - Artificial Intelligence
- ML - Machine Learning
- BA - Business Architecture
- L&D – Learning and Development
- CBA – Cost – Benefit Analysis

INTRODUCTION

We can only imagine how many Human Resource Managers or recruiters worldwide lost the best qualified candidate in the past years just because their procedures were too slow or because their competitor took the same person while they were stuck with the internal rules and paperwork. All of us who work in this field had at least once experienced troubles with documentation or communication when employees raised some questions or requests and, in the end, ended up with disappointed worker and unfinished work just because we needed to check all data for that worker and do the new updates manually. How HR departments decide for raises and promotions within companies? How companies have a track on the work performance of each employee? How much does the entire procedure cost? These are basic questions but in the same time really important ones that each employer needs to ask and answer to himself regularly if wants to have an efficient organization with happy employees.

Lot of financial means are spent annually on global level for conducting the Human Resource processes (hereafter: HR processes) according to the legal regulations and requirements, but also a great percentage of the same amount is spent due to repetitive processes, missed deadlines, errors done during documentation preparing or just because particular organization or company made a wrong decision related to their internal activities. Companies all around the world are searching for ways how to cut the costs related to Human Resource processes and become more efficient and effective in their work. Fortunately, there is a real solution for this issue. And the name of that is Business Process Management.

Business Process Management (hereafter: BPM) as a „structured systematic approach to analyze and continually improve the processes “(Palmberg, 2009, pp.204) can be implemented within all parts of the Human Resources field and can help in their automation and optimization. However, the implementation and the practical Business Process Management can vary from one organization to another since all of them have different way of functioning, policies, and procedures, but more or less the goals and the effects expected are the same: making the work within the Human Resources department easier and more transparent. This would be a case unless there is one unified way how to use Business Process Management in organizations’ programs.

The Canadian IT and outsourcing company Cosmic Development is one of the million companies worldwide that uses Business Process Management in some parts of its work. In some organizational processes the work is fully digitalized with the help of BPM while in others the same is done partially. Human Resources processes belong to the second group where Business Process Management is implemented and executed partially in the process

of digitalization and automation. The benefits of its use are obvious and they give a lot of courage that the work can be much more improved if Business Process Management covers the full specter in a tailored way specifically designed for the company's purposes. The whole process of automation and optimization of Human Resources activities with the help of BPM is really long and complex, but it is not impossible.

The purpose of this master thesis is to contribute in the improvement of Human Resource processes in the field of their automation and optimization in the local office of Cosmic Development. The goals of the thesis are to describe the Business Process Management with focus on the Human Resource processes, will try to understand the connection between both terms, and based on that will make an analysis and description of the current state of HR processes within Cosmic Development with appropriate suggestions for future improvement with BPM. In the first and second parts of the master thesis we will briefly describe the theoretical concepts and terms we are going to use and the reasons of their importance for our research. The third part is devoted to the actual state of Business Process Management implementation into HR processes, while the following, the fourth part will show the possible suggestions for improvement by presenting the idea for having own customized digital platform for HR. The last chapter will present the plan for implementation, expected benefits and business value Cosmic Development can expect of the solution proposed.

The thesis has two parts: theoretical, based on literature review of different sources (books, scientific articles and journals), and practical part where besides information from my own experience, it consists analysis of company's internal sources and materials, as well as conducted semi-structured interview with the HR manager of the company especially used for obtaining essential information for the third and fourth chapter of this thesis.

1 BUSINESS PROCESS MANAGEMENT AND HUMAN RESOURCE PROCESSES

When making a comparison with the previous centuries and decades, the economies are expanding at a great rate today. Together with their expansion, the organizations and companies are doing the same. The main activities each organization performs are part of some types of businesses which are the core of that entity. Each organization exists for doing business, making profit and growing in reputability and stability. But for achieving all of these things people are needed as the main power for realizing them. Here we come to a point where businesses are connected very close to people, to human within the organization. People need business to work and businesses need people to exist.

As the way of living becomes more and more complex and dynamic, the same happens to the ordinary activities and working tasks that professionals perform on their workplaces. New businesses are rising every day, the current ones are expanding or diversifying, some

of them are reaching new markets and economies, employ more people, grow at surprisingly fast rate, and all of that leads to becoming impossible to apply the old ways of doing business and old practices that showed efficient and effective in the past. These issues are especially obvious in the parts of Human Resource Management where the activities are exclusively done by people. Employees in the organizations who work in the Human Resource sector are faced with quick changes, expanded duties and new tasks that need to be done manually. Here we come to the point when some parts of the business activities, emphasizing the activities that fall within the specter of Human Resources can be automated and performed easily than before.

The IT (hereinafter: Information Technology) industry already provided cloud SaaS for business applications that will automate the processes. For implementing these applications people use digitalized solutions created with the help of Business Process Management (Allstarss.com; 2019). The IT solutions and tools vary according to the business operations and fields that should be implemented. Some of the actual ones cover whole areas, for instance, the area of accounting can be fully managed by some applications such as FreshBooks and Sage 50Cloud that are also listed by the financial and accounting specialists as the best worldwide (Financeonline.com; no date). But, there are some areas, such as the one that is our subject of research – the HR that are still not fully covered by one single application that can be used and in the same time customized by all or nearly all organizations and companies worldwide. Yet, there is still no registered company in the globe that has developed its own internal application or system with BPM that will automate and manage the HR processes. This has been a point of interest of many researches in this field, especially after the successful implementation of BPM in the other business activities and processes. The statement that there is no single application that automatically covers the entire HR field by providing customization to users nor any company has developed its own effective one, is also supported by professionals and experts. For example, Cakar, Bititci and; Macbryde (2003) in their publication „A Business Process Approach to Human Resource Management“, in the Business Process Management Journal state that „no one seems to have developed a business process model of the HRM business processes“ (Cakar, Bititci and; Macbryde, 2003, pp.191). This supports our idea in terms that it is not something new, undiscovered but it is a state dating from the beginning of the new millennia that still stays as an open issue, and that HR is a field that can be, and needs to be digitalized and optimized with the Business Process Management.

This situation on international level as well as on our company's level cannot be left as it is now. The current usage of apps that partially automate the processes or the usage of apps that offer fixed solutions for each stage within the HR field with no option for customizing them, needs to be modified and upgraded if not internationally with one and unified application for all entities but at least individually by developing desktop and mobile application for a single company which will not only have fixed solutions but a room for

adapting and adjusting the same for internal purposes, and then giving it to the small and medium sized enterprises for wider implementation. If it showed as successful project, the example can be followed by expanding on national level and after that worldwide for unification of the HR processes.

1.1 General overview of Business Process Management

Before we start our discussion and research in the field of Business Process Management, we really need to define it in order to be sure that we have one common understanding and definition. There are numerous definitions what the Business Process Management exactly is. In the literature can find lot of sources where Business Process Management is understood differently, so readers might use a literature where it is described as technology tool, task management or it is an initiative for business processes. In fact, we cannot simply equalize it to a technology tool or initiative. It is more than that.

One of the best, most used and useful definitions of this discipline is the one given by Paul Harmon in his book dedicated to this topic which makes a connection between the roots of this term with the today's processes of automation. According to him, „Business Process Management is a management discipline that coined to suggest the emergence of more synthetic, comprehensive approach to process change that combines the best of process management, redesign, process improvement and process automation“ (Harmon, 2007, p.18). From here we can see that the main goal of BPM is to optimize and improve the performance of companies by managing their businesses. A regular business process management consists 5 parts of its cycle: analyze the process; model it; execute the process into practice; monitor, control and analyze the system; and make changes to optimize and improve it (Kissflow.com; 2019). From current point of view this structure is really important since it allows all business entities or leaders who have implemented BPM to understand how the processes happen in reality, to monitor them in real time, and to improve if needed. This way of functioning actually allows organizational leaders to improve the end-to end processes, not simply individual tasks (Rouse, 2011).

Additionally to the business process management lifecycle, another very important thing for our research is the elements of it and its governance. As the things in the BPM implementation changed in the past few years and from a pilot or trial program oriented to one department it became an enterprise-wide practice, the importance of the elements occurred too. There are six of them which we are going to analyze (Bhat and; Fernandez, 2007a, pp.2) Process ownership; Aligning the goals with the strategy; Ensuring standards; Change Management; Performance Metrics; and Architecture and infrastructure.

The first element, the process ownership should answer on the question: who owns the process. There should be only one owner per business process who takes the responsibility of the process management as well as over decision making. Aligning goals with strategy

is referred to making a synergy between the goals of the company with the goals that are defined to be achieved with the business process. The business process will have a value only when it is in accordance with the KPIs of the company and its main goal. Ensuring standards of the business process means ensuring consistency of all tools, methodologies, and standards used by different groups for similar business activities (Bhat and; Fernandez, 2007b). That consistency leads to full integration of the business process into organization and organizational structure. The fourth element is the change management. Change management will help in bringing the new business process into the organization and successfully implementing it within. When using Business Process Management for creating new process, the change management will be used for evaluating and calculating the returns on investments (ROI) of the new process and technology to the organization and in selling BPM to the business (Bhat and; Fernandez, 2007c). Another important element is the architecture and infrastructure of the business processes as it enables the synergy between the new business process model with the already established business processes of the organization. Finally, having very well defined and founded performance metrics that will answer whether the business process is really in line with the goals, targets, and needs of the organization is a must. The performance metrics need to be defined as element for all stages, starting with the design, covering all stages and ending with the review of process in order to state if the process brought improvements and meet the criteria. The above explained elements are very important for benchmarking the situation into given department of one organization before and after the BPM implementation and the implementation of the digital solution.

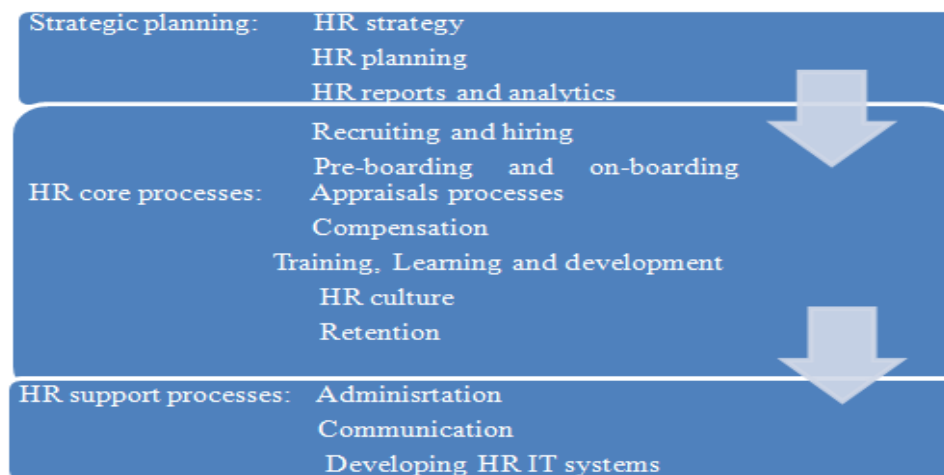
From the current experience of the implementation and practice, it is obvious that it is implemented in many fields of companies' work. For instance, BPM is essential part of organizing and performing the activities in the supply chain management part, in the procurement sector, communication with third parties, workflow and transfer of information between departments etc. The main reason why this is the case is because it helps companies to simplify their work, to organize it better and automate the processes as much as possible. This leads to risk minimization all the ways. Imagine a company with international activities and work related to lot of paperwork and email that does not have a system in place. That would be a company that spends and wastes time on these things without having a BPM that in fact is a cumbersome for them and their efficiency. Having BPM implemented means having optimized processes by a program which is part of the constant management and which improves them continually.

1.2 General overview of Human Resource Processes

Human Resources (HR) field is one of the most important fields in each organization that deals with the most essential and most valuable part of it- the people. The definition for Human Resources from one academic and professional perspective describes them as „as an alternative to “people” and also the name used by many organizations to describe the

specialized department that deals with the administration and management of employees“(Banfield and; Kay, 2012, pp.32). If we try to understand the work and role of that department we should imagine it as the professional team behind the scenes that cares everything to look amazing. So yes, the HR department is the one in the backstage that ensures the positive working atmosphere, effectiveness and competitiveness of company. The major functions that the Human Resource department has are the following (Scott, 2018): 1. Recruiting and hiring; 2. Training and development; 3. Compensation; 4. Employee benefits and retention; 5. Employer-employee relations; 6. Legal regulations. These main functions are correlated with the activities and processes performed or in other words, with the execution of the tasks and activities, the HR department realizes as its major functions. The processes that are performed within this department in reality are those that really concern us. Under the term Human Resources can fall numerous processes managed by the HR department. They are numerous and can vary in number and structure from one organization to another. However, the major and most important division by processes, to which we also agree and support the same, is the one that divide them on 3 groups: HR strategic planning, the HR core processes, and the HR support processes which are also shown on Figure 1. Figure 1 is prepared as a compilation of the above mentioned sources of literature which describe the groups of HR processes. It takes into account the most important groups of HR processes and put them together.

Figure 1: Description of groups of HR processes



Source: own work

Those that are really important for us are the second group, or the core processes. They can be grouped in several groups of processes according to their nature, purpose and goal. Moreover, each of that process contains several procedures or activities performed within it. We speak about the most important HR processes that in fact are inevitable in each company and can be automated: recruiting and hiring; leave requests, training, salary and benefits changes, performance reviews, policy changes (Reiter, 2010), together with their accompanied procedures. The procedures that are indivisible part of the HR processes are

the ones connected with effective, efficient, and legal work and will be explained thoroughly in the following parts. All of them we consider as important procedures or activities as they are permanent, essential part of the HR processes and the processes cannot be fully described and understood without them. The HR core processes give value to the organization and the other two groups are either transformed to the core processes or are derived by them. By describing, analyzing and finding a digital solution for the core processes, we indirectly do the same with the other two groups.

Their management and the management of employees are called Human Resources Management. A summary of it as well as and their interrelation and connection are presented on Figure 2 below and are of special interest for us since each of them will be elaborated in particular with attention on their structure and workflow. We are going to describe their essence and nature so will have an insight for developing a discussion how they can be correlated with the implementation of Business Process Management tools into their performance.

Figure 2: Michigan Model of explaining human recourse management



Source: Fombrun, Tichy and; Devanna. (1984).

The very first step in building one organization and then an essential part through the lifespan of that organization is the process of recruiting. It is crucial part for having the right people in the right place within the organization, because as already noted, people are the main part of each organization and the cell of Human Resources. According to Dale. S. Beach „Recruitment is the development and maintenance of adequate manpower resources. It involves the creation of a pool of available labor upon whom the organization can draw when it needs additional employees“(Singh and; Gupta, 2018 - 19, pp.197). If conducted properly, this part leads to good performance and long life of the company since at this moment the new hires that will be doing the company’s tasks are chosen. The whole term of recruiting refers to process. A process that might be internal (the sources within the organization itself to fill a position are known as internal sources of recruitment) or external (external activities for attracting talented and experienced people outside the organization). It includes several steps, such as creating HR strategy and planning of workplaces and workforce, determining the empty work place that needs to be filled with new person, checking all possible solutions for filling the empty places and choosing the best one, preparing job analysis, making job description and other specifications. Job

analysis is the process of gathering and analyzing information about the content and the human requirements of jobs, as well as, the context in which jobs are performed. This process is used to determine placement of jobs (University of Nebraska – Lincoln, (no date)). The job description is a written statement that describes the work that is to be done and the skills, knowledge and abilities needed to perform the (University of Nebraska – Lincoln, (no date)). The HR planning, vacancy posting, together with the job analysis, job description and application are steps of the recruiting. The processes of recruiting and hiring cannot be separated. The process of recruiting begins when new recruiters are sought and ends when their applications are submitted (Aswathappa, 2007, pp.132).

The process of hiring is the part when the new candidate is selected (selection procedure) and chosen. After the application process with which the recruiting is circled, there is screening process of all resumes followed by phases of interview, test, or other type of process for checking competences and ranking. The selection is the final stage of choosing the most suitable candidate and creating the offer package. If the candidate refuse the offer given, the second best ranked is then contacted. If the recruiting is process then the hiring is the final stage, the event of choosing someone and taking him/her into the company.

The processes of pre-boarding and on-boarding accompany both the recruitment and hiring and the Training and Development part. Cases from the practices show that usually these both terms are considered as one short part of Human Resources but the opposite is true. People who are not dealing with this field of study or work often think that both of them represent the orientation of the new employee in the new work environment, coordination and helping to fit and adjust into the organizational culture of his/her during the first work day, week or month of work but it is more than that. In fact, the pre-boarding process is created with an idea to help new hires to manage themselves from the very first beginning in the company. The pre-boarding process begins soon after the selection in order to prepare the newcomer in advance. It includes the information, activities and treatment given to the candidate after he/she is chosen for the open job position. The purpose for organizing pre-boarding process is helping the new hire in adjustment, orientation, accepting the new environment and new job, providing important and useful information so he/she will have a feeling as he/she is already part of that organization, belongs there and is accepted by the colleagues. The on-boarding process includes constant assistance, helping of the employees, constant training and support during work, specialization, communication, work coordination, performance measurement, feedback, improvement etc. That helps in developing happy contributor (Peopleadmin.com; 2013). The on-boarding is not a one-shot thing but it flows as the professional work does. By monitoring and following the overall achievement and progress of each individual, this process enables creating the right path for further development of the worker and contributes in workers' professional building.

The appraisals process or performance part is consisted of time and work performance. Time performance is the process of measuring and evaluating employee's effective working time. It differs from one business entity to another, and can be measured differently. The main goal of time performance is to provide exact numbers of working hours and engagement of workers, their devotion, discipline, regularity, and loyalty. Work performance is measuring the overall work achievement of the worker with respect to documented objectives, goals, requirements, responsibilities and expectations (Spacey, 2017). The appraisal process for work has several steps:

1. Establishing performance standards that the company thinks that possesses or wants to have achieved,
2. Communicating standards in relation to the overall work and expectations about their achievement;
3. Performing evaluations for measuring the actual performance;
4. Comparison between what was expected and what actually is achieved;
5. Obtaining feedback by all relevant parties;
6. Taking further actions for rewarding the situation, corrective actions, or actions for improvement (Cosmic Development, 2019).

The work performance can be measured in terms of tangible things such as the number of new deals the worker made or targets reached in given period of time or in terms of intangible things such as collaboration with colleagues or teamwork. There can be different types of work performance and all of them can be judged and evaluated with the help of reviews and evaluation forms. Performance reviews are appraisal systems for tracking and determining the annual achievements and performance of employees through their work. If they are based on unbiased, fair monitoring and evaluation, they can be considered as one of the best forms for evaluating the work of professionals. The main objective behind the implementation of them is having an insight for the work in certain past period and having a grade or image for each worker's individual work and results for the same time. These reviews can be done by a single supervisor; by the HR management; based on notes from the past period; by a commission or group formed for this purpose; or by gathering employee's and team leaders' comments and unbiased evaluation for the work of other colleagues and the overall work. Performance reviews then may lead to: setting goals for professional development; establishing objectives for contributing to the department's mission; and discussing the following expectations and accomplishments (The University of Tennessee Knoxville, no date).

The next part that naturally follows is the process of compensation. This process includes rewards and giving or deducting benefits to employees in return to their performances. The main compensation tool given is salary change. The way on which salary changes can be done relies on the national policies and principles stated in regulations as well as on the company's internal rules and principles. The system for salary changes usually includes

short- term and long- term incentives. It is consisted of fixed base- pay stages which change and grow by time. It is a normal and regular thing to have an automated system and database for automatically calculating the changes and setting up the time when the changes should be taken. The salary changes or raises, as well as the negative changes are usually based on the performance reviews and the other forms of evaluation. If the performance results are positive, then the workers can go to the next process- the process of promotion, transfer and further development or if the opposite happen then it may lead to the process of discipline measures. Disciplinary measures are also part of the Human Resource field and are “punishment” for a behavior that is not allowed and triggers consequences. Its main goal is preventing further occurrence of the same situation and helping the worker to learn the thing and become better in the work.

Compensation system also gives a space for additional benefits changes that might bring to giving an extra bonus, rewards or even penalties to particular workers. These benefits can be granted because of different reasons: exceptional results, sharp professional progress, additional extra benefits or profitability brought to the company etc. They also depend on the internal policies of the organization and the achievements and professional work of each individual hire.

Another HR process that belongs to the structure of essentials is the process of time off consisted of requesting vacations, days-off, sick-days etc. Leave requests are the formal requests sent from the employees to the management for approving annual holiday or days off for certain given dates. Leave requests as part of the HR processes belong under the legal right for having paid time off of workers. This type of request varies in the length of days requested according to the regulations, employee’s needs or the policy of the company. The leave requests are documents when the worker states the exact number of days and dates, and the next date when he/she will come at work and that enables tracking of leaves. For the other types of time off (sick days, maternity leaves etc.) the employee encloses different types of documents and other procedures are taken.

Training, learning and development phase is correlated with the other processes and its main goal is to give the employees on-going support and all important additional education, resources, and support in order to become even more skilled, qualified, educated and more professional in their field of work. This process is legal obligation of each company in Macedonia. The way of training, learning and development can vary, so the companies may organize internal trainings, courses, workshops, as well as external attending on conferences, courses, additional paid education, international work, internships and so on.

Under retention we understand all measures and activities that the HR department takes in order to help and support the workers, to help them whenever need, meet their interests, to show them care and satisfaction at work, and to prevent workers’ turnover. All of the

above mentioned processes: training, learning and development, pre-boarding and on-boarding, compensation and benefits, assistance and guidance etc. are contributors to the retention of workers. It is another on-going permanent process that happens every day and is especially important as it emphasizes the value of the worker in the organization. Each company can also use its internal retention tools that can design according to its own needs, results from exit interviews, workers' evaluation forms and other sources of data.

The most essential procedures that are inevitable part of the HR processes are those mentioned above and the same will be observed in Cosmic Development in details. The first one that is very important for the thesis is conducting employee records. This procedure is more related to the legal part of the work but is very important for having a record for each employee, its documents, legal agreements, certificates and diplomas, and all other files important for them as professionals.

Evaluation forms are documents for measuring and evaluating some process into the company. Their performance is also important as it gathers data for workers' satisfaction, opinions, ideas, clients' feedback, company's needs, issues, and leads to further actions. The same are source for company's periodical reports, analysis and statistics.

The procedure of assistance and guidance can be accompanying part of the HR processes for strengthening the relation employee-employer, and can also follow after any appraisal process, disciplinary step, some bigger changes within the company, and after giving rewards to employees. Its purpose is to provide additional help and guidelines for future, to help workers if they have some questions, issues, needs, or are faced with new challenges, are promoted to new positions, are given complex roles etc.

Ensuring workers' rights and obligations are met is also procedure that is connected with the legal side of the work and it charges HR department to keep an eye of the employees, their rights and position at the workplace, their connection and communication with the employer, and to take anything needed to ensure that all rights and obligations are realized. This is not a process but more like legal obligation or instruction that must to be respected, but as it is related with the other processes and procedures we consider it as important, and will also be taken into account in our digital version of the app.

The final part of the entire sum called Human Resources processes is the least wanted: the process of resignation and termination of contracts that can happen by the will of the worker or by the will of the company. In both cases the HR management is obliged to conduct an exit interview or meeting with the worker. Before one work status is terminated by the will of the worker, the HR management is required to speak with the worker, to check whether there is something that can be improved or changed, whether they can negotiate with the worker in order to stay, to find and understand the reasons and root cause for that resignation, to help the worker somehow, and also to hear the worker's experience opinions about the current situation in the company or team. The same happens if the company is the party that gives the termination of the contract. The company is

obliged to call the worker in advance and to explain everything, the reasons why that happened, to offer him/her another position in the company where he/she can fit, to help him/her in leaving if the termination is accepted, to hear from his/her experience some opinions and suggestions for improvement or change into the company. After that the entire documentation should be prepared.

1.3 Business Process Management implementation with focus on Human Resources

The HR department is definitely one of those departments that are dealing with tons of paperwork and manage a lot of information. As we mentioned before, with the growth of economies and businesses, the work and responsibilities of HR departments became even more complex and harder than before, so the technology started searching for a solution that will release the burden of HR managers and specialists, which will eliminate their duties related to paperwork and many-steps procedures and will help them to focus on their employees and their performance. And yes, as in the other fields of work, there are already some systems implemented for this purpose.

There are information systems that exist into practice which are dedicated to specific processes within HR and their functioning. One of them is the Human Resource Management System (HRMS) which is used for organizing the information, storing, and organizing data for employees. The data can be related to employees' profiles, work schedules, time attendance etc. (Rivera, 2018a). Some of the most sophisticated solutions within HRMS are Paychex and Workday that allow staff to enter into the performance reports and evaluation, payroll services, and benefits management (Rivera, 2018b). The other one, the Human Resource Information Systems (HRIS) is more flexible to people and allow them to add and create their own reports for different purposes. HRIS can be implemented in all HR processes. The literature review proves that it is widely present and has been already well established in the recruiting process. Moreover, it enables „an integrated IT- support system for managing all tasks and activities as one into one single system“ (Laumer, Eckhardt and; Maier, 2014, pp.4). Its usage and implementation is also visible in the other parts of HR too. When speaking for this, one of the best systems developed is the BambooHR software for small and medium businesses. This software is maybe one of the best and most used for automating the HR processes worldwide as it provides solutions for lot of HR processes by simplifying and making them error-free. The scheme of the software is the same for all companies and companies are allowed to make adjustments according to their needs once they download and pay for its use. BambooHR offers BPM solutions for managing employees' records, workflows and approvals, reporting and analytics, hiring, on-boarding, compensation, time tracking, performance management, paid time off, employee satisfaction, and it also has a mobile hiring app (Bamboohr.com; no date). It also has some disadvantages. One of them is the low functionality and complexity while working into the program. Another one is the fixed scheme of processes that can be automated, so the companies can add data and make

changes only within the given options for process automation but cannot add another HR processes that want to automate. However, its concept and scheme are well-founded and very useful. What is very important to us is that this application looks a lot similar to the model of software we want to develop with a difference that our idea offers more effective, functional and flexible one for covering all HR processes.

Next on our list of HR management software solutions for small businesses is Kissflow, or an automated platform for work in the HR sector. It has up-front created applications for automating employee management, on-boarding, performance appraisals etc. and also companies can create own HRA app by using the Kissflow's powerful app builder tool (Kissflow.com; no date). This is the second app that already has some of our ideas into its structure, and will further review it for the same purpose as the first one.

There are also other solutions that automate just a segment of the HR. One of the, very widely used and well known is the Google Hire (G Hire) application offered by Google, for automating the recruiting and hiring processes. Beside it, there are also other that are offered mostly for simplifying the recruitment processes and helping in posting job advertisements, sorting applications, filtering applications and candidates etc. or solutions digitalizing the processes of performance, time tracking and recording that are very useful and helpful for the annual meetings and reviewing the notes, feedbacks, records for each individual hire and also for the decision- making processes about the further benefits and rewards. The latter ones are found as very important and useful for both manager and employee (Rivera, 2018c). As one of the best known in this field is the ADP system. Besides the above-mentioned systems, there are also benefits management platforms, services and software for managing particular parts of the HR, for instance the vacations, days off, health insurance, and other processes. The last tech tool developed within this field of work which is worth to be mentioned in our paper is the one for employee engagement. The tools and programs that deal with the employee engagement enable the managers to obtain an exact insight about their employees and their needs, and will also provide them with enough information about those things which need to be improved. For example, the program YouEarnedIt helps in recognizing those workers who are valuable and who need to be rewarded for their effort and work, while the program TINYpulse collects info and feedback about the work and workers, and give enough data for managers about which parts, operations need to be improved (Rivera, 2018d).

However, compared with the other fields of working tasks, all of these described solutions do not fully match with our goals. Some of them, such as those described first: Paychex and Workday do not cover the whole HR area, meaning they are not dealing with and are not applicable for all processes of the Human Resources, others apps like BambooHR are very useful and maybe this one is leading app but the con here is the fact that it gives fixed solutions that cannot be customized and adjusted to our internal needs. Kissflow is another app that was listed as very effective but we decide not to use it because of two reasons: the

first one is that Kissflow is designed for small businesses and in our case it might be considered only at first time for the local office in Bitola, but we are not very optimistic that it can handle the dynamic work in case we want to connect all activities across offices; the second reason is the security of the application knowing the fact that it can be accessed and used in the same time by numerous companies, so the principle of work is the same and gives a possibility for its abuse. We believe that if we have our own software which will be unique with own features, it will be harder to misuse it. In opposite, having software that in the same time is used and shared by other companies increases the risk of abuse by other companies, competitors or hackers who know the general properties, personalities and way of functioning.

1.3.1 Where and how Business Process Management can be implemented in Human Resources

The range of processes where the Business Process Management can be implemented is really wide. In fact, it can be implemented everywhere within the HR. The total set of HR processes within one organization where there is an open room for improvement includes all parts of HR that were explained above. The set of processes and procedures that can be automated is consisted of: Hiring and recruiting, Records of employees, New hire pre-boarding and on-boarding, Leaves and leave tracking, Employee status/benefits change notifications, Employee referrals, Timesheet processing and leave/vacation tracking, Travel requests, Expense reimbursement, and Exit interviews (Mancini, 2016a). The extent to which they can be automated depends on the nature of those processes, their structure, how much the human factor needs to be involved in their management etc. but it does not mean that the BPM tools or software cannot be implemented at all. The current practices show that it is up to the organization in which parts of this specter of HR processes it will use BPM and digital solutions. The way how Business Process Management can be implemented also varies. These listed situations gathered from the practices of the companies nowadays say that there is an implementation of Business Process Management into the Human Resource processes and there are also digital solutions created but only partially; there are programs or systems for managing particular processes (recruiting, compensation, performance reviews) but there is still not one uniformed for all of them.

1.3.2 Automation of Human Resources processes by Business Process Management

After presenting the situation of BPM with focus on HR processes, our intention is to describe how with the help of Business Process Management we can offer a brand new software solution or application for conduction and management of the whole range of HR processes and accompanied procedures that one company has. The current sources of literature available that are dealing with this topic give different number of steps which are important to have while creating business process model. The one that served as base for developing our plan for improving the whole situation contains ten steps (Veyrat, 2015)

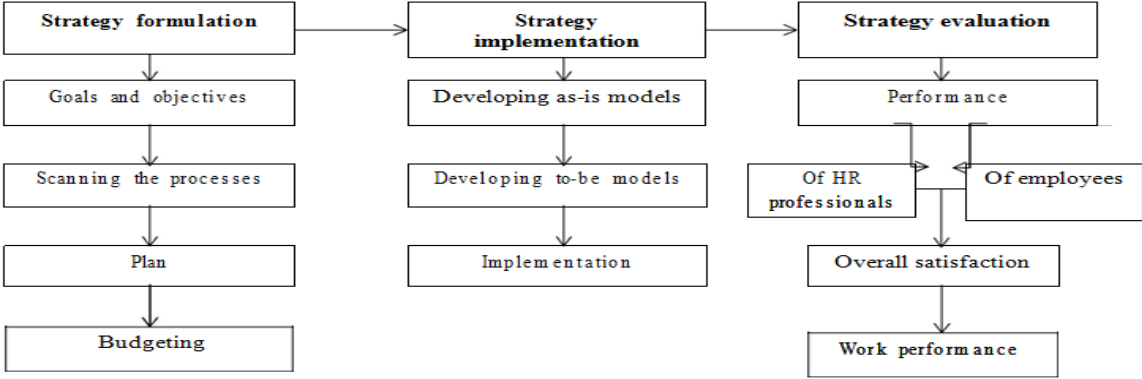
from which we took several steps and adjusted to our case. The first is the analysis of the current state of HR processes and the as-is models of the HR processes. The other parts that follow are elaborating the current state and based on that trying to create solutions for improving the situation of all processes and their accompanying procedures and actions which will be supported with developed to-be models of the proposed solutions. The next step involves creation of the to-be models into appropriate program which gives the approximate visual presentations of those processes within the program. The as – is and to - be models will be developed by following the framework for modeling business architecture (hereafter: BA), and the examples for developing cross – functional process map (Ruler and; Ramias, 2010). These models will be created in the iGrafx program and supported with visualized dashboards presentation in custom software. After that, the software solution will be supported by detailed plan about the functional scope, beneficiaries, cost-benefit analysis and estimated duration of development and implementation phases. We will finish with presenting the expected pros and cons of the solution, and to vague them in order to conclude if our idea proposed can be justified and putted into practice.

Before we start creating the solution, we need to work out on the theoretical and practical parts or from the theory to derive the possible approaches how the goal can be precisely achieved and the methodology used for that purpose. The business process approach to Human Resource processes will be the same in each particular process, no matter whether there is automation in some parts and to what extent it is done. Here we will explain it as an overall view for the whole sphere of Human Resources. From the scientific journals researched, and the possible approaches they offer, we will follow the one proposed in the International Journal of Academic Research in Business and Sciences and our approach be consisted of three parts: Strategy formulation, Strategy implementation and Evaluation (Abbas and; Madni, 2013). Our Business Process View for Automation of Human Resource Process will have the same parts as the one described in the literature reviewed, and as presented on the Figure 2 below. That means that it will have strategy formulation which should be in line with our desired goals and objectives and will serve as a path to reach our final point. The strategy formulation will be based on scanning and viewing the internal and external factors that have effect on the Human Resource processes and developing the as-is models of each process which captures the current situation. The as-is models will help us to see the complex structure, the gaps, and possible solutions for improvement. It leads to developing a plan for automation and possible budget for it.

The second part or the implementation part is formed of developing the to-be models and their implementation as well as how the solution will look like from its functional side. The final part is the evaluation of the implementation and performance. The evaluation should be taken over the HR managers and specialists as well as on the workers and their work. The performance evaluation is determined to give an image for the overall

satisfaction of the BPM into HR and the final results achieved with the work after the implementation of Business Process Management.

Figure 3: Business Process View of Human Resource Development



Source: Abbas and; Madni, (2013).

For achieving the goal we created, we are going to use the DMAIC methodology. This acronym stands for Define; Measure; Analyze; Improve; Control of the process (Ariscommunity.com; no date). The DMAIC methodology of BPM will help us to Define the problem that exists, to Measure the current aspects of the process that currently exist and to collect all possible existing data for it, to Analyze the data we have, to find ways how to change and Improve the process based on the prior made analysis, and to control it in the future in order to prevent and eliminate the possible mistakes and deviations. The main reason why we are going to use DMAIC methodology is because we have an issue already present that we want to examine and try to improve the situation. This method will enable evaluating of the current situation in the HR processes of the company, and will help in identifying the possible opportunities for their optimization through the BPM implementation. After that, with constant monitoring, the improvements can be seen and further actions for enhancement and adjustment can be performed.

1.3.3 Key success factors for implementation of Business Process Management into Human Resource processes within the company

Since the HR processes are more tied to the legal regulations and procedures, they are also more exposed on the legal risk compared with the other processes, and that is why a strict rule needs to be followed before the use of BPM and creation of new software solution. The rules are not only important from legal perspective but also as a way of risk elimination related to the effectiveness of the systems and their capacity to reach the desired goal. Mancini in his writing about the automation of the HR by BPM addresses 8 things that need to be respected before we start the process. Those 8 things are named as “must haves” for consideration when running a modern HR operation (Mancini, 2016b).

The first thing is the ease of integration of the system with the on premise or SaaS process solutions, so it can be implemented and integrated without problems or risks for the other systems; The second thing that needs to be considered is the ease of use of the application or system for managing HR, especially for the HR specialists; The third thing is the ease of integration that comes as a successor process of the previous two; For having easy access and usage there should be proper information management and management of employee information; Having a digital security and guarantee that there are no copied operations is a must. Here we are referring on having a digital signature for entering, managing and monitoring the workflows and processes; the next one thing which is in a strong connection with the security of the program is the guarantee for privacy of the information stored. This means that before the system is putted into practice, companies must to have developed part for protection of the private information how information and data will be stored and kept, who will have an access to them and to what extent, how the information will be used according to all rules and regulations etc.; The system must to be created according to all regulatory workflows, all important acts for the labor law and human resources; Before the release, several trials must to perform for having an insight of its suitability and whether that is the final version made according to all guidelines and requirements. Besides the 8 important things we need to know and have before the implementation of BPM into HR processes, we also consider that the knowledge what are Artificial Intelligence and Machine Learning why they are important and how can be used in near future, as well as in our practical case, is more than essential. As the things change every day and as these two terms become the key for automation in all fields of work within next years, we are going to pay attention to them as valuable sciences that stand behind BPM.

In short, there are several very essential things that need to be respected and followed during the whole process of planning the use of BPM tools in the whole specter of HR processes. They are not something that is new or strange but we are talking about ordinary procedures which ensure exact usage and gaining the determined results. We cannot say for sure whether they are implemented before each attempt for automation of HR processes by every single organization or before the release of the software or programs for HR automation.

2 BUSINESS PROCESS MANAGEMENT AND ARTIFICIAL INTELLIGENCE: COMBINATION OF THE FUTURE FOR AUTOMATION OF HUMAN RESOURCE PROCESSES

Here will spare some space, do a deeper research and try to find a way how in the solution I want to propose, can combine both, the Business Process Management and the Artificial Intelligence. Why Artificial Intelligence? Because that is the easiest and safest way for obtaining all stored data for each and any activity that we want to automate with the help of Business Process Management tools in future and is the safest way so far for user's data

security. This idea came up by the thing that all IT solutions that are invented are supported by AI and the current year will surely be the year of the Artificial Intelligence and its takeover of the HR strategies and processes. Moreover, since the plan with this internal app is to have additional mobile version once the desktop is implemented, the AI will be the best way for protecting personal accounts and data security, as well as easiest way for uniquely and exclusively obtaining account access.

This chapter briefly explains the essence of Artificial Intelligence for automation of processes and how its capability for data obtaining and analysis can help in reaching the target: creating own customized software for full automation of HR processes. Before I start explaining how AI can be combined with BPM in creating brand new and unique software for HR purposes, will explain why it is important for us and our further way of work. Artificial Intelligence (AI) as an area of computer science that can create and enable intelligent machines to work and act as humans (Techopedia.com; no date). is at its peak right now, creating smart solutions for work management, changing our traditional way of working into something new and innovative that will be beneficial for the years that come. This is also visible in the Human Resource field where the AI started being used very common, firstly as a topic and now as a practice together with the Machine Learning.

We start considering the BPM as the base for automating and optimizing of the HR processes while the AI capabilities can store all databases any company possess once they are entered, and can also obtain each and every kind of data virtually after that. That simplifies the entire process of HR automation more than we can imagine. The second part which will be beneficial is the unique and simplified access into the software. Our intention is to make real these two parts, firstly with the desktop app and then to transfer them and update with the latest trends in the mobile app too. The AI features that can be implemented into current solution are limited since the desktop usage of AI is more restricted than the mobile. However, the AI can help in remembering, keeping and retrieving all data stored into the system, providing secure data storage system and fastest work.

The mobile app of the solution is intended to have option for voice and face recognition for entering it or opening specific tasks, fingerprint option for performing specific actions, and some other performance features which together with their benefits and contributions will be explained in the following parts. Together, the BPM and AI offer an integrated and sophisticated HR environment. There is no doubt that the effects of automation lead to better efficiency and effectiveness of all processes. In these days when the HR processes are very large and complex, flux all the time, when the activities are mainly done on several levels, including international between large numbers of entities, it is hard to imagine how those processes would be managed only manually by the human factor. The more complex the process is the harder it is to manage and handle.

Why exactly this part of the computer science can help in the realization of our idea? First of all, AI showed as very effective and powerful in data analysis, programming and project management since it helps in easy data deriving, data obtaining, and helps also in doing tasks quicker than humans. That leads to a conclusion that it will be beneficial in the HR field as well. I am pretty sure that can achieve the same results it has in other sciences and fields of work. Moreover, we are focused on optimizing and automating which is a target of AI too. Lastly, by combining it with the BPM tools and techniques we are close to developing the data driven HR which is the „future of HR work“. Automation of Human Resource Processes came up as very important since the whole specter of tasks was previously done by people only, and the risk of making mistakes was always present. In the field of Human Resources, each process has multiple tasks that go from person to person and hence it makes hard, to get a holistic view of the process, as such (Kissflow.com; 2019). That is why the science shifted on learning, and developing ideas how to automate this area. The ongoing software solutions for process automation showed as reasonable and justified the expectations.

When listing the pros gained so far, there are several, major which need to be mentioned.

- Time - saving - One of the most important factors nowadays is time. Especially when working with people the time is always essential factor in performing activities and deciding about next steps. When having BPM, huge part of the HR processes can be done automatically with only minor human involvement. The BPM tools enable memorizing previous activities or working by a given scheme so when new process begins, the whole steps are done automatically. People within the HR department are charged for starting, monitoring and controlling the process. They are released from redundant and boring administrative tasks and during the same time they once used for those thing, now they can devote themselves, their energy, time, and concentration to focus and perform other, more meaningful things that cannot be done automatically.
- Decreased paperwork- Another very difficult thing when having long activities, large and more complex processes is the paperwork that needs to be prepared. Having unmanaged process where all the paperwork is prepared by hand leads to lot of errors. Here, thanks to the BPM only the final documentation that needs to be issued according to the letter of law is prepared by the HR specialists, while all other files and data are stored in the system.
- Less error- As previously mentioned, BPM ensures that the risk of human errors is eliminated. It performs the activities by given commands and gives people correct data. If compare this situation with the situation when all the tasks from the Human Resources are performed by people, we come to a conclusion that the second situation is less secure since it is prone to errors made by the human factor.
- Positive fiscal flows- The current reports from the already implemented BPM solutions give a results of positive fiscal flows of companies for the past year, compared with the years before. After the usage of BPM into HR processes companies experienced higher

employee engagement as well as higher profitability. Namely, one report for 2018 showed that on global level, companies experienced 16% greater profitability or in other words it brought to 2.5 times higher revenue and rise of 18% in productivity of workers (Hrtechnologist.com; 2019a).

- Unbiased treatment- Since there is limited access of people in these processes, there is no worries that HR professionals can use bias in some process: recruitment, hiring, reviews and evaluations, everyday relationship with employees, promotions etc.
- Employees' satisfaction- In the end, we come up to the point when we realize that all of these things are done for people only. There is no successful organization where the employees are dissatisfied. Having automatic, nonbiased, fast, and fair processes is a situation when employees feel satisfied of the employer, feel valued and are not demoralized. The same report mentioned as a source for reliable data for savings and profitability of companies states that the new HR technologies resulted in 65% reductions in (Hrtechnologist.com; 2019b).
- Secure processes- The implementation of AI in the desktop and mobile versions of the software solution will help in increasing the security level of the internal work processes of the company inside and outside. The inventions we propose will bring stronger feelings of security at workplace of workers as they will know that only they and few known people can enter their personal accounts on desktop and only them on mobile from one side, and will eliminate the risk of internet violence of data company from the other side.

All of these gains are also expected to happen after the implementation of this digital solution. One of the best descriptions for the automation of HR and business processes in general is stated on the website of Appwright in the article devoted to how BPM can enhance employees' experience: By automating certain business processes, you eliminate the need for your staff members to carry the burden of completing the mundane, repetitive and well, boring tasks associated to their roles. Plus, by streamlining administrative operations and other similar jobs, you ensure that this type of work gets faster and with more accuracy and efficiency than it otherwise might (Appwright.com; 2018).

From the other side, there will be always a critics and opponents why not to automate Human Resource processes and combine them with AI, and maybe one of the most used and frequent thoughts that comes first to mind is that the automation of HR will decrease the demand for labor in that part. There are sources of literature dealing with the possible disadvantages and the cons of implementing BPM and AI into the HR processes, and yes, the decreased demand of labor capital is one of the most frequent. People are afraid that if there are special programs in companies that will be used for performing the HR activities there will be no need for human capital since everything will be automated. This leads people to start making decisions what to do with their careers. Additionally, the recent practice of the AI into businesses resulted with lower number of human jobs. However, the situation is not so bad and the above stated is not completely true since there is a lot of

room for human's work and input here. First of all, someone needs to maintain those programs. For example, in the process of recruitment and selection someone needs to take the interviews, to speak with candidates, to see that there is an open space that cannot be internally filled with another hire. In this part we already can see the first steps of automation since the big companies perform the mentioned processes online and without direct contact with the candidates, but yes, there are still humans who do the things. Then, within the field of training and development someone needs to monitor and control the execution of tasks and to determine what kind of skills workers need, what kind of training is a priority in that stage of work. This is not something that can go by plan and strictly by rules. We are working with people who can perform better than our expectations or can make mistakes and failures when not expected at all. The rewards and benefits, transfers and promotions, as well as disciplinary measures are very close to the performances which need to be monitored by people. The counseling cannot be done automatically as well. And finally, the resignations and terminations must to be given to someone by someone; there need to be managers or other authorities who are going to try to solve this situation, to see the reasons why resignation or termination happened.

Another thing that there is no need to panic is that the programs will release people from the repetitive procedures and will leave them to think on more difficult and innovative jobs. The automation will not „break“ HR professionals but will give them enough space to learn new things. One very important thing that we forget when speaking for this issue is that the tools and techniques we want to implement with the help of BPM and AI are static and do not have capabilities to think and innovate by themselves. It is left to people. So, as it is stated in one of the recent articles for this purpose, „the key to success as an employee will be to have the skills that the Artificial Intelligence has not yet conquered“ (Hrtechnologist.com; 2018).

3 BUSINESS PROCESS MANAGEMENT IN HUMAN RESOURCES INTO PRACTICE

As we already mentioned, from the current sources of literature that deals with the relation between Human Resources processes and Business Process Management we can see that there is no developed a business process model of the HRM business processes (Cakar, Bititci and; Macbryde, 2003, pp.191). That indicates that there is no one and unique approach for use the BPM into HR processes. We also found and showed that there are some other attempts for that, such as the human resources information systems (HRIS) that provide benefits for the organization (Lang, Laumer and; Eckhart, 2010), but the full potential might only be realized if a BPM approach is established as well, which has not been intensively focused on by prior research (Houy, Fettke and; Loos, 2010). The practice shows examples of attempts or case studies for developing such a process that will be internationally accepted and used. However, the current existing models show that they are

implemented only in some parts of the HR processes, not in the entire field, or there are internal programs and systems used by only one or several companies and organizations.

By this we come to a point where the best solution for optimization and automation of the HR processes is developing of internal program or system by using the BPM tools whenever possible. In section 1.3.2 the general plan for developing and presenting the internal system for digitalization of HR processes is described shortly by mentioning the main steps of it. Here, we are going to show all steps we plan to include. They are as follow:

- Making deeper and detailed research of the HR processes into the company, how they are performed into practice, whether some gaps exist etc. For achieving this the materials from the interview conducted, together with the other internal resources of the company will be used;
- Describing the current state of the processes and the level of their automation;
- Making analysis how to improve them with presenting the possible solutions;
- Preparing detailed business plan for the software;
- Presenting the idea to the top management with strong data about security, costs, benefits, duration of development and implementation, profitability etc.;
- Setting up the environment for the changes;
- Developing and testing the software;
- Developing mobile app;
- Updating and upgrading.

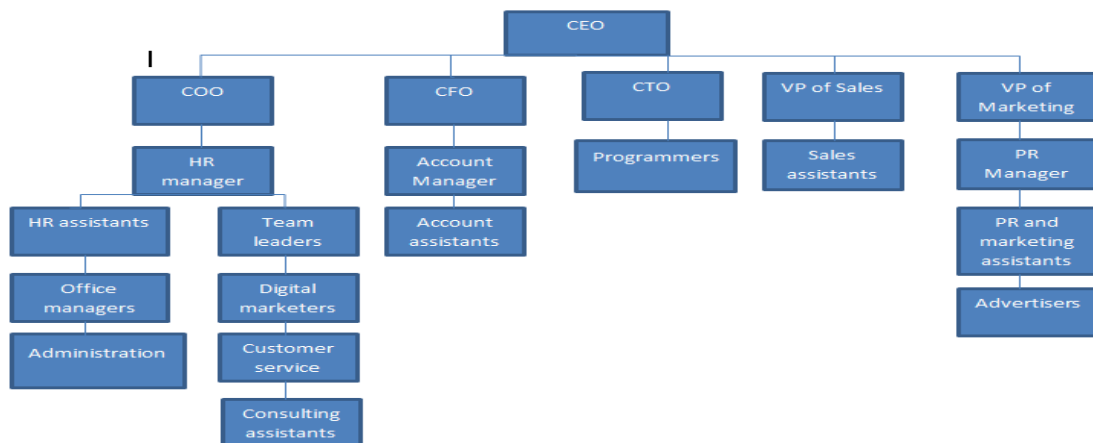
If these steps show as effective one our idea will be justified and marked as good one. By obtaining this, we are going to license it, use it firstly to improve our market position, and after that to make it possible for use by other companies by prior purchasing. In the meantime, the financial sources obtained by that will be devoted for further research and development and inventing new solutions.

3.1 Description of international IT and outsourcing company

The company that will be included in the practical part of this master thesis is an IT and outsourcing company with international activities. Cosmic Development is a Canadian outsourcing company, founded in 2011 by two young IT professionals with a desire to start doing international businesses. Based on their previous experience working as developers in Microsoft, their initial idea was creating a small business that will offer assisting and creating IT solutions for other companies and being profitable. With the very first days of the beginning, they started researching the international market with intent to base the business in another country, less developed one if possible, so on that way they will reach their goal and in the same time will invest and support some weaker economy that needs investments. The reason for this laid in the fact that the IT professionals in fact are workers that can work remotely with no need to stay in a single place or office desk during their

working hours. This gave them the opportunity to find IT workers abroad who will be able to do the same work as their Canadian colleagues but by lower costs. Since one of the owners of the company has origins from Macedonia, they focused on that region and chose both Macedonia and Serbia as suitable markets. With moving the business on international level, the idea for shifting to outsourcing activities came to a point of realization. The company switched to outsourcing activities in many fields: web design and development, creating video platform, customer services and support, consulting, accounting, digital marketing and advertising etc. On the following figure is described the organizational structure of the entire company, including all type of work positions and level of hierarchy which is prepared according to the given instructions and description of the interviewee. The organizational chart structure is created based upon derived information of internal company's materials about the current employees' number, workplaces, teams, and hierarchy (Cosmic Development, 2019). The reason for presenting the organizational structure is because of the essence for knowing how many layers of communication and coordination are included in processes, and having a clear visual representation which parts of the organization are charged for our topic of interest.

Figure 4: Organizational chart of the company Cosmic Development



Source: own work.

The way of work is based on searching for companies that have activities that do not need to be performed from office only (remote jobs) and offering them a deal where Cosmic Development will find experienced and suitable workers for their working tasks, provide them with appropriate training and ensure that the company's work will be done by the given rules and deadline, and for that will take a percentage from client's income made for that office. The target zones for client's hunting are developed countries, such as the United States of America, Canada, and United Kingdom with international businesses that can hire people abroad and pay lower costs for it. The communication and contact with the companies for which the workers are hired is performed on permanent daily basis with Cosmic as mediator in the business and with the individual employees too. Currently in

Macedonia office, which will be our main target for research, there are the following teams of workers: creating video platform, customer services and support, consulting, digital marketing and advertising, and social media. The teams are group of professionals and each team work for a different company.

3.2 Current state of digitalization of company's processes

The digitalization of processes within Cosmic Development work is already implemented in some of them to some extent, but the extent of implementation varies from office to office. Since it is international company, it follows the newest technologies and international trends in business operations. But, because of its different branches of operations, and the differences in the economies, current development of the countries where the company has offices, there is different implementation of Business Process Management and different extent of automation of processes within the company.

According to the information gathered from the interviewee, and also as expected, the office in Canada has the widest usage of BPM whenever needed while the other ones follow that example and take the practices day by day. The benefits of this discipline appear in the field of IT; procurement of items and goods needed into the company; purchasing activities; HR; into the financial and accounting services; transport; and into their communication with the client companies. This way of communication and developed infrastructure contributes to the effectiveness and efficiency of this office. Thanks to the Business Process Management, this office succeeded to improve the processes, and now has its own developed programs, applications, and tools available which are very helpful to the employees into their everyday activities. However, the situation is quite different in the offices of the company located in Europe, particularly in the Balkan countries. Due to the differences in the technology development and infrastructure, to the economy, level of development of the countries and the availability of resources, there is not equal use of Business Process Management, and therefore not created and implemented software solutions for all purposes. In the case of Macedonian offices, Business Process Management helped in the apps creation for project management, consulting and development of video platform (meaning into the activities of the teams that work for the companies dealing with them); in the field of accounting, and communication. It needs to be emphasized that even Business Process Management can be used in the Macedonian office on the same manner as abroad, the level of development and sophistication is not the same so it leads to inefficiencies in the process of automating and optimizing. Human Resources processes that are widely known as the bone of each organization, the most essential part that takes care for the workers, supports and helps them, and in the same time enables and ensures smooth working activities, and those procedures that lead to great atmosphere and present feeling of motivation and satisfaction in the workplace, also need to be automated. That means that within this part there is a huge place for implementing

Business Process Management, and it needs to be done as soon as possible not only in Cosmic Development but in all companies.

The largest and most sophisticated office of Cosmic, there is a full automation and optimization of the HR processes by the use of bought software solution for this purpose. In Macedonian office the implementation process started, it is present in some branches, the first results and positive feedback are already felt and seen but it is not enough and over. The same software solution as in Canada cannot be taken and transferred here too, because of the national regulations, the available resources and capacities for their implementation, the difference of the rules and procedures and so on. When speaking and observing the situation in Macedonian office, it is obvious that there is still a gap that needs to be filled and a lot of work that needs to be taken in future. It is a long process but payable one.

Currently, the extent to which Business Process Management supports the automation of particular areas within Human Resources processes is very low. In addition, we are going to see and review the current situation, whether there is or there is not a possibility for additional automation.

3.3 Analyzing of the current HR processes

Besides the above-mentioned teams within Cosmic Development, from the interview's answers and details given we can see that the administrative sector and management within the company are consisted of people who are working for it exclusively, and are responsible for the administrative tasks, finances, HR processes and management. The HR department in the company is currently consisted of two workers: HR manager and HR assistant. They are responsible for the Human Resources part for all 80 people employed in both offices in Macedonia.

Human Resource processes vary according to the complexity of the operations and activities of the company, the actual situation, and the international relations with the clients and many other factors. This means that sometimes some of the processes might be more complex, can be paused, modified, performed more frequent or intense than before etc. However, the constant processes that fall under HR responsibility and supervision are the same we described and presented as core processes in the first chapter of this thesis.

Some of these processes or procedures of the HR field are performed by implemented internal programs already. For instance, the procedure of time performance tracking and evaluation are already automated, where the input of human work is very small and serves only as a monitoring of the situation or adding additional information needed for executing the work properly in this part. Beside the time performance part, the other processes and accompanied procedures are conducted differently. Some of them are done entirely and exclusively by the HR professionals, some of them are guided by a given scheme or

template where the steps are already predicted and the HR professionals just need to execute them, while others are partly automated. The situation is as explained because of the nature of the tasks that determines how they will be taken and also it depends on the current capacities of the office regarding this. It does not mean that they cannot be automated, in contrary it is more than obvious that they can, and our main goals in the following part will be exactly that. The way of execution is different and how it looks like during our research is going to be described in the parts that follow below which has been prepared according to the answers, information, and thorough explanation of the questions stated in the interview phase made with the HR manager of this company, as well as particular internal materials.

3.3.1 Recruiting and hiring

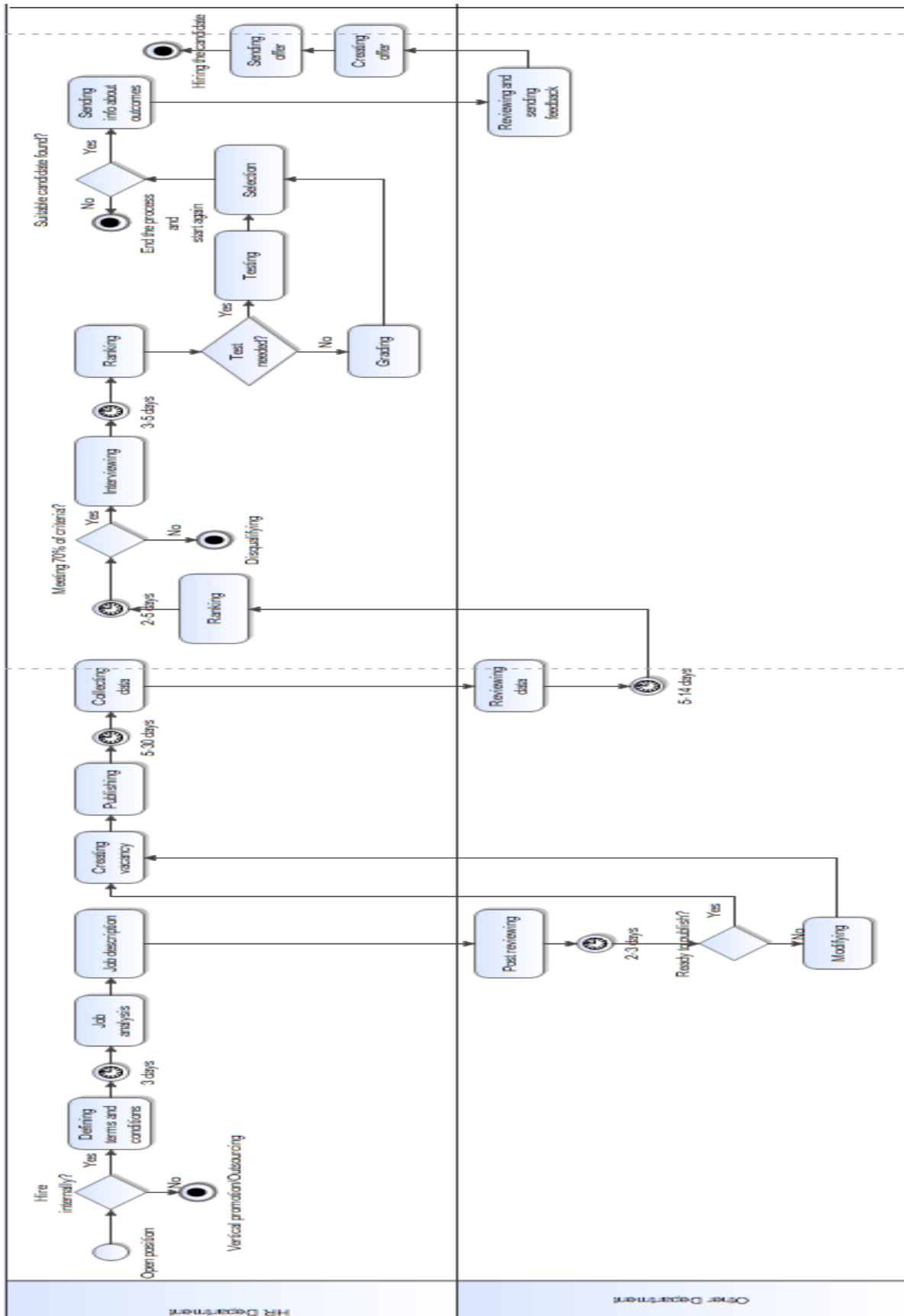
In our case company, the process of recruiting starts when there is a need for employing new hire and there is no other option how the work shortage can be compensated (vertical promotion into the company, giving the opened tasks to current employees, outsourcing etc.). After deciding for hire externally the HR department prepares job analysis and job description for the open job position. The company from our case prepares and performs job analysis for each position. In this phase, the HR management in collaboration with the particular sector for which the new person will be hired define the purpose of the new position, the main tasks and responsibilities related to it, in which category it belongs, the safety of the position, and also discusses for the appropriate compensation. The processes of job analysis and job description are correlated. This company has a principle to always put the following parts: title, date, place, to whom is entitled, who supervises the position, deadline, essential functions, non-essential functions, job specifications (education, knowledge, experience, skills) and other required characteristics (Cosmic Development, 2019). Both parts of the recruiting are done mainly manually, meaning that the HR management has a meeting with the manager of the sector or team that is looking for a new hire, they together agree on the terms and make the draft version of the vacancy. They have templates with the already posted vacancies in the past, so use them and modify according to the current client's needs and guidelines given and co-ordinate their work with the Marketing department for further activities for publishing.

After preparing and finalizing the steps and documents aligned and after publishing of the job post and meeting all legal principles and deadlines linked to it, the HR management together with the manager of the particular department that is hiring the new member are reviewing all resumes received. They are doing this step manually when all of them are present at the meeting. All resumes need to be checked in their content and then each information from each resume is compared to the values stated into an already prepared checklist that has all qualifications and requirements essential for that job. This process is called filtering. As the resumes are checked and compared with the given values, the team of reviewers is making a selection and ranking of the resumes. Those that do not meet at

least 70% of the values and criteria are eliminated. Those candidates with qualifications that meet +70% of the criteria go to the second phase of the hiring and selection process- interview and/or testing. The interviews are consisted of two parts: personal and technical question. Same personal questions are asked to all candidates that enable the evaluators to learn more about the candidate and his/her personal side (educational background, experience, interests, behavior, additional info), while the technical questions are for getting to know better the professional profile (knowledge, skills, knowing the job) and his/her logical abilities, ability to fit into organizational culture, problem- solving attitudes etc. The interview's structure must be prepared according to the job specifications. They can be conducted in person, as phone calls or video calls (Cosmic Development, 2019). Interviews are not evaluated as interviewees leave the room or the call ends, but after the entire process comes to the end. The team of evaluators can write down some notes during the interview that will be taken into consideration in the grading process. After the end of the interview day, the same team of evaluators does the grading. They comment the interviews and the candidates one after another and make selection of them. This is the second process of filtering. Sometimes, the process of selection ends here and the team brings decision about who is going to get the job. Sometimes, there is one process more- the testing phase. The testing phase is taken for specific jobs, such as programming, accounting, auditing, HR positions etc. The tests can be theoretical or practical according to the position and are prepared in co-ordinance and consulting with the team leader of the particular team. When the testing ends, the same team plus one person more who already works on the same or similar position are grading the tests and make the final decision. With that, the management form and conclude the offer package and contact the candidate chosen. The as-is model of this step of HR processes is already developed and presented in Figure 4 shown on the next page.

As we can see from the above explained process, the process of hiring and the selection part are done manually, including lot of paper work, mental work, time and concentration of the evaluators.

Figure 5: As-is model of the recruiting and hiring process

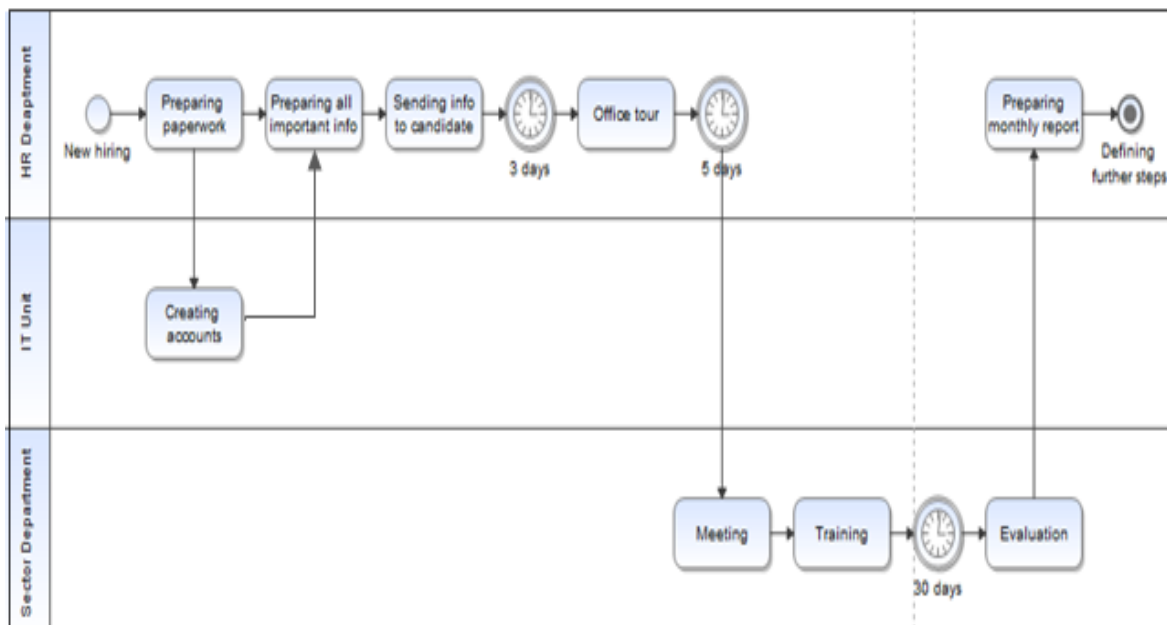


Source: own work.

3.3.2 Pre-boarding and On-boarding

The pre-boarding process starts before the new employee comes at work. In fact, it begins when the candidate accepts the offer given. In this period the entire paperwork needed for that position is prepared, the workstation with all tools, required readings, and accounts is set up, and a message with all important info for getting access into the personal account where the person can find and read the basic job requirements and info with details needed about the first day at work is sent in email. It also continues during the day one. This part is always fixed and unchangeable meaning that is same every time for each employee. It includes the following steps: introducing the hire to the team, office tour with explanations for the internal routines and rules made by the employees, short explanation of the job position and expectations, meeting with the Director, HR, and the manager of the team to which the newcomer belongs, assigning a mentor, and taking the hire to lunch (Cosmic Development, 2019). The pre-boarding process together with the first phase of the on-boarding process in Cosmic Development in its current stage is presented on Figure 6.

Figure 6: As-is model of the pre-boarding and on-boarding processes



Source: own work.

Coming up to the on-boarding process. It is dedicated to newcomer firstly and is intended to make the him/her closer with the team, to help him/her to adjust very easy and quickly into the new organization, to reduce stress at work, to contribute to his/her job satisfaction and high commitment to the company, to help in the knowledge transfer sessions, and also, on long term to ensure retention of the employee which indirectly leads to cost savings. It does not stop here. It does have a business impact as well and is planned to help each organization that implements it correctly in reducing labor, administration, and recruiting

costs, time needed for improving productivity, and helps organization to meet the emerging talent needs (Stein and; Christiansen, 2010). By correct implementation we mean customizing the on-boarding process with personal and organizational needs, overcoming obstacles and periodical updating of the process and activities. It is an ongoing process that accompanies the hire through his/her work all the time. Its intensity is especially emphasized during the first week, month, and year of the newcomer. The first week's on-boarding plan is to include the employee in the projects of the company. With provided mentor's support and training of four hours per day, within the first week the employee is expected to start working independently on the basic tasks of the project. After explaining them the expectations on the first day, and after providing training every day in the first week, by the end of it he/she should be able to have completed given tasks. On this way, the hire feels valuable to the company, takes the job in own hands, and starts creating an image of his/her position and job there, and acquires responsibility and loyalty. The goal of the on-boarding process in the whole first month is to ensure whether or not the worker is able to fit into the workplace and organizational culture. After the first month, the HR management prepares a checklist to see whether the worker achieved the given goals for that month, sets up a meeting to see her/his issues or concerns and also to give a comment/critics/advises to the job performed. The routine in the company also allows giving additional training materials or other reading materials for personal growth to the hire, enrolling the candidate to various training, seminars or conferences important for professional growth and gaining additional knowledge and skills. Since the on-boarding process has different pace for each new member, after the first month of it, the management has an obligation to value the current situation and to make a custom schedule for the on-boarding process for the next period. Then, the new employee is included in all monthly meetings of the team and is seen equal to all colleagues in terms of responsibilities and given tasks. The whole explained steps of pre-boarding and on-boarding have own visual as-is model, Figure 5.

3.3.3 Time performance review process

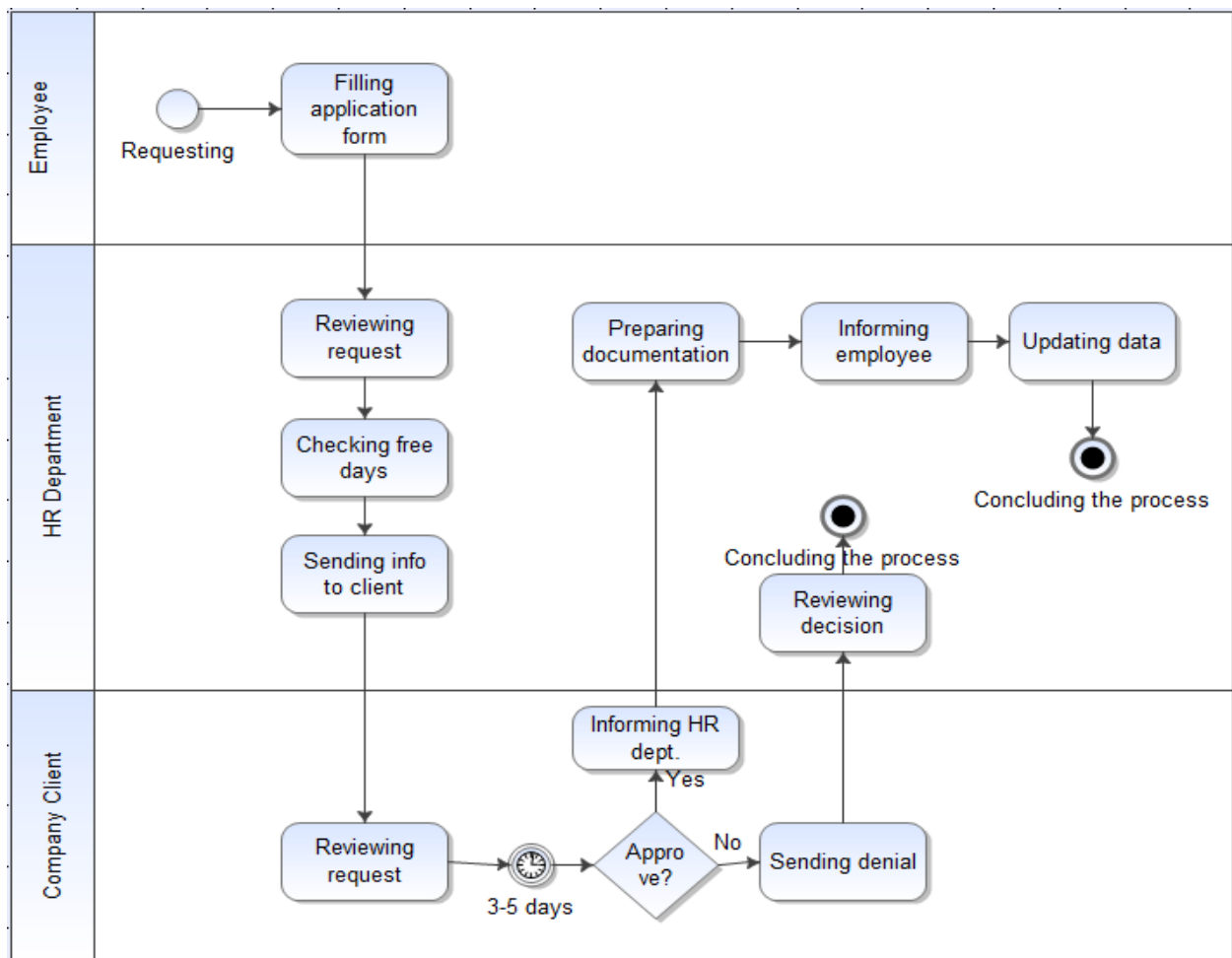
The time performance review procedure will be mentioned in this part as it together with the work performance review are crucial part of the appraisals processes. It is an automated part with internal program for this purpose that registers, records and stores all time changes of workers and gives detailed scheme for the overall daily performance for each individual employee. The purpose of this program is to keep the information about time performance and effective working hours of workers that are used as additional source of data in decision making for salary, benefits or status changes.

Since it is already automated, it will be better presented and explained in the next chapter and will serve as a practical example for developing the solutions for other processes, we have intention to automate.

3.3.4 Time off requests and tracking

Leave requests and tracking is one part of the time off processes. In our country, the minimum number of annual holiday for workers is 20, and 12 of them needs to be given at once as undetermined annual holiday of 12 days, while the remained 8 can be used either together with these 12 or separately when the worker has an actual need of them (Official Gazette of Republic of Macedonia, 2010). Since the letter of law gives a space to the employer to adjust the requests according to the needs and internal conditions, our company gives full freedom of choice to workers in deciding when and how many days are going to use. The leave requests in this company are prepared and completed manually. In fact, not only the procedure with leave requests, but also and the procedure of registering and maintaining the evidence of the days off, sick days, home office days or maternity leaves which are also part of time off are entirely completed by the HR management themselves. The process of recording the days and updating the database is not so hard even it is done manually. However, the entire communication is the main issue here. The leave requests are considered as completed when an approval for that is obtained by the client company and by Cosmic. In this case, after receiving the approval from both sides, the tracking of the used days and days left for use, as well as the paperwork can be arranged. The same refers for all other types of time off. From this point it can be said that there is not as much automation in this part of our company as possible. We cannot really say that the databases created for having evidence are part of Business Process Management. Here is a lot of room for digitalization, particularly in the communication part and tracking. Cosmic Development represents a mediator, some kind of bridge in the communication between the companies and their workers. Instead of waiting the answers from companies and spending so much time on that, and after that spending time on manually updating the vacation sheets and the complete documentation, the Business Process Management tools will ease the information flow by providing permanent and easily accessible data for all three parties included. The current as-is model of the leave requests and tracking as time-off is presented on the Figure 7.

Figure 7: As-is model of leave requests and tracking



Source: own work.

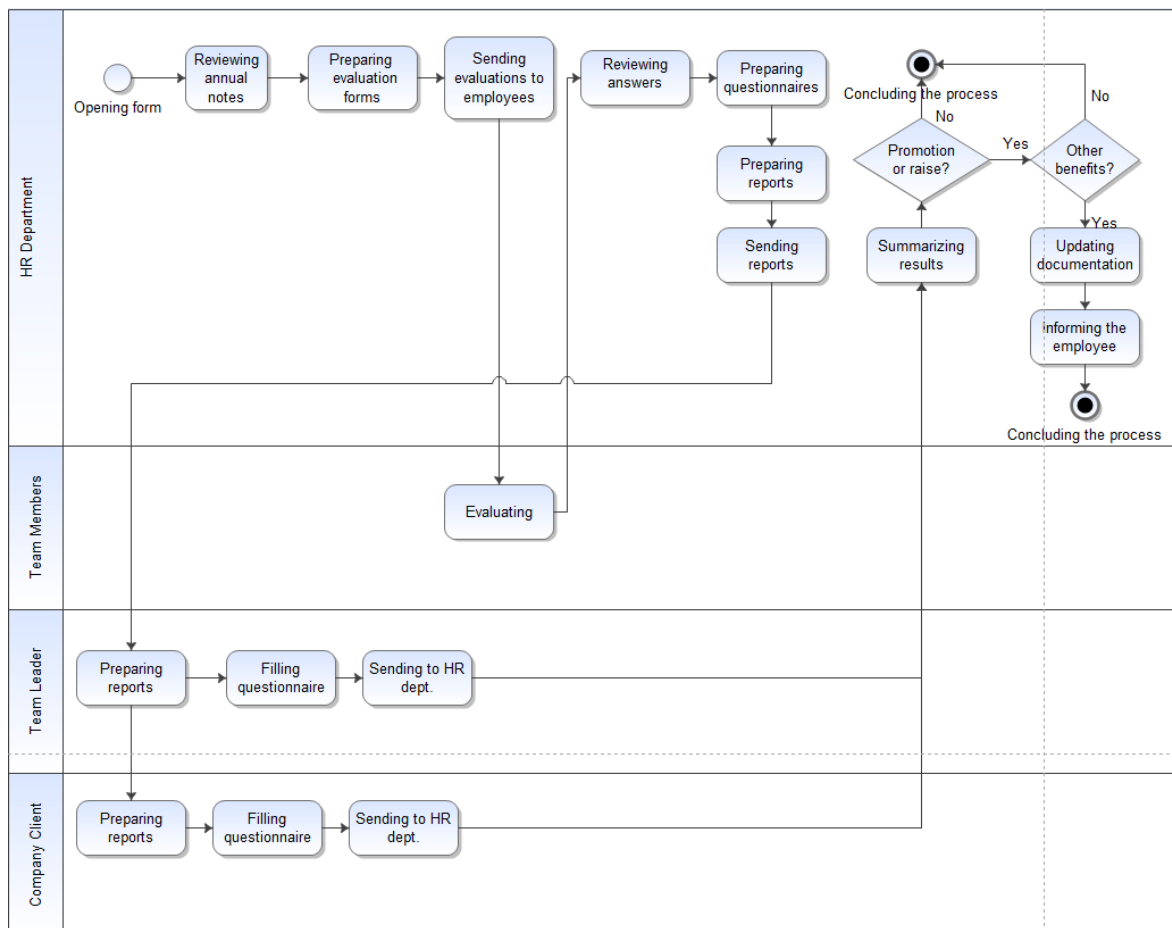
3.3.5 Performance review

In Cosmic Development, the appraisals process is best described by the work performance reviewing. It is done one time per year, usually at the end of the year. It is consisted of several parts that were already mentioned before. Firstly the company sets standards that considers as goals that should be achieved, discusses them, and then measuring the actual performance. The types of work performance measured are same as the ones generally accepted as most essential for company's work: professionalism, delivery to commitment, due care, teamwork, communication, creativity, responsibility, loyalty, efficiency, knowledge, problem - solving etc. (Spacey, 2017). The measurement is done by different tools: checking, reviewing the work and results and consulting the managers for the work, loyalty and attitudes of each employee within their teams; consulting the client company in order to obtain direct information about their satisfaction from the work of each hire working for them, advises, critics, and comments for their performance; good or less good situations during the past months, exceptional achievements that deserve an award; profitability reached; given targets achieved and so on. After the measurement part, the HR

department together with the top management makes a comparison between the targets and standards that were set up and the results that were actually reached. It leads to making a conclusion and feedback about the current stage and actual progress of work. The last stage of the process is decision-making and taking further correcting actions. The HR management together with the Director of the offices in Macedonia and department's managers review the HR notes and the notes submitted by the team leader made thorough the year. Based on all of this information, they form a feedback for every individual, evaluate it, and make final decision for further changes: raises, bonus, promotion, other benefits and decisions for further actions in all working domains.

All steps which are also visible on Figure 8, of the performance reviewing are mainly done by HR management and all of them include lot of time, consultations, conversations, decision- making and paperwork.

Figure 8: As-is model of performance review



Source: own work.

This part of the HR field is perfect for digitalization and their automation by having internal app. From the interview performed and from the experience gained there, there is an obvious and urgent need for it. The current practice is useful and well performed but

there are lots of disadvantages that need to be resolved soon. One of the things is the fact that this process is so time consuming, it takes days to be performed because it includes six different steps and covers evaluation and decision- making for 80 people. The second thing that also can be considered as disadvantage is that it requires lot of efforts from the management and can be really exhausted. It requires lot of work and takes several days, so the professionals involved spend their energy, entire working time, and concentration only on this task, while the other things not considered as urgent or priority wait. And, the last but not least thing is the possibility of bias. As the process includes 80 persons waiting to be evaluated from one side and only 3 or 4 persons who are going to do it from the other side, there is a great room for suspicious that it might has biased decisions. The managers of the departments who are included in the process can be closer with some of their hires, might have personal problems with others or simply by their personal opinion some of their team members are valued more than others. And it is something that affects the whole process, as well as the overall atmosphere and satisfaction within the firm, and needs to be resolved as soon as possible.

3.3.6 Salary changes

The salary changes into the company are an ongoing process and these changes can happen by many reasons. We divide the reasons to positive and negative. They can happen when there is a time for annual raise on general level to the all employees within the company; when there is a decision for someone's raise based on his/her results, exceptional performance and progress; with each year of work and experience past into the company; by other occasions that are not predicted in advance, for instance if the client wants to reward some worker, if the worker made something that increased the company's profitability or competitiveness etc. These positive rewards are no longer given by the old traditional way but with the introduction of business process reengineering they transformed as individual rewards, team rewards or rewards for developing career path (Zucchi and; Edwards, 1999). This practice is more justified because rewards are given by achievements, and needs to be implemented and followed by all organizations. The negative changes come as a result of some action that is considered as not allowed. However, these negative changes happen very rarely when there is no other mechanism (disciplinary measure, letter of warning, counseling etc.) for solving the situation.

Regular changes and those that need to be given according to the law and regulations are done automatically into the program for financial and accounting activities. The changes related to the performance and work of individuals are recorded by the managers and team leaders during the everyday work, and are presented to the meetings that are held at the end of every year when the main topic is reviewing the appraisals work and performance of workers and deciding about their further rewards. The current state does not allow immediately recording of the actual results into the program by the managers or HR personnel but the information needs to be recorder by the people in charge for control and monitoring of the work, they need to update the HR management for that and the final

decision and review will be done by the top management. When speaking for these changes based on the work performance there is an open place for automation. If there is an internal HR system or software the process of performance review and salary and benefits changes should be connected and the changes in the one field should trigger appropriate changes in the others.

3.3.7 Benefits changes

When speaking about benefits changes we mean giving advantages such as additional rewards and perks to individuals additionally to their salary changes process. The procedure for benefits changes also contributes to increasing the motivation and satisfaction of workers, increasing the company's reputation, and in retention process. As benefits and perks we consider transfers to international projects, vertical promotion, recognitions for achievements, one-time rewards or gifts for outstanding performance or deducting some of the given benefits, taking a disciplinary measure over some worker if he/she did something that is prohibited and triggers serious consequences. The process of rewarding or deducting benefits is also unpredictable and it is not automated. The reason for this given by the management is that there is no way to automate the process entirely by itself since the current IT architecture in this particular office is not the same as the one in the central office and there is a risk of fail in the implementation. This process varies and when a change in the work or behavior happens, the appropriate measure is taken. However, there is a room for automation. We still do not know how complicated it may be, but it is achievable. For example, it can make direct connection of the process of work and time performance review and the salary and benefits changes. Also, these changes need to be recorded and stored somewhere just to have them as a historical background for the behavior and performance of each individual and to use them whenever needed. Here we come to the point of developing employees records.

3.3.8 Learning and development of employees

This process as ongoing process is devoted to employees entirely. The company has obligation to provide all employees with all needed sources and materials important for effective and efficient work, to give them training, courses and workshops that are essential for improving their performance, for gaining extra knowledge or new skills. This company decides internally how the process of learning and development will be organized. For now, it has permanent sharing knowledge sessions that are taking place every week in each team where one team member shares some knowledge or experience tips with colleagues. Another ongoing procedure that is available is the monthly courses and seminars the company organizes. These events take place two times in a month and each month the course is from different field of work for different team of workers. The method can vary from online course, in-house training or seminar by visiting partner organization. The topic and purpose of the next part of training and development processes

is defined by the HR department based on the information it gathers from the permanent daily observations, conversations with employees and work evaluation. There is still not automated solution for this part of HR even there is a possibility for that. The work of the HR department will be much easier if the company has a database of employees' preferences and real needs of skills and knowledge, evidence of already held activities for this purpose, cost overview and feedback of the entire process. On that way, the company will be much informed what should and what should not take as will know which actions showed as effective and beneficial, and in the meantime will avoid overlapping of activities.

3.3.9 Employees records

Employees records are the physical files of the employees where all important information and documents for them as hired in the company are stored. The records contain the official contract, additional annexes to the contract, proofs for annual medical check, documents for used vacation, or having sick days, monthly accounting papers for salary calculation, certificates prescribed by law, additional certificates and documents important for the workplace: for work travel of the worker, transfers, educational diplomas, certificates for training, conferences, courses, skills certificates, proofs for work visits, internships and so on. The hard copies of them are stored in separate files for each worker and updated regularly. The records are used for having an evidence of the overall status and work of each person. By having them, the HR professionals can decide about the overall work and progress, as well as further qualifications of the worker, what kind of training and development activities to give, and where to narrow the entire process of training, learning and development. From the other side, workers will have all important documents on their account and will be well informed about their status, rights and obligations.

Employees' records cannot be equalized with HR process as they are not really a process but it is additional work of the HR professionals where they are obliged to keep a record and make update of all important information for each worker employed. It is an ongoing procedure which execution is legal obligation for the company. Moreover, this collection of data will be of great benefit for the company and will help in maintaining the other HR procedures- the guidance and counseling of workers and ensuring the stable and permanent employee-employer relation. As it includes lot of work, we believe it needs to be automated, also and in the next chapter we are going to describe how we imagine to achieve this.

3.3.10 Employee retention

The process of retention is the sum of all procedures and activities the company takes in order to increase the employees' satisfaction and motivation at work and to diminish their

turnover. It is a strategy of the company how to eliminate the risk of people who want to leave the job, to keep its reputation, and to reduce the costs for recruitment and hiring. The biggest responsibility for maintaining this process and reaching its goal falls to the HR department and their policies and management. This process is not so “visible and tangible” as the others that are happening every day as the outcome of it happen as a result and consequence of the other above explained processes and procedures. For keeping the worker’s turnover on the lowest possible level, the HR department needs to be in constant touch and contact with employees and their needs from one side, and with the constant industry and global changes and trends on the other. According to some survey taken by the Economist Intelligence Unit survey in 2008 (Economist Intelligence Unit, 2008) the employee’s retention is directly correlated with the employees’ benefits offered at the work place which give them value and reason to stay. For example, as the most important factors that the company needs to have are the flexible working hours, higher salaries and benefits increases and recruitment and training internal candidates. Form this we can conclude that all mentioned processes and procedures Cosmic Development has are very important and needed but their improvement is necessary not only for simplifying the work within their field but also for managing the retention process. Currently, there is developed program for this part, but it is only available as hard copy document included in the legal part of the HR department. With having own internal HR software, the retention process will be improved in the same time as the all other processes are improved and performed more efficiently and effectively.

3.3.11 Resignation and termination

The least wanted situation that can happen is the one when some of the employees exit the company. The company itself does not give a contract termination to the employees since it is just the bridge between the companies from abroad that hire people and the people who work for them, so it just transfers the client’s decision and prepares the documentation for termination. This is not so regular practice which is one of the most positive things of the company compared with its competitors because when Cosmic receives a notification that some of the clients does not have tasks or projects for the current employees, within the given period of one month of notice period it tries to talk with the client once again to see whether the worker can be transferred to another position, also checks with the other clients whether there is an open position that suits with the worker’s education, experience, skills and qualification, and as last option recommends the person to the other companies and institutions with which has constant collaboration. If nothing of this works, then the work terminates.

The same process repeats if the worker gives his/her letter of resignation. In the notice period the HR team tries to talk with the worker first in order to see what are the reasons that led to that situation, to hear from worker’s experience what can be improved and tries to negotiate and to convince the person to stay, if possible, tries to improve the

conditions that led to that and if that process is successful then the entire process stops, but if it does not happen then the process terminates. In both the worker is asked to participate in an exit interview so the company will have information about the worker's thoughts and feedback for the company, the reasons for exit, advice for the future, and the data obtained is archived and stored for further use and improvement of the situation. The whole process is done manually by having calls with the clients, meetings in person with the worker, writing the reports of the interview and preparing the paperwork.

Obviously there is a possibility for automation here by only in some parts. The process of exit interviews and paperwork can be added in the company's HR program and the templates can be used whenever needed. We believe that the mentioned part of the resignation and termination processes can be automated, while the exit interviews must be in person. By automating these all processes, the other ones such as maintaining strong employee- employer relation, providing guidance and counseling, the activities for retention of workers will be directly correlated and therefore improved. If the company sees a need for opening an option for them in the program, can do that very simple and easy since the program will have that possibility for custom actions.

4 DISCUSSION ON THE CURRENT IMPLEMENTATION OF BUSINESS PROCESS MANAGEMENT INTO HUMAN RESOURCE PROCESSES WITHIN THE COMPANY

As we can see from the previous explained parts of the Human Resources and the conclusions we can derive from the interview conducted, and the way of their functioning within this company, work inefficiencies can be diagnosed. The as-is models presented above explain the ongoing processes in separate fields of HR department and in the majority of them an obvious room for changes can be seen. Firstly, the ongoing HR processes are too complex in the communication and structure, and include a lot of steps done solely by people hired. Next, the same processes include a lot of paperwork also prepared manually which is an indication for time-consuming processes that lead to inconsistency and inefficiency. Lastly, by devoting so much time to the HR processes and their documentation which is definitely more like routine that needs to be done, HR professionals lose their time that rather can be used on other much more important and innovative things.

That leads to creating an opinion that there is a room and need for eliminating all gaps and inefficiencies that exist. We come to the point of our plan when we need to describe the detailed steps and the analysis for future improvement of the processes.

4.1 Analysis and suggestions for improvement

In this part of the thesis we are going to describe the possible to-be models of the Human Resource processes and how they will look and function after the full automation and building the desired e-HR system. The practical examples are made on estimations based on the current stage, strategy development and business process reengineering for improved solutions. They give a description and image how it will look like. For having an insight how the already implemented and available apps look like and what offer we used some of the support materials for these apps, while the dashboards of our own are personal work.

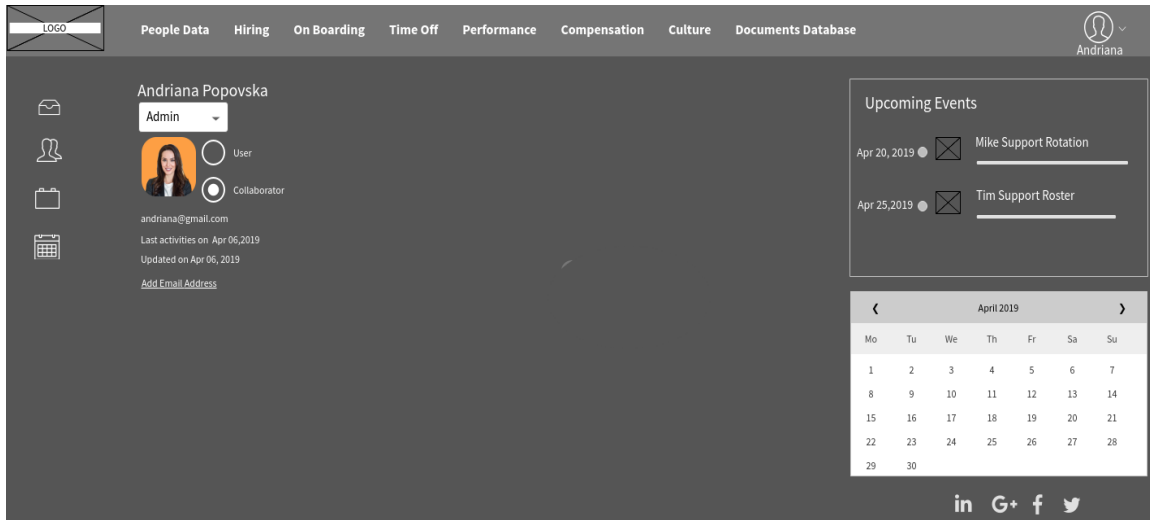
Before we start with expressing our thoughts and ideas for improving the whole situation, we want to make clear one thing. Since we mentioned that we coordinate our work with already created and used software such as BabmooHR (for internal purposes and trials), and Google Hire and KissFlow (for learning the essentials), for the same issue we want to solve, the question “why we do not just buy one of it and use it as it is?” rises. The answer is justified on the following way: we tried that systems, they are very well organized and explain everything in details, but, however they offer fixed tools for automating the HR processes and there is no option for adjusting them to our company’s preferences, or are limited and do not even have an option to add another process that we consider important. For example, we want to add the benefits changes procedure alongside with the compensation process; the termination and resignation procedure into the system and there is no available option to do it; want to have option for generating statistics in every moment; and also want to have an option for adding/deleting/modifying some process or procedure. This thing hardens the situation and there is a risk to be in a situation when we cannot optimize something just because the program does not allow that. And that complicates the things.

Another thing why we are more about developing our brand new system is the fact that it gives us a step ahead on the market. The whole process of creating might take a year or longer, it also requires financial means and lot of human work, research, and expertise consulting, and after that some time for training for use and coordination between all entities included, but it surely has returns of investments.

The software we develop is mainly focused on its usage from admin’s perspective (the HR specialists). Each employee will have its own personalized dashboard with a segments or fields for each particular HR process important for him/her, and the HR professionals will also have a separate admin dashboard for managing the processes, data entry, and coordinating their work between themselves, with the clients, as well as with the other remote offices. Before to-be models and the approximate look of each automated HR process are presented, the main general dashboards will be presented.

On Figure 9 is presented the main HR admin dashboard containing the main personal information for that person, the last activity of him/her, updates if any, and other important options such as calendar with activities, shared databases etc.

Figure 9: HR admin main dashboard



Source: own work.

The ribbon on the top contains several options related to the main groups of HR processes. Each of those options is clickable and has a list of other HR processes in addition.

By clicking on the People Data tab, a list of Employee's Records appears as well as a search option for entering the worker's profile with personal info, documents and details. By clicking on the Hiring tab, a list of options about: Candidate Database; Job templates; Schedule with interviews/tests; Applicant Tracking System; and Selection appear. Under the On-boarding tab another tabs for: Pre-boarding; Culture orientation; New hire On-boarding; and Reports and Analytics (that mainly helps in the retention strategy) can be opened.

Time-off tab also contains clickable: Leave requests; Sick days; Home office days; Maternity/Paternity Leave; Upcoming time-off calendar with overview of current vacation days for all hires; and Reports and Analytics. The tab for Performance Reviews process also has options for the following HR processes: Employee's Workflows; Feedbacks from clients, managers or team leaders; Work Performance Reviews database; the Time Tracking Program that the company already has; and Reports and Analytics; The compensation gives tabs for entering the processes of: Salary changes; Benefits changes, and Penalties. Under Culture tab will be added the Learning and Development past and future activities, plans and documents; Performance management; Talent Management; Employees satisfaction evaluations; History of activities; and Reports and Analytics. The last clickable tab is the documents tab which will give an access to all stored documents

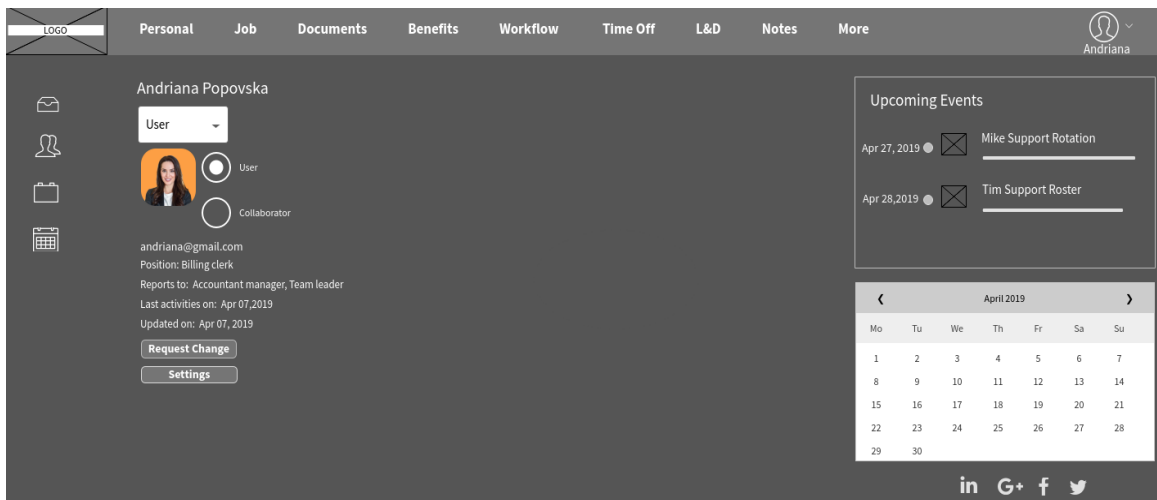
related to employees and HR processes sorted in several groups according to their nature and purpose (Legal rules and procedures; Contracts, Agreements and Annexes; Documents for health and safety at work; Documents for prevention and protection at workplace; Documents for assistance and counseling of workers; etc.). Here will be also included the templates used for exit interviews and their records, which will be automatically connected with the Reports and Analytics section.

On the left side, the vertical ribbon gives four different options.

The first icon represents the option that is directly connected with the working email of the HR admin and shows all messages and notifications of the admin. The second icon shows the customization button, where, with a prior approval and decision on management level, the HR department can add or deduct some of HR processes or parts of processes, can change some parts into particular employees' accounts, can open or delete new account and so on. Moreover, gives option for limiting visibility of some data for particular users if there is a need for that, and the opposite, gives temporary access to others. This option is very important for our research as it gives new feature of this kind of software which is very important opportunity for the company. It is the one that gives high level of customization of processes. The third checkbox gives a detailed list of other programs or internal apps of the company that contain data important for the HR department. For instance, here will be accessible links to the accounting program, the official website of the company, the official websites for employment where the new vacancies can be posted in a second, and link to the official sites or emails of the partner institutions/companies/organizations, link to the program for evidence of employees' total working experience and so on. The last on the list is the overall calendar with activities, scheduled meetings or other events, planned things on a given date and so on. The other good thing that the calendar gives is synchronization of it with the activities' calendars of all other workers. Figure 10 gives a visual presentation of our initially developed dashboard for employees' purposes. If the admin dashboard is visible only to the HR professional who has an access to it, the user dashboard is visible by the individual employee as well as the admin, HR manager, HR assistant, the client, and the team leader. They all have shared access to it.

As can be seen, both dashboards are similar one to another.

Figure 10: Employee's dashboard



Source: own work.

When entering this one, it gives personal info about the hire: name, surname, position in the company, to who reports that person, last updates and who made that updates. Additionally, it contains a ribbon with clickable tabs. The personal info tab gives all important information for the worker: Besides the already visible info, it shows address, emails, as well as other interesting details which are important for team building and culture building: hobbies, sports, interests, things that the worker loves/hates etc. The job tab contains hire details (hire date, full/part time, team, team leader), and job history (initial position, position changes, promotions etc.) and all the paperwork related to that. By entering the Documents tab, the users can see all attached personal documents of the worker (resume, diplomas, certificates, licenses), and the worker can also modify them or upload another ones as he/she achieves them. The Benefits field contains fields for viewing details from the salary and benefits changes, and also having a salary/benefits changes history. The Workflow is a work dashboard for the worker. The worker has a shared Schedule of work tasks and activities and their workflow together with the clients. The following tab of Work Progress is closely related to the first one, and it will have an overview of the entire work tasks, and info for completed, pending, unfinished tasks etc. The tab Client's Reports will have all reports given from client for that worker, while the Analytics tab offers option for making data analysis of the work. Next to the workflow will be the tab for Time offs and related processes. It will give to hires access to their checktime system that the company has already; will also have requests templates for all types of time off and Vacation calendar for tracking personal and teammates' days off. The Learning and Development tab will show the upcoming events, training, courses to worker, and access to those where that worker is enrolled and needs to attend, and the same tab will give an option for seeing the history of previous activities for professional growth. The user's dashboard will also have a possibility for adding fields by anyone who is given an access to it.

The vertical ribbon has four checkboxes, similar as the one of the admin.

The first one is the working email of the worker. The second box leads to the customization part. Here the access is different. Employees do not have right to change something in the processes but they can send a request for that. If they need something to be changed, have some idea that will solve or simplify something, can send a request note with explanation to admins. Another thing here is that they can see the updates and changes in the customization process in the same time as admins finished them. The third box is a notification box where they can see all new open job positions in the company' offices, can follow their working experience, and monthly salary calculations, and also will be able to see all other activities that Cosmic made or is going to make with the partner institutions. The last one, same as admin's page is the synchronized calendar. On this way, the entire work of the worker will be very well organized; his/her portfolio and profile will contain all important data, as well as all data and work-related documents, and most important thing is that the entire database will be only one click away from the HR people as well as from the client. This will enable error free work, transparency and confidentiality, and strong communication and co-ordination. For now on this is the basic representation of the main dashboards that can be entered only and exclusively by limited number of people by log in with username and password. When there will be mobile app, the same will be available through some options that AI offers.

4.2 Improvement of recruitment and hiring process

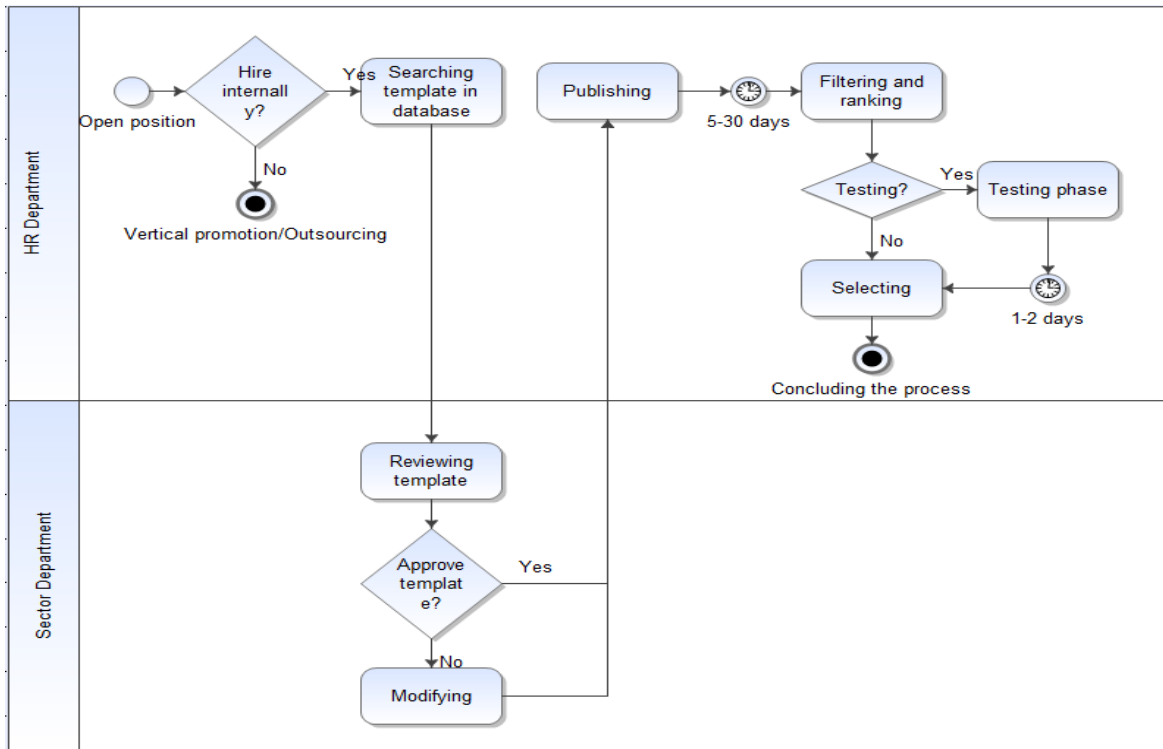
The current situation in this part says that there is an open room for developing an e-recruiting program here within the company. The first step or the strategy development step found out that the terms and conditions for recruiting and hiring are mainly determined by the labor market. Since there is a real war for some types of jobs, the strategies, tools and processes change according to the open position. Even there is a partly automated process since the management uses saved templates and just needs to find the appropriate and most suitable one, this step of recruiting can be improved by performing a business process reengineering and then using internal program where the client will put the exact job position for which needs a worker, and on that way the same program will throw out that template which is the most suitable, and based on that then the HR management can prepare the job post. The publishing of that job post will be automatically connected with some channels and sites for employment and attracting new candidates; the process of application will be also part of this which means that the online application will be received and directly stored in the system.

The step of recruiting is closely related to the next steps: selection and hiring, and all together perfect place for automation and optimization, starting from the point of resumes receiving, finishing with the final choice of the best candidate, BPM can do and organize the entire process without bias or personnel efforts. The process continues exactly at the same time when the online application is finished. How this will work? It will be connected with the company's email address that is used for applications (careers@;

recruitment@; etc.) or the website where the job posting is published and a direct application to the server is enabled. All resumes will be stored directly without need for manual download and storing them into given folder. When the deadline for application expires, the management opens the server/program and moves all resumes into created checklist within the same file and applies filtering. When all resumes are uploaded, the program ranks them and separates the suitable from not suitable with red line based on the filters applied. This way, there is no need for checking and comparing the resumes one by one. This list will be much more readable for the persons charged for selection. Then by selecting all candidates that are marked as “passed”, an automate message with invitation for interview will be sent to all of them and also a customizable email template for informing about the outcome is sent to the candidates who did not meet the criteria.

When the phase of interviews starts, with a prior consent obtained from all candidates, the conversation will be recorded for easily second checking and having a proof for the correctness of the final decision. If there is a testing phase, the candidates will be required to fill the answers on computer, so they will be directly evaluated and graded. The work of the management then will be just to add additional comments or notes to those candidates that were more successful than the others on the interview. From the presented above we come to a point when we want to summarize those things or properties of this part of the system that are the most important. The recruiting and hiring automated process must have seamless integration; proper storage option; must be collaborative; easy access; and to give progress reports. The option for seamless integration will enable possibility for applying for open position through email, through the easy application button on the official page of the company or even by using the vacancies options for applying on websites or other internet sources; the storage option means that all resumes will be directly stored and kept without need for human effort here; the collaborative feature of this part of the system enables steps to be synchronized and connected one with another in a circle, so the application phase will be connected with the filtering phase, that will be directly linked with the panels for interview and scoring tables and so on; the easy access will give equal opportunities to each interested candidate to apply from one side and to each manager or HR worker to enter this part of the HR processes and to check the status or stage of the process by only one click; and the final important thing we need is to have progress reports of each stage where the status and percentage of process completed will be showed, the automated messages to each candidates will be sent, and final outcome of the entire process will be formed. Both, the recruiting and hiring are together presented as optimized processes on the Figure 11.

Figure 11: To-be model of the recruiting and hiring process



Source: own work.

After these steps, the program should give a detailed table with final scores and status of the candidates as the one we present on the following Figure 12. It automatically highlights the one who is the most qualified and competent for the open position and who should receive an offer letter. The score bar gives the final amount of points each candidate got from the recruiting phases, the date shows the application date, while the status describes in each phase every candidate currently is, while the source gives info from where the candidate's application is received or from where the candidate found out from the vacancy. The source tab gives more data collection for further analysis and statistics the company performs for internal needs.

Figure 12: Scoring table for selection process

	Score	Name	Date	Status	Source
	75	Liam Jones	1/1/16	Phone interview	LinkedIn
	92	Pat Simon	1/4/16	Hired	Careerbuilder
	80	Kelsey Bob	1/5/16	Hired	Online
	64	Li Xi	1/19/16	Not selected	Referral
	94	Cayleigh Smith	1/30/	Hired	Careerbuilder

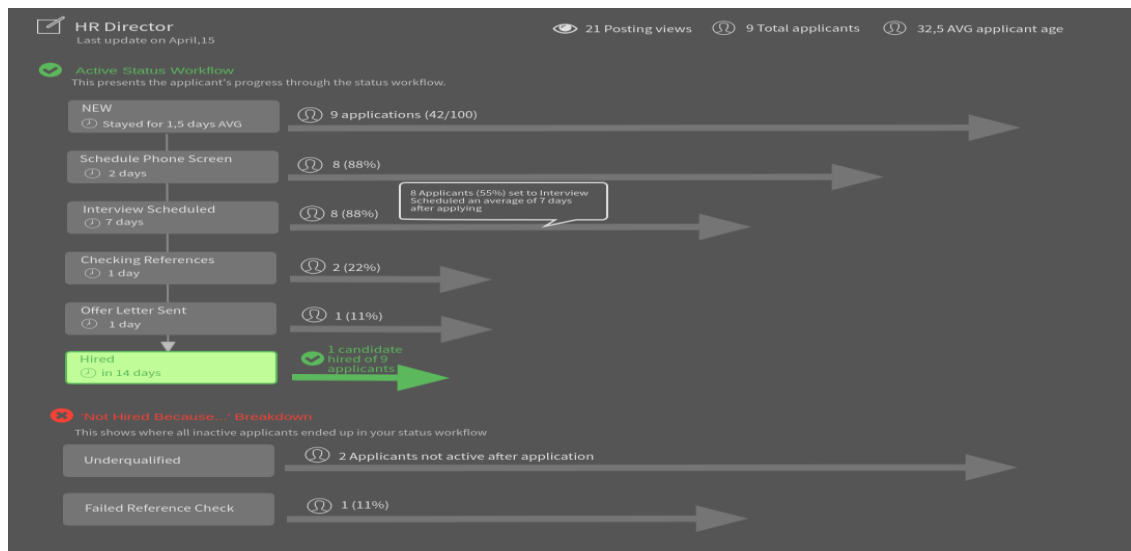
Source: Reprinted from Coursera.com, (no date).

Another part of the program will show the total progress of the candidates through the status workflow and we show it additionally on Figure 13. The window opened into the dashboard of the HR manager contains information about those candidates that passed the first part of the selection process. It gives detailed information about the current status of people who were invited on interview, after how many days from the application day they were interviewed, how many days on average the screening references process took, how many days the entire process lasted etc. This part is more efficiency narrowed, meaning that is more useful for the HR departments for further improvements than for the current open job position. This part of the system helps for getting to know about the gaps in the latest hiring process, what parts can be improved, how long should we wait in future when hiring someone for same or similar position, what needs to be added/deducted from the process and so on. Even this thing is not directly connected with employees it is important part for having statistical data that will be used for further improvements, increasing the employer branding and increasing the efficiency and reputation of the company.

The current proposed model of automated HR sector now will not have a mobile hiring version but in the months after the implementation of the desktop version. The reasons behind this lay in the fact that at first the desktop hiring app should be stable, functional and manageable, after that it can be transferred to mobile phones; the second reason is security. We believe that an access to the hiring and selection dashboard should be exclusively given to several people and only from the office network domain. On that way the whole process will be secured from misuse, biased treatment of candidates, unauthorized use of the data and personal information. Once we are sure that the desktop digital solution gives the standards we want, we can switch to mobile version development and connecting it with the best and most suitable AI options and features.

Figure 13: Screen of HR dashboard for overview of the selection process





Source: own work.

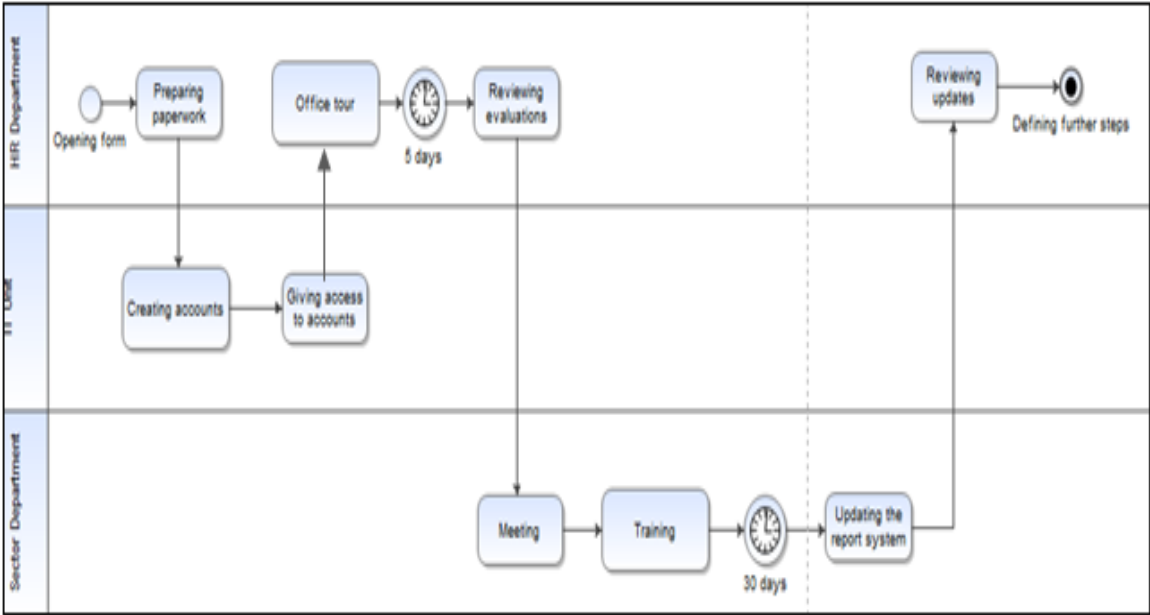
4.3 Improvement of pre-boarding and on-boarding process

The next step from the automation of HR processes is the part of pre-boarding and on-boarding. Strategy development in this part requires developing of only one approach for all subsidiaries and for each new hire. The process of reengineering is devoted to shortening the steps and time of preparing documentation before the whole thing starts. When the new employee is chosen and the entire paperwork for him/her is prepared, the IT department will have a task to create all accounts of the new member and to give him/her an access to all data important for his/her first day at work, information about the team, main responsibilities and duties, before he/she comes at work. On that way, the first day at work is much more simplified and nobody is charged to explain in details all the data that is now sent to the hire in advance. The only thing that needs to be done will be meeting with the HR department and the department where the new hire will be working. Here will be explained all details and all questions will be answered, and a simplified to-be model will be showed on Figure 14 below. BPM enables the team leader of the department to follow and record the results within the first month of training and work. Based on the data stored in the program, the management will be able to decide and define the further steps with the new hire, whether he/she performs according to or below the expectations, does he/she need additional support etc. Compared to the features of the existing HR management systems, our system will have more or less the same essential feature like theirs, but in this case they are going to be highly customized. The must haves of the part for pre-boarding and on-boarding automation are: Self-Service option for candidates, Customizable Workflow, Multi-user access, Electronic forms and e-signatures, and Compliance management (Bhuvaneshwaran, 2018). The self- service option is more than important since we speak for giving an access to the candidate chosen prior he/she comes at work; the customizable workflow offers the candidate a chance to work and learn alone, to learn the software very quick and easy, and in the same time the workflow for particular

task will be adjusted according to the individual and his/her role, for instance the on-boarding workflow will offer different perspectives and options for use for the worker and for the manager or supervisor; the multi-user access is correlated with the option for having customizable workflow, meaning that in the same time the manager and the new hire can access the same window of the program and work independently; electronic forms and e-signatures are the must have option for having an electronic version of the program that provides unique access only to the person who enters the signature, and also can be recognized who took some activity with recognizing the signature; and the last must have-the compliance management will be part of managers' work where they need to ensure that they plan, organize, perform and monitor the activities according to the regulations and standards.

As it can be seen, the proposed to-be model on Figure 14 is much more simplified and includes only few things that need to be performed actually by the personnel while the other steps previously mentioned that exist in the current as-is model will be automated and the data will be automatically updated and refreshed every time when someone does new action into the system. The rest of the activities the hire will do by himself/herself as the company will send everything in advance.

Figure 14: To-be model of the pre-boarding and on-boarding processes

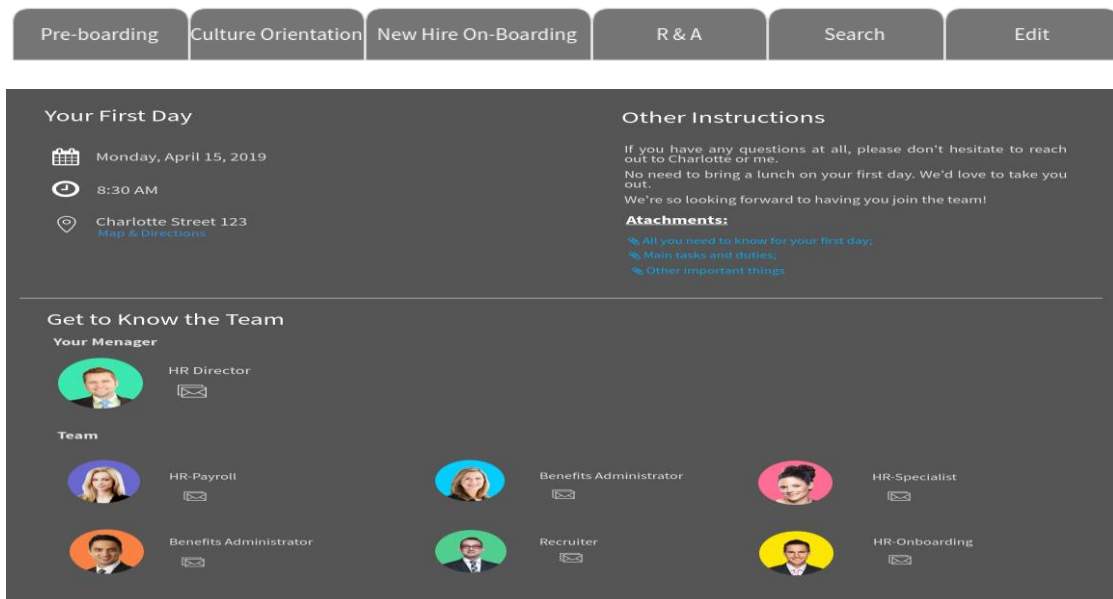


Source: own work.

The dashboard of the hire after he/she gets an access will be approximately same as the one on the Figure 15 below. This is the pre-boarding dashboard with all important information the hire needs and it is activated once the hire is invited to log in into the system by the IT unit of the company and receives its own access to it. Additionally, the company enables

the hire to download and read all important things for his/her work, duties, how the first day looks like in advance, and also gives a chance to get to know much better the teammates. That is a key for success and having an engaged employee. By providing the new comer with all of these important updates, the management will not spend time on the same things twice and will focus on explaining the most essential things, while the person will have more or less a feeling that is informed on time and accepted already in the organization and will be more relaxed and less stressed.

Figure 15: Pre-boarding dashboard

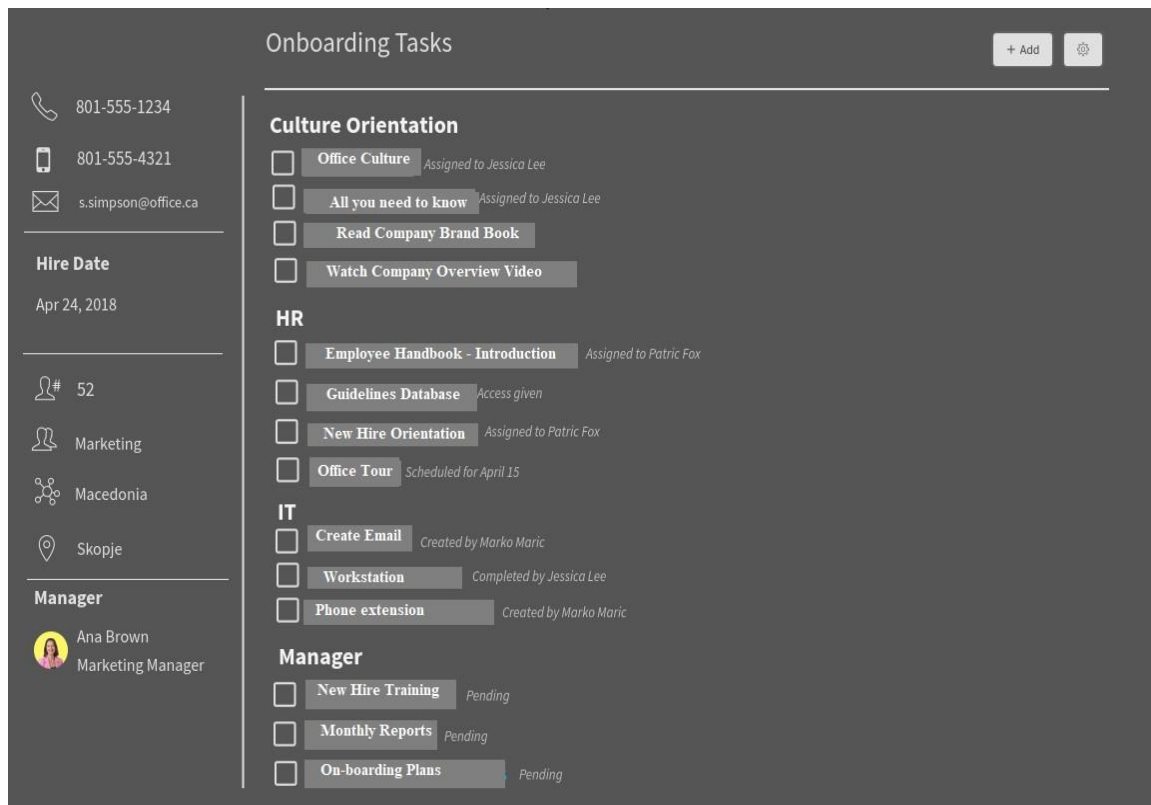


Source: own work.

The software offers a help for the orientation. The screenshot presented on Figure 16 is an example of the window that will be able for both sides- the employee and the employer where some good to have and good to know information will be attached.

The Culture Orientation section contains three parts that are connected with the company, its history and general overview; the second part dedicated to HR is also an introduction part with essential information for the employee regarding work, work guidelines and instructions, and office tour for adjustment; the third part is mainly job of the IT department and should be organized before the first day of work since it includes the technical parts and facilities of the work; the final part of the program is a managerial part that includes attachments prepared by the manager or team leader charged for the new hire, who needs to upload important materials, schedule with following training sessions, courses and so on. This part is going to be refreshed and updated in future as the monthly meetings are held and according to the decisions regarding further development of the worker are brought.

Figure 16: On-boarding dashboard



Source: Adapted from BambooHR.com; (2019).

We decided to show and describe thoroughly the culture orientation part of the on-boarding process as we consider that it is in mutual connection with the other processes and procedures of the HR. If the culture orientation is done correctly the results influence the overall on-boarding process, the organizational culture of the company, the motivation, satisfaction, and retention of employees, and also give results for the future decision-makings and forming activities under the Learning and Development. Having it automated means that we simplify others mentioned.

4.4 Improvement of time performance review process

The system for time performance is an automated system managed with an internal program for tracking and registering the time performance of all employees. It provides detailed review with the total worked hours, the off hours and the overtime of the worker. The internal program developed for this purpose within the company is called checktime. The main goal of this checktime program is to register and track the time management of each worker and to provide enough information for the overall time performance of the worker (Cosmic Development, 2019). Checktime works on a principle of registering time by using employees' cards, so the system registers and stores data about start time, end time, breaks, overtime, and breaks because of work purposes. The rule for time

performance requires having minimum 39 effective working hours per week, 2 breaks in with duration of 15 minutes each and 1 lunch break of 30 minutes (Cosmic Development, 2019). Each additional time spent on work or break needs to be justified. By entering the dashboard which is also presented on Figure 17, the admins have data about the current date or time period when they enter the program. The general list that is presented on the Figure 17 below is the first thing that appears on the dashboard and gives an overview of the time changes beginning with the recent change that happened.

If the administrators or managers need some important information want to search into the past days, weeks, months, years, they can use the admin dashboard which is with limited access given to only several persons. The program gives options to filter or search by action (shift start/end, lunch break duration, overtime, time of leaving the workplace because of work purposes and time of returning), by user, and by location of the office. Moreover, it gives option for searching for errors made in order to fix them. For instance if someone submits information that made a pin error, his/her card was showed as invalid, time performance is not showed or the access is not permitted, the same input will be shown on the general admin’s dashboard as a sign that something needs to be changed.

Figure 17: Current view of time performance

РК	ТИП	ДЕЈСТВИЕ	ВРЕМЕ	USER	DEVICE
126058	Пристап	Крај на смена	Датум: 20.02.2019 Време: 20:06:00	a.grozdanovska	Апаратче - Битола
126057	Пристап	Крај на смена	Датум: 20.02.2019 Време: 20:05:54	f.nikolovski	Апаратче - Битола
126056	Пристап	Крај на смена	Датум: 20.02.2019 Време: 20:03:28	e.velichkovska	Апаратче - Битола
126055	Пристап	Крај на смена	Датум: 20.02.2019 Време: 19:46:20	a.leshnerov	Апаратче - Битола
126054	Пристап	Крај на смена	Датум: 20.02.2019 Време: 17:07:20	a.pandevska	Апаратче - Битола
126053	Пристап	Крај на смена	Датум: 20.02.2019 Време: 16:44:07	k.popovska	Апаратче - Битола
126052	Пристап	Крај на пауза за ручек	Датум: 20.02.2019 Време: 16:30:03	f.nikolovski	Апаратче - Битола

Source: Cosmic Development, (2019).

Another very important part from the current checktime system is the schedule with actions. Particularly, it is a list several activities linked with workers’ working time. The list contains a field with requests for making changes in someone’s time performance overview list; detailed list with a chronological review of the time records for all registered users; list of absences; reasons for absences; remained days off. The picture below shows that part of the program, which we consider as very important because if our attempt for having automated HR application this part can be synchronized with that application. By exchange of information, the list with reasons for absences and the list with remained days off of each hire can be directly transferred to the program so there will be no need for

additional manual work in the lousy excel sheets or coordinating the data in numerous paper files.

The information from this program, especially those for overtime are very essential during the decision- making for salary and benefits change. The overtime is extra paid as bonus. It also serves as a benchmark for comparing the effectiveness and capability of workers, for comparing individual achievements for same working tasks, and for obtaining other information important for the work performance.

From user’s (in our case the worker) perspective, the personal dashboard looks exactly like the example given with Figure 18. The checktime system enables the worker to have up-to date record of the working hours and own performance by days, weeks, months, and years. The system summarizes the weekly hours of the employee which is very important for the company because as we already mentioned, the internal rules of the company require minimum 39 working hours per week, meaning that the weekly performance is the base for measuring the effective and regular time performance. It gives a chance to each employee to check and see his/her time performance and in case of less effective working time, to correct it on time. Also gives employees an option for requesting a change in particular part.

Figure 18: Time performance overview for particular employee

04 Февруари 2019 - Понеделник				⊖ Побарај промена на време
Старт на смена 08:20:07	Крај на смена 16:32:54	Паузи 12:03:17 - 12:29:54	Вкупно 07:46:10	Детали ▾
05 Февруари 2019 - Вторник				⊖ Побарај промена на време
Старт на смена 08:00:37	Крај на смена 16:29:27	Паузи 12:02:51 - 12:21:58	Вкупно 08:09:43	Детали ▾
06 Февруари 2019 - Среда				⊖ Побарај промена на време
Старт на смена 07:27:48	Крај на смена 15:10:27	Паузи 12:05:25 - 12:19:39	Вкупно 07:28:25	Детали ▾
07 Февруари 2019 - Четврток				⊖ Побарај промена на време
Старт на смена 08:04:50	Крај на смена 15:42:37	Паузи 12:02:44 - 12:13:37	Вкупно 07:26:54	Детали ▾
08 Февруари 2019 - Петок				⊖ Побарај промена на време
Старт на смена 07:58:30	Крај на смена 16:26:27	Паузи N/A	Вкупно 08:27:57	Детали ▾

Source: Cosmic Development, (2019).

This part from the HR processes is already automated and is one very good example how the automation of the processes can improve and optimize the overall work. The only thing that needs to be putted into practice in this part is connecting this already established program with the main HR software system we want to develop. For now we will stay to this point but in future will want to improve the validity, security, and correctness of data by using AI features in this as well as in the mobile version.

4.5 Improvement of time off requests and tracking

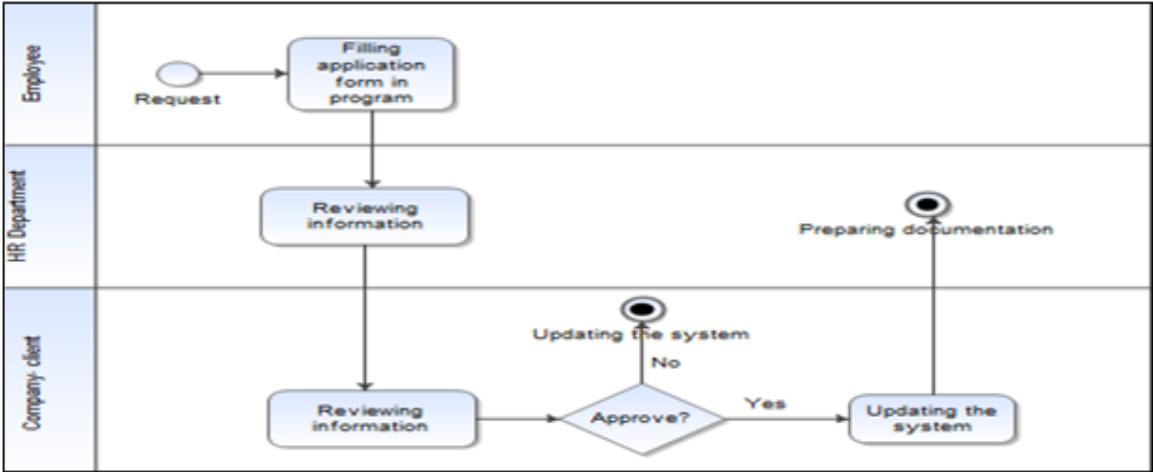
We realized that no task from this process was supported by IT and each of these tasks was done by the HR personnel. Hence, we are going to develop a strategy for radical change of the current practice and its automation in order to ensure that all information and changes in data are recorded, that the data is correct and both parties the clients and the workers are updated for any changes on time. This BPM internal program or system that we want to develop within HR processes will enable continuous updating and tracking of time off requests and tables with absences. The process is defined by having internal automated database with a detailed list for each employee with total number of vacation days by law, the number of used days out of total, the remained number, reasons for taken days (vacation, sick days etc.) and a calendar with the upcoming offs if approved already. Access to this part of the system will have the employee, the employer, the team leader and the client. There will be no need for checking and reviewing the entire documentation and archive in order to see the remained number of days used, and based on that to request permission from the client company. Instead of that, the employee will only need to fill the online application form and it goes to the client and HR management notification part at the same moment. The approval or rejection can be done with only one click. Based on the given answer from the client into the system according to their schedule, planned activities or other reasons, the HR department monitors the changes and prepares the documentation needed while the updates are automatically made. In case the client is busy or off and does not respond on the pending request, the same will be automatically re-send if the answer is not given in period of 5 days. It is important to mention here that the team leader does not participate in approving, rejecting or requesting days off. The team leader has power to add comments for giving or not giving approval if something urgent or unpredicted rises into the team. The reason behind this lies in the fact that the company considers that the teamwork is organized in advance and that the worker consulted and coordinated with the leader upfront, so the access given to this person is more for having a permanent view into the schedule of workers so can organize the work activities better.

In this part, the newly defined process needs to be standardized for all companies which are clients of Cosmic Development. The standardization will enable unification of the processes and equality of all clients and of all employees too.

The to-be model presented below on the diagram gives a clear presentation how the communication steps will look like. Compared with the current situation, the new one is much more simplified, it is few-steps process and each party will know its own responsibilities and duties. Estimated time for completing the process of leave request is several hours. The tracking and refreshing the updates of the total amount of days is permanent process which requires only minor manual input and work. In this part of the system, as in all other parts that we want to automate, are some rules or specific features that it must possess in order to be effective, efficient, legal, and designed for achieving the

goals and targets. Our proposed must haves are: auto-updating of the information; configurable steps; and high customization. The auto-update option will help in eliminating the risk of making errors in the program. It can be used for automatic saving of the information added or for auto recovery if this command is needed. The configurable steps give opportunity to access the field desired (sick leave; vacation; maternity/paternity leave) and enter the specific details there (reason, duration etc.), and after completing these actions the auto-update option gives refreshed status of that worker: is the request sent, and when the answer is given the changes (approved/not approved; days remained etc.) will be configured. The high customization means that each worker will have own window where can see his/her status without having to search in different fields, filtering information, or even requesting access or answer to the things he/she is interested. Our proposed solution and explanation have a visual to-be model as the one on Figure 19.

Figure 19: To-be model of the leave requests and tracking process

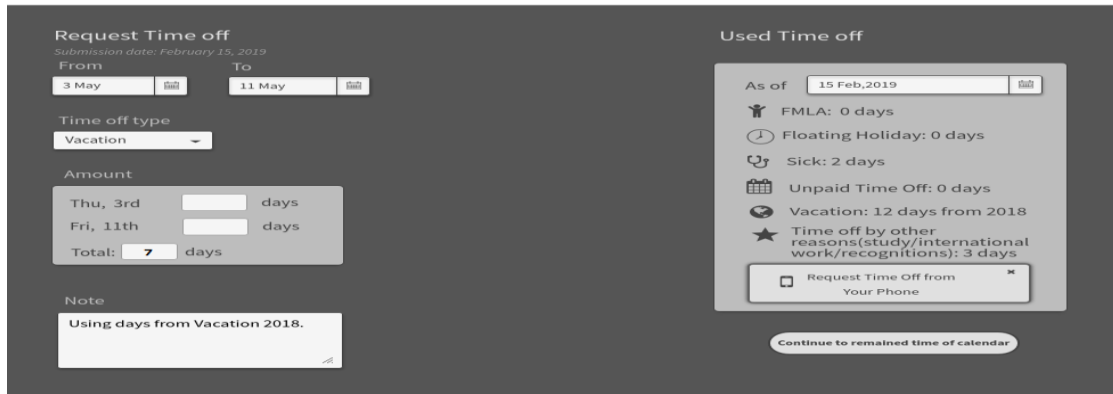


Source: own work.

Figure 20 below presents how we imagine that the employee’s dashboard will look like. This dashboard is developed after an example taken from BambooHR which served us as a model and example for further development and improvement of our own. This custom dashboard will be visible and accessible only to the particular user who requests such time off. The left part of the screen contains fields that should be filled with information from the employee that refer to the time off needed, while the right part shows the updated list with details of the user regarding his/her total and remained time off. The updates are planned to happen automatically as other inputs are made by the user. So, imagine that as the worker fills the left part, the right immediately gives updates. At the bottom of the right window is shown an option for requesting time-off via phone, which will be available in future.

Figure 20: Personal dashboard for time-off request

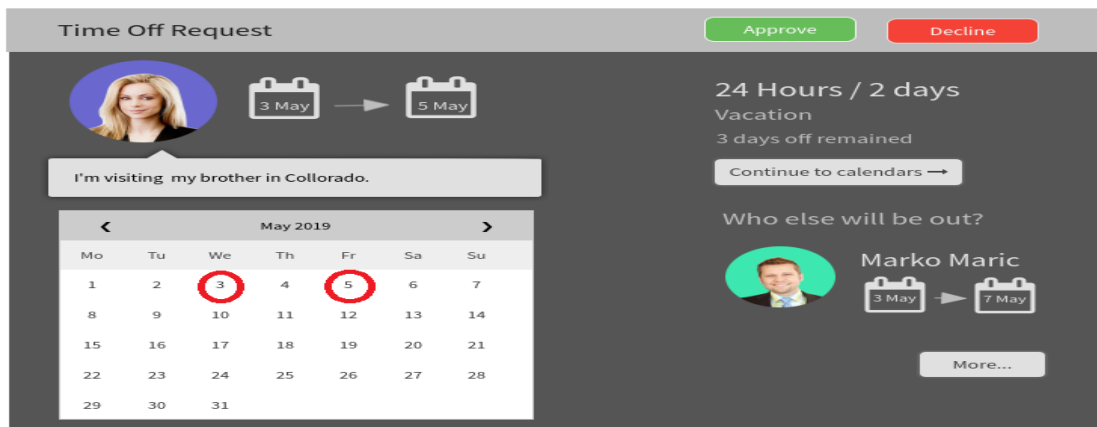




Source: Adapted from BambooHR.com; (2019).

The second example on Figure 21, presents how will the notifications of submitting a request for days off look on HR’s dashboard. The same will be visible by all parties who are included in the time off approval process. It clearly shows the person who requests, the dates and duration of days off, as well as a detailed overview of other employees from the same team who will be off in the same period. It is also supported with a calendar for eliminating any inconveniences. By clicking approve or deny the request can be concluded and the response is immediately visible to all parties concerned. The next step that follows in this process is the legal part where the HR management will need to prepare the documents specifically required which can be found in the document database tab. It is very simple solution that excludes time consuming communication, coordination and administrative work.

Figure 21: HR dashboard for time off request



Source: Adapted from BambooHR.com; (2019).

Figure 22 below presents our presentation of the part of the program with calendar and details for days off. On the left upper part are presented the days off on general level of the company, such as national and public holidays, which helps and enables the foreign clients to have info for the upcoming days off different from their national regulations and principles. On that way they are in position to organize their work in advance. The same option for overview of time off days will be given to each employee’s account. The right

upper part of the screen gives other options. By clicking the calendar, a detailed monthly calendar with exact dates and names of workers who will be off appears and it also will give updated list of dates when people return at work. The National and Public holidays gives a list for these days off annually. And the settings button gives more options, such as notes, adjustments etc. These three options are available for the employees and the employer. The history gives a filter part to enter which kind of days off we want to see and for which period (year/month/week). After adding the entries desired, the program gives the exact dates of time off, description and reason for it (if any) or a comment left by the client, team leader or the HR manager. The status field highlights the status of the request, is it approved, pending, rejected and the date of the answer given by the client as well as the representative who left it. If the application pending then after five days the same is automatically send once again and next to the status there is a note that it is re-sent. The last column on the right side gives how many days are used out of total. This is the best possible option that simplifies the entire procedure and excludes the constant communication and check and calculation of days off, preparing schedules how to divide the time off between teammates.

Figure 22: Overview of the employees' days off

The screenshot shows a software interface for managing employee time off. At the top, there are navigation options for 'General Upcoming Time Off' and 'Calendar'. Below this, there are buttons for 'August 28' and 'September 8', along with links for 'National and Public holidays' and 'Settings'. A 'History' section is visible, with a dropdown menu set to 'Vacation' and a year selector set to '2017'. Below the history section is a table with the following data:

Date	Description	Submitted	Status	Total
01/10/19 - 07/10/19	Vacation See comments (1)	11/09/19	Approved/ Daniel Johs/20/09/2019	10/20
15/09/19 - 22/09/19	Vacation See comments (0)	30/08/19	Approved/ Daniel Johs/05/09/2019	8/20
20/08/19 - 30/08/19	Vacation See comments (1)	29/07/19	Superseded/ Maria Tasic/01/08/2019	0/20
11/11/19 - 15/11/19	Vacation See comments (0)	20/10/19	Requested/ Daniel Johs/20/10/2019	7/20
27/09/19 - 09/10/19	Vacation See comments (2)	18/09/19	Approved/ Daniel Johs/20/09/2019	7/20
01/12/19 - 12/12/19	Vacation See comments (0)	08/10/19	Approved/ Ryan Males/11/10/2019	15/20
31/10/19 - 02/11/19	Vacation See comments (0)	17/10/19	Requested/Daniel Johs/17/10/2019	20/20

Source: Cosmic Development, 2019

By updating the monthly calendars and schedules with days off the management will throw away the wrench in the workflow that can otherwise mess up the entire routine. It tracks the paid days off of each employee instead of the HR workers, eliminates the risk of unplanned absences and helps the management to have info about each particular day off the reason for it and the performance of the company and use these data whenever needed in all procedures and paperwork. By knowing who is in and who is out of the office next month or the month after that, the team as well as the client will be able to organize the work more efficiently without worries for meeting the deadlines or finishing the plans. We

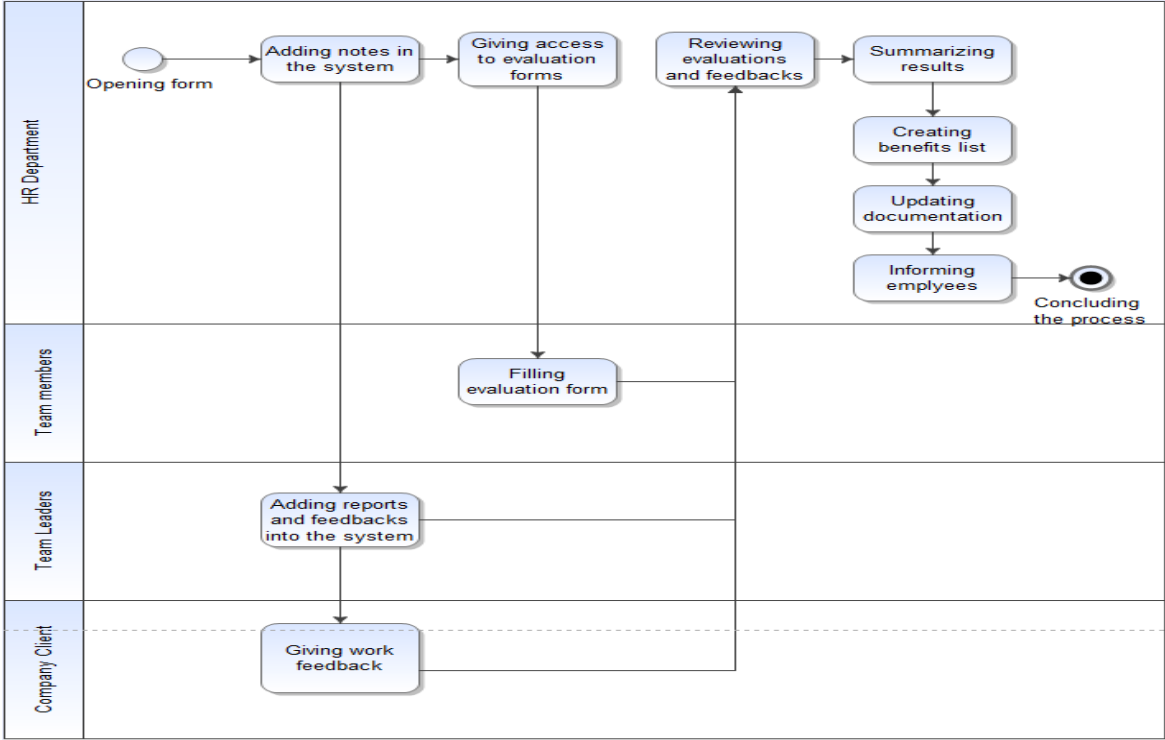
suppose this is a dream of every company and our software will realize it. Must to mention that there are also other possibilities and options offered by other apps or programs for making personalized calendars or other tools for scheduled activities but our idea is since we have own customized program for all things we need including the time off and tracking, it would be even better to have calendar specialized for these activities and synchronized with other apps for different departments.

4.6 Improvement of appraisal process and performance review

The performance review or appraisal process that is regularly performed once per year can be automated with the BPM tools and the possible to-be model of it that we obtain thanks to the BPM is presented on Figure 23. In fact the activities that are taken during 12 months from the past to the next review and the notes and records of them can be added into the HR program in the same time when they occur. This process is primary a responsibility and duty of the HR department with close collaboration with the client companies and team leaders. With the HR program, the HR managers, team leaders or clients will add notes about each individual work, results and outputs given as well as comments to their particular activity or behavior. The program keeps them into the archive session. During the 12th month of the current working year, each team leader will fill a form of evaluation for each worker. The evaluation form will be an updated template sent by the HR department for each particular team leader directly through the program. The answers given and changes will be also automatically saved without need for filling and sending papers as hard copies and they can be automatically viewed by one click. These evaluations together with the comments and grades from the past period will be reviewed and commented on the annual meeting, and also compared with the standards and desired outputs the company set up up-front. The only manual thing that should take place during the appraisals will be the one when the evaluators enter grades to each individual for different category (work, work ethic, behavior, collaboration with the team, results, extra performances, penalties) as they are commented and summarized. The things that are very important for having an efficient and effective system for performance tracking and reviewing are: having customizable templates, equal criteria and justified feedback, defined review and evaluation cycle with all details, and results. The customizable templates give an option to give same templates to each category of workers and having as much templates as categories of workers are present in the company, so the questions will be designed according to the tasks, obligations, responsibilities, nature of work, but also there will be some ethic and behavioral questions such as moral, loyalty, personal attitudes and behavior of each individual; the equal criteria and justified feedback are the core of this process if we want to achieve fair process that will give the real image; the review cycle with known duration of evaluation, frequency of evaluation, team of evaluators and phases of evaluation is also important not only for the management but also for the employees; the results are the final part of the essential features that must be contained in the system and must be published to the workers, not only because it is required by the

principle of transparency but also because it is good for them as they will have an info about their performance so far, what should keep, what should eliminate, and what to improve.

Figure 23: To-be model of performance review



Source: own work.

While the Figure 24 shows how the options in the admin’s field performance will present when clicking on it. It shows all important buttons for obtaining and gathering data about employee’s performance and their input and contribution to the actual progress, profitability and position of the company, taking further actions and decision making, as well as option for preparing analysis and reports for work performance of employees. Not need to mention that this part will also be synchronized with all other relevant automated processes.

Figure 24: Options for work performance review on HR admin’s dashboard



Source: own work.

When the review of one worker ends the system automatically forms an average grade. Based on that average grade the reward is defined.

The grade scale that we propose should have 5 values grouped as shown on Figure 25. The company already has the ranges from outstanding performance to performance that is considered as unacceptable but does not have merits about how much the performance is valued within a given range. In order to have complete picture for someone’s contribution we suggest adding additional 5 categories of current position on the salary range for specific job position: below minimum, lower range, middle range, upper range and above maximum. These categories are important from our perspective since they give an info how much the worker can climb and how much raise can get, since raises are the primary rewards given after the annual review. This table is same for each worker and each team. So, how does it work? When someone’s performance and overall results form a grade from 1.0 to 2.5 those results are unacceptable or below expectations and no matter where these people are on the scale for salaries, they will not get a reward since the overall grade is negative. The other group of workers who will be not entitled to raises or other rewards are those whose current wage is above the maximum predicted for that position. Additionally to this, if the appraisal form shows that the performance of some employee is below the expected standards and the level of contribution or behavior are negative it might lead to taking further corrective measures. If their performance is graded with a grade higher than 3.6 they can be promoted to other position or transferred, can get another reward etc. From the other side, those workers who have outstanding results and their current wage is below minimum are in position from where can be rewarded the best. Other workers who will get a reward in their current position are those who fall under the groups with lower or middle salaries but who have good or exceptional results and progress.

This table is same for all workers and categories and gives the basic path to the evaluators after they review the annual work of their colleagues. When the notes are summarized, a grade is formed and this table will automatically show it. According to our research and knowledge, this is the best way for having unbiased, fair, and correct performance review process where the human input in the process of grading and decision-making for the rewards will be minimized. The final thing that can be done here is the process of deciding for giving additional benefits to those who really deserve that. Of course, these decisions need to be discussed and agreed before their implementation.

Figure 25: Annual merit increase guidelines for salary changes decision-making

Annual Merit Increase Guidelines						
Performance Rating		Below Min	Lower Range	Middle Range	Upper Range	Above Max
4.6 to 5.0	Outstanding	6%	5%	4%	3%	0%
3.6 to 4.5	Above Expectations	5%	4%	3%	2%	0%
2.6 to 3.5	Meets Expectations	4%	3%	2%	0%	0%
1.6 to 2.5	Below Expectations	0%	0%	0%	0%	0%
1.0 to 1.5	Unacceptable	0%	0%	0%	0%	0%

Source: Reprinted from Coursera.com; (no date).

4.7 Improvement of salary changes process

The process dedicated to compensation changes would be directly connected with the process of performance review and the steps determined after the evaluation and review stage should happen immediately. The current situation in the company shows that the process of annual salary raises is conducted in collaboration with the client companies and the decision making process is mutual. When the salary change is agreed it is added into the accounting program for that.

The company has an already automated process related to the salary changes that are given as a reward for the years of experience and loyalty of the workers and these changes are calculated into the same program used for accounting but there is not automated process for the changes that need to be made after the appraisals process and evaluation.

If the appraisal process is automated then the final decision for the salary changes should be added in the current program for further execution as it is shown in the upper paragraph. In the end, the entire process of communication between the departments charged for this purpose and their decision making for the salary changes, the final step looks similarly as the image shown below. The automation of BPM and the creation of internal system for HR will enable having an automated process where the changes can be realized with one click. After reviewing the notes and deriving conclusion from the table how much the salary change should be, the HR manager just fills this window which contains all important information: the effective date of compensation; the reason for that change; the current and future pay rate; comments to the changes; to whom it should be reported (in our case the team leader, the CFO, the accounting unit, and the employee); and who is having an access to modify it. The changes made are automatically saved and visible to the selected employees at the same moment. Simple as that. The Figure 26 shows exactly that part. From the expressed so far, we conclude that the salary changes automated process must be: robust and secure, integrated with the other fields where the changes go, and with limited access. The robust and secure feature means that the system must be highly secured and controlled as well as under permanent monitor from the management and the chief financial officer; this part will do the changes automatically as they are entered into the fields but the same changes will also go to all other programs of the company designed for the same or similar purpose, such as the accounting and financial programs that must be synchronized with the salary changes; access will be given only to the worker in his/her personal part for salary, and to those few persons charged for decision-making and executing the decisions.

Figure 26: Screen of the salary changes part of the software





Source: own work.

4.8 Improvement of benefits changes

Improvements in this procedure are explained additionally to the process of salary changes, as the benefits changes is very close related to the overall performance review the decision about giving or deducting benefits is based on the results and behavior of the worker, and is part of the compensation package for employees. The company does not have some particular program for this and it cannot have it, since the changes in the worker’s results and performance cannot be predicted.

When speaking about benefits changes we mean giving advantages such as additional perks to individuals, transfers to international projects, vertical promotion etc. or deducting some of the given benefits, taking a disciplinary measure over some worker if he/she did something that is prohibited and triggers serious consequences. So, the best way for having correct and on-time information and updates for this is giving an access to the team leaders or supervisors into the program so they will be able to add inside all of the new data and the same will be immediately saved and available to the HR managers. Figure 27 is the table that falls under the benefits changes where all updates and important information need to be recorded by the management. The spreading of updates will be done automatically once they are entered by someone.

Figure 27: Screen for the benefits part of the software

Job			
Benefits	Duration	Reason	Comment
Vertical promotion	Ongoing	Contribution to higher revenues	
International project	3 months	Client recommendation	
Bonus	1 month	Exceptional results	
Gift	1 month	Exceptional results	

Source: own work.

4.9 Improvement of employee records

The idea behind these records is to keep all important data just one click away from us. People working in the field of HR services have really tons of things to do and to keep track on. For example, the most basic information for each employee form a huge database. For that purpose, the both tabs we mentioned: the employee's records and job that contain lot of information about employees will be in close relation. Having an option for automating the data entry for employees will help the HR department to get to know each employee better and to simplify the documents preparation.

The start screen in the employee records will show all important personal info for the hire that the employer needs all the time: name, surname, address, hiring details, telephone number, unique personal number, healthcare data, social security number, team, to whom the hire reports and other basics and archives. Also, as we stated above, for better relationship and culture into the organization it is also very good idea to have information about personal important dates and facts such as employment anniversary, birthday remainder, and about preferences such as hobbies, habits, things that the person loves/hates, and fields of interest. This will be the second part with additional info and its purpose is to show employee that the company thinks about him/her and knows how to express that he/she is a valued member.

Figure 28: Screenshot of the basic information tab from the employee records part of the software

The screenshot shows a software interface for employee records. At the top, there is a navigation bar with five tabs: 'Basic Information', 'Additional Information', 'Job', 'Search', and 'Edit'. Below the navigation bar, the 'Basic Information' tab is active, displaying a form with the following fields:

- Employee #: 6
- Status: Active
- Name: Jennifer Caldwell
- Birth Date: 03/04/1990 (Age: 29)
- SSN: xxx-xx-xxxx
- UPN: [empty]
- Task File Number: [empty]
- SIN/HIN: [empty]
- Gender: Female
- Marital Status: Married

On the left side of the form, there is a sidebar with the following information:

- Contact: 801-555-1234, 801-555-4321, jennifer@example.com
- Hire Date: Jun 2, 2017 (1y-10m-11d)
- Employee # 6
- Full Time
- HR
- Western States
- Lindon, Utah
- Manager: Chief Human Resources Officer
- Direct Reports: Daniel John, Jessica Deen

At the bottom right of the form, there are links for 'Employment history', 'Achievements 2019', and 'Achievements history'. A 'More' link is also present next to the Marital Status field.

Source: own work.

The other tab named as job, which we consider as employee's record too will contain all important data related to the job of the person, attachments of the official employment contract, the annexes to the contract, other documents: resume, diplomas, working experience documents, and certificates that each organization must have and by having them in this database the HR department will no longer needs to check the spreadsheets and papers.

We already explained that these attachments will be accessible by the client, the HR department and the employee by him/herself. The same can serve clients for putting them into the monthly or annual reports for the employees. We believe that this will help in the further decisions for salary/benefits changes, for tracking the employee's development and gaining new knowledge and new skills, as well as a source of information when there will be a need for organizing course or other project for professional learning and development.

4.10 Improvement of learning and development process

This process from admin's or HR's perspective will be accessible in the main ribbon under the tab Culture, while from user's or worker's perspective the same will be possible to do by the L&D field. The automation of this process will be immediately possible as other more complex and crucial processes that happen on daily basis are automated. By all data available about work and all reviews made by the employer, employees and clients stored in the program, the HR management will simply identify the new needs and interests of all employees and based on that will be able to take correct decision making for incoming learning and development activities. From the other side, the employees will get notified for all updates in their L&D field, will have an overview about all activities they have passed and completed, will have access to all proofs and recognition for new skills, knowledge, and experience, and will also have a list of further scheduled activities within this part.

Since this process is connected with the others we will not show example of its visual representation. The dashboard will be similar as the ones we already showed but with different information specific for this field of work and purpose. The process of L&D is very important for having strong, stable and highly professional company. It has direct effect on minimizing the worker's turnover and because of that we consider it as one of the most important HR processes in our program.

4.11 Improvement of resignation and termination processes

The HR software will have and part for the termination of contracts too. It will be added under the option jobs on the ribbon and the initial plan is to show any updates regarding this. When the client is the one who wants to terminate the contract then by their side information for that should be added under the job field one month before the final date.

On that way all of the persons who need to have this info will get it for sure. The part of the communication for finding solutions for the employee such as shifting to another client or another project will be discussed in person and that correspondence will not be included here but only the files, notes and final decision in form of formal letter. This solution we consider as better in order to avoid complexity in the organization of the software but in the same time having evidence and records for the related activities.

When Cosmic Development or the employee are those who terminate the contract, then they are obliged to submit this information under the job field same as the client. In cases when the company terminates the contract and there is no option to keep the worker, the HR department needs to talk with the employee, to explain everything, help during the last 30 days given as termination deadline and after that to conduct the exit interview. When the employee gives resignation, the HR management schedules meeting with the employee as soon as possible in order to fix the situation and see the root cause for that. If the decision for resignation is final, the exit interview follows. This is the only part of the process that will be done in person, while the others will be automated only.

The exit procedure will have two parts: one written and one oral and in fact it will not be just interview but interview and questionnaire. The first part now is the questionnaire or a template with questions sent to the employee via email where he/she needs to give unbiased answers regarding their work so far, the conditions on the workplace, the relation and communication with client, suggestions for improvement etc. and the answers will be automatically generated for getting insight and statistical purposes of the company. The second part will be the current version of the exit interview where the HR manager conducts it and then submits notes of it to the top management of the company.

By automating this part and by collection all data for actions taken no matter on employee or employer's request, the HR department will have enough information for concluding the main reasons and factors that led to resignations and terminations of contracts recently. This leads to fixing all the issues on employer's side and indirectly helps for improving the overall workflow, the organizational culture, the assistance and guidance of workers, and in the end the process of retention.

By digitalizing and automating all mentioned important HR processes, the HR workers will have the base for creating the HR strategic planning and the HR support processes from one side and for preparing reports and analysis for every question that matter anytime. The same data can be also transferred to all other departments for further analysis when a need for that occurs.

5 DISCUSSION AND IMPLICATIONS OF THE PROPOSED SOLUTION

So, based on the expression given, we can present the following attributes of our plan for bringing into reality:

Business process owner: Going back to the first part of the thesis when speaking about the BPM governance as the first element of the BPM ownership, we are answering now that the owner of the digitalized solution of HR processes is the Canadian IT and outsourcing company Cosmic Development represented by its CEOs.

Functional scope:

- Organized processes;
- Real data and customized dashboards;
- Self-service visualization;
- Predictive analytics;
- Mobile application;

List of automated processes:

- Recruiting and hiring;
- Pre-boarding and on-boarding;
- Time performance and time off;
- Work performance;
- Compensation and benefits changes;
- Training, learning and development;
- Evaluations;
- Employee records;
- Culture;
- Retention;
- Reports and analytics;

Intensity of using the program:

- Available from 07:00am to 11:00pm (adjusted to local time);
- Available from Monday to Friday;
- Automatic data actualization and update every day;
- Number of employees up to 300;

People who will use the software:

- HR professionals (up to 10; currently 2 executors);
- Team leaders (up to 50; currently 17);
- Managers (up to 50; currently 5);
- Client's personnel (up to 100, currently 35)

Estimated period: In total 8 months, from which 4 for developing the business plan and setting up everything and 4 for developing and testing period before releasing.

Cost Benefit Analysis: The plan we want to develop has its own calculated Cost- benefit analysis (CBA). The total calculations and expectations are done on estimations from the current situation and the researches made in that part, as well as a conclusion from the interview made, and the experience gained into the company.

The assumptions of the analysis were as follow:

- Minimum duration of the usage of the program (until newer, better, more efficient one is invented) is 5 years;
- The discount rate is 5% annually (rule of thumb);
- According to our expected benefits, those that can be presented in monetary value and can be really anticipated to happen are: 1. Reducing financial losses that now happen because of errors due to manual work and miscommunication between units; 2. Reducing the overtime payments to HR professionals especially in certain periods, such as decision-making times, end of quarters' decisions, evaluations, reviews etc.; 3. Eliminating the costs spent on other HR programs; 4. Reducing the costs made for all support materials in paperwork and manual conducting processes; 5. The future income the company will make after licensing the software and making it able to purchase from third parties (this is expected to happen after fully implementation into the company and gaining competitive advantage).
- Based on that, we calculated the two very important parameters for justifying our plan and decisions: the net present value is positive, and the payback period of the project is 2 years.

This indicates that our investment in this software solution in justified.

Detailed cost-benefit analysis is on Figure 29.

Figure 29: Cost- Benefit Analysis for the proposed solution

Category/ Year	2020	2021	2022	2023	2024	Total €
CAPEX €	12,000.00	0.00	0.00	0.00	0.00	12,000.00
Purchase of software	2,000.00	0,00	0,00	0,00	0,00	2,000.00
Development team costs	8,000.00	0,00	0,00	0,00	0,00	8,000.00
Implementation system costs	2,000.00	0,00	0,00	0,00	0,00	2,000.00
OPEX €	14,200.00	9,000.00	2,500.00	2,000.00	1,000.00	28,700.00
Total Benefits €	0.00	3,940.00	5,830.00	29,160.00	45,370.00	84,300.00
Reducing of financial losses from errors made due to manual work and miscommunication	0.00	1,440.00	2,880.00	5,760.00	11,520.00	21,600.00
Reducing overtime payment costs for administrative employees	0.00	200.00	350.00	500.00	650.00	1,700.00
Reducing costs for other HR programs	0.00	2,000.00	2,000.00	2,000.00	2,000.00	8,000.00
Reducing costs of papers, documentation and other administrative work	0.00	300.00	600.00	900.00	1,200.00	3,000.00
Additional income from software sales and download services to third parties	0.00	0.00	0.00	20,000.00	30,000.00	50,000.00
Total Net Benefits of the Software Solution application €	-26,200.00	-5,060.00	3,330.00	27,160.00	44,370.00	43,600.00
Discounting net benefits	-24,890.00	-4,807.00	3,163.50	25,802.00	42,151.50	41,420.00
Benefits/Costs ratio						2.07
NPV	-51,090.00	-13,807.00	663.50	23,802.00	41,151.50	720.00
Payback period; years						2 years

Source: own work.

This software solution should fully automate the HR processes within the company and fix all existing inefficiencies. This statement is the main target that drives the whole process of researching, creating, and implementing the software solution. We cannot say for sure that the desired goal will be completely achieved but if not more it needs to be achieved at its optimum, meaning that the company will automate the HR processes by developing their internal platform and releasing the HR professionals from the time-consuming processes that are not beneficial at all. By developing this solution, the company will achieve unification and synchronization, so all of those internal programs it buys for use in this field, or all partial apps developed in the Canadian seat will be replaced by one exclusively own.

The implications this software solution can bring to the company are divided in two parts: benefits and gains that are expected to follow soon after the first creation and practice within the company in its early stage and that are going to be felt by the HR professionals, owners, clients, and workers at first, and business value of the model or software solution that can be expected after the full implementation of it into practice and its use. Immediately after launching the desktop version, the company will launch the mobile app as well, so the positive implications can be expected from both sides.

5.1 Expected benefits and gains after the implementation of the proposed solution

The expected benefits after the implementation of the HR proposed solutions in Cosmic Development are correlated with the described reasons why to automate the Human Resource processes. The whole set of advantages that can appear with the creation and use of an HR application is very large but among all, there are two main expected gains that the company should expect.

The first one is creating efficient and effective HR processes, unbiased and equal for everyone; the second one is increasing the competitiveness and sustainability of the company. Both of them were expected to occur in all software programs or systems for automation of particular part of HR processes and are also investigated in the literature and research papers dedicated to this purpose. Both of them are our summary of the total benefits that we want to achieve and get with the development and implementation of this HR software. It means that for sure there will be other indirect advantages felt after the implementation.

First of all, we will release the HR department of the traditional processes they do and from the tone of papers they prepare, so will no longer need to open thousand files and papers just to check some information while preparing documents or doing some task.

Second, the same department will be more focused on other things that fall under their responsibility, such as communication with clients and employees focus on creative work and improving the entire workflow and working atmosphere. We speak about the same time they have now but in our case it will be spent better, smarter, and more effective than ever before. As said already, the HR professionals are very important for Cosmic Development, they will not lose their jobs, but in contrary, they will be here, now responsible for inventing new things within HR department that will be of great benefit for the company.

The third thing that will occur is another intangible benefit: the satisfaction of the clients and employees. Having a feeling of positive change and ability to make a distinction between the old way of communication and treatment with the new, better one is a great satisfaction to everyone that results with thoughts of high value and greater respect. This indirectly leads to having happy clients open for further cooperation, and dedicated workers who are eager for new challenges and successes.

Moreover, the automated application and techniques is expected to help in managing and responding to generational shifts. With the current condition in the country where the older female and male employees have right to choose to stay to or beyond the age of 62 or 64 respectively, the process of creating generational diversity and extremely different types of skills, knowledge and way of work happens. This underlies the importance of having automated processes which will maintain unified work and will prevent misbalance

between the multigenerational legacy transformation and the disruptive technologies. Step by step, we come to the point of increased profitability of the company and high engagement for performing activities that boost the revenue and increase the profit. On long-term, this solution looks like very smart decision.

At the first pages of this paper, we mentioned that our idea is with the help of BPM and the AI and ML in the background to build one integrated sophisticated HR program, tailored exclusively for the needs and purposes of Cosmic Development. The usage of Artificial Intelligence into the desktop version is more limited than that in the mobile. At first time, it will help for secure data protection on long-run and unique identification of employees within their time-management program. After that, when having the mobile app, the solution will have voice and face recognition. The voice recognition is intended to help in entering the personal account as well as for performing some tasks automatically (writing emails, chatting, client's communication) on the way that the app will recognize the user's voice and words and will type the message the user speaks and will send it whenever needed without any typing action done by the person. The face recognition is intended to be applied for obtaining access to the most essential tabs of the account, such as the salary, benefits, evaluations processes etc. The fingerprint option will be available soon in the desktop option as we mentioned how and the same will be kept in the mobile app too, so the employees will be able to register their time management by finger scan once they come or leave the office when the mobile app will be available and online to use. The same fingerprint option will be used for signing documents on mobile, so employees can sign their paperwork through their phones and the authentication of it will be recognized by finger scan. Another important thing that will be available with this app is the automatic saving mode. How this will work? The personal computer or smartphone will track the actions taken by the user and will remember the last activity, so in the time when the user will not use it, pause it or is not registered any action in the past few minutes, the app will automatically switch to saving mode of power and light and in the same time will remember and save the last changes or activities done. All of the mentioned features and benefits expected in future by the combination of AI and this app are expected to be applicable to both, employees and admins dashboards. We believe that all of these things that the AI will help to happen will achieve all expected gains explained in Chapter 2.

We decided to build it instead of buy it, since the latest research works that deal with the same issue say that for obtaining integrated environment with all components as we want to have, companies need to subscribe and pay to use, implement, and maintain lot of different programs and modules for workforce management etc. (Hrtechnologist.com; 2019c). And while other competitors buy software solutions or applications and try to adjust them to the internal conditions, we will not only implement our own but will also in that time eliminates all imperfections and will optimize the processes to their maximum, and maybe will invent and invest in something new, yet undiscovered that will be worth in the next decades that follow.

As discussed in the paper for Implementation of Business Process Reengineering in Human Resource Management which is a collection of several professional researchers in this field, „high quality human resource management can provide significant improvements of the operations of companies that are primarily reflected in the increased performance and efficiency of the system as well as the competitive advantage on more and more turbulent market during the time“ (Wall and; Wood, 2005, pp.429-462; Collins and; Clark, 2003, pp.740-751; Brockbank, 1999, pp.337-352; Wright, McMahan and; McWilliams, 1994, pp.326; Bolcas and; Popovici, 2012, pp.177), and also the same can improve the employees' position: „employees with their knowledge, expertise, motivation, loyalty and dedication to the company essentially determine the performances and market position of a company; they have the ability to create other forms of intellectual capital that will have a growing strategic importance for the company in a long run“ (Berber, Pasula, Radosevic and; Ikonov, 2012, pp.415). The given definitions of the main benefits gained after the implementation of Business Process Management and Business Process Reengineering into particular HR processes are same as the ones expected after creation and implementation of HR system in our case.

By explaining the expected gains above we make a circle and come to the two major and most important points that we want to achieve. Practically if we have them two, then we have also reached the other targets. From the other side, we should not miss to mention that disadvantages can happen. The disadvantages that we can expect are correlated with those theoretically explained in the Chapter 2 of this master thesis. Namely, the major and first negative effect that comes after the digitalization is the risk of lack of work for people who work in the HR department. By automating huge percentage of their work their tasks will be halved and there is a possibility that lot of them will lose their job. As explained, there is no room for panic, because HR professionals will be still needed as they will conduct the face-to face processes and will monitor and control the work in the organization. By releasing them from huge tons of paper and boring repetitive processes in fact we release their innovative and creative side. The digitalization will help these people to start inventing new ways of communication, helping and supporting employees, new ways of training, learning and development, new apps and programs. The HR professionals can also research more in this field and become the inventors of new solutions and findings, as well as experts in their profession. The other disadvantage that we can expect is the security of the system. This is more or less not so concerning thing as all programs and internet sites we use are not a hundred percent secure. One of the best challenges during the development and implementation phases of the company will be bringing this risk to its minimum. The last but not least side-effect that can be expected at first time is the inefficiency of the program or in other words if the digitalization of HR processes does not meet the expectations we describe. If this happen, then the company will need to work more and to put bigger efforts to achieve the goal. By knowing the benefits and gains that can be achieved, there is no way to quit. However, this is only a prediction that might happen, which means that its appearance and the appearance of positive outcome are 50-

50, so since we are living in the era of digitalization, who knows, maybe our solution will show as the right choice and the step that will throw Cosmic Development steps ahead.

5.2 Business value of the solution for process digitalization

The business value as a term is more connected with managing projects not processes, but taking into account the fact that our idea for developing a business process model that covers the whole area of HR processes is something new, it does have a business value. „Business value“ cannot be agreed upon one single definition. Despite all of the available points of view about what the business value is and what it measures, the most acceptable definition for us is the one given by Phillipy in 2014 published on the official site of the Project Management Institute, where the Business value is defined as „the net benefit that will be realized by the customer of a project, and can be measured in either monetary and non-monetary terms “ (Phillipy, 2014). But, the same we would try to expand by referring the same not only to the customer, but also to the employees, shareholders and the company as an unity, because this model we are trying to develop is not beneficial only for customers or clients but in the same time is equally important for the internal organizational units.

The most important thing that this model will give to the clients or customers is quality in the professional relationships as well as satisfaction of how Cosmic Development performs the work for them and how it communicates with them and with the employees. In our case, the business value from customer’s point of view is intangible term and cannot be directly measured in monetary terms.

When observing the business value of our proposition as employees, we see that the most important thing they receive is knowledge. From the very first step of starting the process of implementing Business Process Management into Human Resources until the final step of viewing and feeling the results it gives, employees are involved. No matter in which team or department in Cosmic Development employees belong, they will be involved in the realization of our idea. Some of them will gain more knowledge in IT in the field of developing applications and software solutions for particular purposes, for solving complex communication channels etc. others will gain more computer skills and knowledge of working in programs, while the HR department will definitely become extra skilled in working and performing HR activities via programs and applications. This is the first part of knowledge and experience that is derived directly from our model. The second part is the additional knowledge, skills, and experience they are expected to gain when will be released from time-consuming and long procedures, and their time and energy will focus on more important things that are connected to their field of work. This „indirectly derived“ knowledge is the basis for developing new ideas and inventions from employees that will bring competitive advantage and success of the company. Even employees’ knowledge can be often undervalued as an asset in companies and might not be even

mentioned is some reports for business processes and business values, we consider employees as the most important and precious asset of companies who are capable to double or triple the current benefits and opportunities one company possess. Similarly as with the customer's value, the business value in this part is more intangible and measured in non-monetary terms.

The last part in measuring the business value of our model is the one that belongs to the shareholders and the company. Shareholders' most important value received is competitive advantage. While other competitors in the country try to buy and adjust some HR automation programs or while try to understand the concept of this unique software and then invest in its own, Cosmic Development will be in position to focus on attracting new clients, entering new markets, improving its already built and implemented HR software, and improving the current position and conditions of employees and clients. Furthermore, by licensing its HR software, it can sell it to other companies and can generate revenues on that way. The competitive advantage leads to financial advantages and profitability of businesses in all the ways. This is the tangible part of the business value which is expressed in monetary terms. Finally, the shareholders and company as whole possess amazing intellectual capital that was capable and talented to develop the unique business model. It is intangible value that is priceless and cannot be measured in monetary terms, but can lead even more benefits and advantages with both monetary and non-monetary values.

CONCLUSION

Coming to the end of this master thesis, we can make a retrospective of the steps that lead to the final product we developed and how it is aligned with the initial idea. This master thesis presents an overview of how one simple idea driven by the basics of Business Process Management can go to developing a digital solution for automatization of the whole range of Human Resource processes. By following the main principles of business process automation, having clearly defined plan and methodology we can see that the digital software solution and the creation of data driven HR is possible. In fact, the business process automation is that that really leads to that.

The final solution and the entire research and work, both theoretical and practical, met the goals of the master thesis proposed. The whole process involved deeper analysis and description of the current state of Business Process Management implementation in the private company within the HR department, then it went to investigating it and now helps us to understand the connection between the BPM and HR processes and to learn about possible improvements. Based on that, we found ways for making the possible improvements real. The created internal customized HR platform reaches the purpose of the thesis and will contribute to the further improvement of the Human Resource processes in terms of automation and optimization first on local and then on broader level.

This field of study and research is a complex one. It has lot of information, lot of changes because of its dynamic nature, and lot of things undiscovered yet. By writing on this topic, we can learn more about the fundamentals of Business Process Management and Human Resource Processes, about their interrelation, and can derive inventive solutions for some of the million processes and situations of them present in our everyday lives. The inventive solution we created is not something that has not been discovered before. Some parts of it are already known to the practice, but this is customized one, with own developed plan, structure and steps, phases of development, and anticipated gains and business values. It is adjusted to the current state of digitalization in the country and owns perspectives for further growth and sophistication.

However, this is the first step of the path. We cannot stop here with learning and investigating this field. We have a lot to learn about the Business Process Management and digitalization. The idea with the digital software solution is going to be our initial step, which will be then transformed to national digitalized network connected with the legal rules and regulations, and then will grow to outstanding effective international software program available worldwide with synchronized processes, huge secured database, and capacity to perform a task in a millisecond. The time is on our side, so once the plan of the thesis is realized we can start creating the further steps of the HR digital era.

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APPENDICIES

Appendix: 1 Summary of the thesis in Slovene Language

S trenutnim razvojem informacijske tehnologije imajo podjetja po vsem svetu priložnost, da olajšajo svoj način dela z uporabo programov ali aplikacij, ki delno ali v celoti izvajajo določen del svojih delovnih obveznosti in tako olajšajo delo zaposlenim. Eno od bolj kompleksnih in enako pomembnih področij v vsaki organizaciji je področje človeških virov, ki vključuje popolno upravljanje številnih dejavnosti, povezanih z ljudmi v organizaciji. Dejavnosti na področju človeških virov poleg vodenja zaposlenih in delovnega procesa vključujejo tako interno kot tudi zunanjo komunikacijo in koordinacijo, pripravo dokumentacije, delo v skladu s pravili, predpisi in zakoni v danih rokih. Zaradi kompleksnosti, raznolikosti in dinamičnosti je to področje primerno za uporabo digitalnih rešitev in s tem ustvarjanje delovnih programov.

Priča smo, da za ta namen že obstajajo programi in programske rešitve, ki jih podjetja ponujajo tako, da del svojega dela zamenjajo z avtomatskim programom s samodejnim delovanjem. Nekateri od njih so se izkazali za zelo dobre in učinkovite. Zato je naslednji korak pri izboljšanju tega dela razvoj in implementacija lastnih programov podjetij, ki jih bodo uporabila za svoje cilje in potrebe na področju človeških virov, hkrati pa bodo postala bolj konkurenčna in bolj donosna na trgu.

Namen magistrske naloge je ponuditi popolnoma novo konceptualno rešitev za avtomatizacijo in digitalizacijo procesov na področju človeških virov v Kosmic Development podjetju z razvojem novega lastnega programa. Magistrsko delo je sestavljeno iz dveh delov: teoretičnega in praktičnega dela.

Teoretični del je revizija pregleda strokovne literature (uporabljajo se knjige, znanstvene revije, tedniki, spletne strani z zanesljivimi in preverjenimi podatki) in se nanaša na preučevanje in analizo upravljanja poslovnih procesov in procesov dela na področju človeških virov. Na podlagi pridobljenih podatkov smo pristopili k predstavitvi trenutne spremembe upravljanja poslovnih procesov s posebnim poudarkom na njihovi povezavi in pristopu na področju človeških virov ter določili področja, ki jih je mogoče izboljšati. Teoretični del obravnava in uporablja umetno inteligenco na področju organizacijskega dela in jo upošteva kot prihodnjo konceptualno rešitev za razvoj mobilne aplikacije iz tega programa.

Praktični del diplomskega dela temelji na neposrednem spremljanju dela v sektorju človeških virov v Družbi Kosmic Development ter na podlagi izvedenega strukturiranega intervjuja s kadrovskim menedžerjem za pridobitev podatkov o tem, kateri del dela iz oddelka za človeške vire je uvedel digitalizacijo in avtomatizacijo procesov, ali obstajajo procesi (in kateri), ki so dokončani (v celoti ali delno) s pomočjo programov, trenutna stopnja avtomatizacije in digitalizacije procesov na področju človeških virov, ter uporabo notranjih ali zunanjih programov, in da bi prišli do zaključka, v katerem postopku ali procesu pride do izboljšave z njihovo avtomatizacijo.

Končni rezultat je povzetek najpomembnejših procesov, ki spadajo v področje človeških virov, v katerem je prostor za optimizacijo za ustvarjanje digitalne rešitve. Prvič, predstavljeni so trenutni modeli teh procesov, predstavljeni so bodoči modeli, torej se pričakuje videti, da bo celoten proces delal po uvedenih spremembah, in končno na podlagi modelov, ki se bodo pričeli razvijati znotraj želene programske opreme za avtomatizacijo procesa s področja človeških virov. Ta programska oprema je podprta z izvedljivim načrtom za njegovo funkcionalno območje, ocenjenim časom in viri, potrebnimi za njegov razvoj in izvajanje, ter izračunom stroškovne učinkovitosti in utemeljitev takšnega koraka. Razvoj in uporaba lastne HR programske opreme bo pomagala tako zaposlenim kot podjetju kot celoti. Zaposleni bodo občutili ugodnosti na obeh delnih načinih: prihranili čas, izločili človeški dejavnik iz dolgih in zapletenih procesov ter bodo dela izvedli s pomočjo programa, zmanjšali tveganje napak pri delu, omogočili zaposlenim racionalizacijo, usmerili bodo zaposlene k pomembnejšim in bolj inventivnim stvarjem itd. Družba naj bi ta finančna sredstva, ki se trenutno plačujejo za uporabo druge programske opreme ali aplikacij, uporabila za to, da bi jih namenila svojim zaposlenim ter postala bolj konkurenčna na trgu in po pay – back obdobju bolj dobičkonosna. Po popolni implementaciji ČV programske opreme v podjetju in možnosti za njeno uporabo s strani vseh zaposlenih bo podjetje lahko to izpostavilo kot lastni izum, ga prodalo drugim podjetjem in začelo izvajati svojo mobilno implementacijo.

Negativne strani, kot so neuspehi, tveganje, da bo del osebja v kadrovskem sektorju ostal brez dela in tako naprej, v vsakem primeru zagotovo obstajajo, vendar se možnost njihovega nastanka upošteva in izračuna pri načrtovanju projekta tako, da se bo čim bolj zmanjšale ali popolnoma izognile.

Appendix 2: Interview with the HR Manager of Cosmic Development, Aleksandra Vuckovska Veleva

Good afternoon Ms. Veleva, Thanks for your time and willingness to spare some time and give a short interview for me which will be used only and solely for the purposes of my master thesis.

The questions will be related to the HR processes, the organizational structure and way of work of the company. They are designed by me of what I thought would be useful and beneficial for my work. We can skip some of them if you think it cannot be answered or you do not know the answer.

Q1: Can you please introduce yourself briefly as employee in Cosmic Development?

A1: I am the HR manager of the Macedonian seat of Cosmic Development for two years. I started working in Cosmic five years ago as young professional in the field of HR. My first position was HR assistant there and worked 3 years like that. Two years ago I became HR manager, responsible for both Macedonian offices in Skopje and Bitola.

Q2: Please introduce me Cosmic Development as a company: its origins, main activities, short overview of the current situation?

A2: Cosmic Development is a Canadian IT and outsourcing company which started working in 2011 in Toronto, Canada. It is private owned company of two young IT professionals who wanted to start their own business. The very first activities that Cosmic did was programming and giving IT software solutions for other companies in Canada and United States. As one of them had origins from Macedonia, they came up to the idea to expand the activities by doing outsourcing for other companies, not only in the field of IT but also in web design and development, creating video platform, customer services and support, consulting, accounting, digital marketing and advertising. On that way, in 2015 they opened offices in Macedonia and Serbia.

Currently, the company has over 100 employees and more than 10 clients worldwide.

Q3: Please tell me more about the organizational structure of the Macedonian seat?

A3: Cosmic Development in Macedonia has around 80 people in both offices who work in the fields I already mentioned.

The company's organizational structure here includes a VP of sales who is also managing director for both offices, VP of marketing and CTO as people who belong to the top management of the company together with the other executives located in Toronto or Belgrade.

The HR department is consisted of HR manager and HR assistants who give reports to the Chief Operations Officer and the CEO of the company, but are responsible for the administrative workers and the team leaders of each team. The accounting department is consisted of one account manager and assistants who work under supervision of the Chief Financial Officer. The IT department conducted by the Chief Technologies Officer is consisted of programmers, developers, project manager etc. The sales department is consisted of sales assistants who work and are guided by the VP of sales, while the marketing and communication department that is comprised of PR manager, PR assistants and advertisers is guided by the VP of marketing.

I know it looks a little bit of complex structure right now, but in fact it is very well organized with a clear hierarchical order, defined roles and communication between departments.

Q4: How is organized the HR department there and what are their main tasks and responsibilities?

A4: As I said, the HR department in Macedonia is comprised of HR manager, me, and two other HR assistants. It is one of the smallest units in the company, but it works perfectly good and organized.

The main functions of the HR manager are: organizing and guiding all HR processes and activities. I am responsible for hiring, recruiting processes, organizing and planning the on-boarding and pre-boarding processes, permanent work performance tracking and evaluation. When speaking about work performance tracking and evaluation I must say that I have constant communication with department managers and team leaders who need to keep track and record the work, results and progress of each member of their teams and then to submit those notes to me. I really value these reports as they are very important for my performance reviews and work evaluation of employees.

I am also responsible for maintaining constant positive communication with hires, to hear their needs, questions and issues, to speak with them, to try to fix their problems and resolve all dilemmas they have. This relation is very important for keeping the positive atmosphere in the company and the satisfaction of workers. Additionally to this, I am also responsible for maintaining constant communication with clients companies. You know, the clients companies are those companies our workers in fact work for. So, we have some kind of mediation here, we are the “bridge” between the workers and the clients, and we need to ensure that everything is going well. Here, in this part I collaborate with the COO and the VP of sales.

Another thing that falls under my supervision is the compensation and benefits of workers. Of course, this is one of the most important segments for both, employees and employers. Together with this, I need to mention the learning and development processes which are devoted to employees, their qualifications and knowledge upgrade, boosting skills and giving them lot of opportunities for professional growth.

I am also responsible for retention of workers, taking care of them and their satisfaction.

I have many more things to mention but will do it as we go through the interview.

In my team, in the HR department there are two more people- the HR assistants who are responsible for executing the tasks. While I am charged for decision-making, planning, organizing the processes, they are responsible for executing them under my supervision and control. Also, they are responsible for the communication with third parties we have and also for updating and managing all databases and archives we have.

The paperwork is done by me, with help and assistance of the HR assistants or the administrative assistants.

Q5: As you mentioned the main activities you have can we go with their explanation step by step?

A5: Yes, of course.

Q6: Before we start, I want to ask you do you know what Business Process Management is and whether it is implemented in your HR department.

A6: I do know what Business Process Management is, but unfortunately I am not in constant touch with it or maybe to the extent I would like to be during my everyday work.

Except the program for time performance and time tracking, we do not have lot of Business Process Management tools and programs in our field of work.

Q7: Since you already explained me the tasks and responsibilities, can we from there describe the HR processes and whether they are automated with BPM.

A7: Let’s start with the hiring and recruiting process.

The hiring process starts when there is a need for new workforce in our organization. The open position can be formed because of the client’s needs, because internal reconstruction or changes, or if there is new client that enters. Before we announce new vacancy, we see if there is a room for vertical promotion in the company (that is a practice we really respect and keep on high level, meaning we always give opportunities for growth to our existing hires), whether we have a workers who can take the new responsibilities together with the ongoing ones or we need to hire new person. After we decide which option is the best one,

we obtain all important information from the client regarding that position: description of work tasks, responsibilities, working time, desired skills, knowledge and experience and all other important details. After that the work is done by us. After finishing the first step of job analysis, creating the job description follows. If we have a template of already posted same job position then it is easy, we just check it, update it and post, but if it is new position, then we create brand new job description and post, with meeting all legal regulations and deadlines.

As the deadline passes, we go on reviewing all resumes received and stored. Before we start reviewing, we make a checklist with all essential criteria and then we go one by one. This is the first filtering process when we select only those candidates who meet at least 70% of the criteria. These candidates are then invited on interview and test phase. The interviews are consisted of same questions to all candidates that enable us to learn more about the professional side of the candidate (experience, knowledge, knowing the job) and his/her personality (ability to think logically, ability to fit into organizational culture, problem- solving attitudes etc.). In most of the cases we conduct tests in order to see the practical knowledge and experience of candidates. When the testing ends, the same team plus one person more who already works on the same or similar position are grading the tests and make the final decision.

After this phase, we check the notes from the interviews and grades of the tests, so on that way we form a final score for each of them. I just want to mention that we never form a grade during the phases, but we only take notes, write down everything that candidates said or did and we evaluate them together with the team leader and manager. This is the second filtering phase after which we have some kind of preliminary list.

Naturally follows the selection process. That candidate with the most points is the right one. If there is more than one candidate, we invite them on another interview or test, according to the position. If there is none, then we repeat the entire process from the start. The HR team taking into consideration the client's conditions forms the final offer and sends to the candidate.

Q8: Do you have some program in this part?

A8: No, we do all things manually. My assistants prepare the paperwork, while I execute the process.

Q9: Do you think there is a room for some?

A9: Absolutely yes. The entire process from the beginning can be automated. We used one program for hiring and recruiting and know how it can be done. We also use examples of Google Hire when we need. So yes, definitely all steps of hiring and recruiting processes can be automated.

Q10: Please explain me how the pre-boarding and on-boarding processes are organized?

A10: The pre-boarding begins when the candidate accepts the offer given. In this period the entire paperwork needed for that position is prepared, the workstation with all tools, required readings, and accounts is set up, and a message with all important info regarding the basic job requirements and info with details needed about the first day at work is sent. It also continues during the day one. This process is mainly done by HR assistants together

with the administrative unit. At day one, there is a welcome meeting organized by the HR department together with the team leader, with the new employee where he/she is introduced to the team, has an office tour to get in touch with the atmosphere, internal routines and rules we have. After that the new comer is introduced with the work position, the principles, expectations and requirements of that work position. The first day is more like adjustment to the work place and making sure that the new person knows well what we expect from him and what the client expects. We also expect that he/she will check and read all details and info we sent in advance and will come prepared. It saves time and prevents any inconveniences.

The on-boarding process never ends. We want to make the new hire closer with the team, to help him/her to adjust very easy and quickly into the new organization, to reduce stress at work, to contribute to his/her job satisfaction and high commitment to the company, and also, on long term to ensure retention of the employee which indirectly leads to cost savings. For that purpose, we provide training on workplace during the week one where the new comer will learn more about the work, the daily activities, how to communicate with the team, how to independently function and reach the targets. The progress is monitored day by day during the first month and after that follows a general meeting of the team leader and HR department in order to see the results and decide for the further on-boarding. I prepare a checklist to see whether the worker achieved the given goals for that month. The routine in the company also allows giving additional training materials or other reading materials for personal growth to the hire, enrolling the candidate to various training, seminars or conferences important for professional growth and gaining additional knowledge and skills.

Q11: Does the process of on-boarding ends here?

A11: You mean after the first month? No, it is ongoing process. We include the new worker to all activities we have, he/she becomes equal part of the team regarding rights and responsibilities and part of each company's meeting.

However, we design the on-boarding process and activities differently for each one according to their needs and interests.

Q12: Do you think that both, pre-boarding and on-boarding can be automated?

A12: Yes they can be. Look, all those things that assistants send to the hire prior the first day can be automatically sent if account of that worker is created and an access is given. All of that info can be stored in the account.

The on-boarding process can be also automated. If we have internal database of each candidate with personal info, progress, interests, needs, achievements etc. it will be very easy to design its on-boarding process.

Q13: What about time off and tracking? Do you have BPM there?

A13: In time tracking like every day tracking, yes there is an internal program. We have a checktime as any other company has, where employees register when they come, have a break and leave the work place. It also counts how much overtime they have. I would

rather say that it is not a regular HR process but it is more like accompanying part of the HR processes that helps us in determining time and work performance of workers.

There is no need for automation.

Q14: Can you please explain how the process of leave requests goes as it is also part of time off process?

A14: Each candidate submits a request by email for approving days off for given dates. Employees are free to decide when will be using their time off. Then we check how much days off remained that worker has and send an email for coordinating that with client's work. If the client approves, we approve too. After sending note to the worker, we prepare all documents needed and update all databases.

In our communication we include the team leader too as he/she will organize the work within team members during someone's days off.

And before you ask me, I can say that there is an urgent need for automation here (laugh). We need program for automating this part. Having calendar where all can mark desired days off and everyone can see that is a must. On that way will no need to send lot of emails for approvals, no need for paperwork, and the most important no time spent for updating all databases and sheets we conduct.

Q15: Can you please describe the current situation with the work performance reviewing process?

A15: It is also manual process. The official work performance reviews are done once annually as process and it is normally performed before the meeting for making decisions about compensation and benefits changes, learning and development of workers, additional support or other activities and measures.

For having constant data and records about individual's work, the team leaders are charged for monitoring the work and progress of each team member every day. They note all changes in work, in behavior, in communication with the team as well as with client and so on. They submit monthly reports for each individual worker of their teams, and also the HR manager has monthly meetings with teams in order to see the situation from one side, and meeting with the clients to see their feedback from the other side. All of these reports and notes are stored through the year and gathered as one final report. The process of performance reviews is really exhausting one since it includes evaluation of more than 80 people, lot of consultations and decision-making. It is time consuming process that interrupts the HR's department normal workflow. We do not have internal automatic database where clients can register their feedback and reports for workers' results. Also, one really concerning thing is the fact that the reviews are screened by only few people, and the same reviews have an impact on the compensation changes, so sometimes it might happens some colleagues to think that processes are biased in some points.

Also, I must to emphasize that in cases when there are some exceptional results achieved and are noted in the monthly reviews, they do not wait for the annual decisions, but the decisions for them are made immediately.

Q16: You can explain the last thing more now. How the compensation decision-making is organized?

A16: When we speak about the salary as base of the compensation, the company's changes in raises are given once per year, every March. When it comes to this point, very huge role have the work performance reviews given by team leaders and by clients and the time performance reviews. All of these reports are screened step by step by the HR department and the other members of the top management. The team prepares checklist about meeting the expectations and goals, and based on the results decided about the compensation raise. I also must note that if there are negative or no progress and positive results, there will be no raise. It might happen too.

Another thing we discuss and decide about is the benefits changes. We have a pool of benefits available, like bonuses, one salary plus, promotions, gifts and vouchers, free courses, free international qualification of workers and so on. They are given, of course, but to be justified. I told you before that when some exceptional, extraordinary thing happens, we react accordingly. If someone achieves higher results in their field of work, let's say concluded more deals than the target given, boosted the company's or client's profitability, then we give some extra benefit. The same happens if the worker has bad results. We had a situation when a person made a mistake intentionally and got a penalty for that.

Q17: And you do all of these things manually. I mean do not have software for this.

A17: Unfortunately, correct.

Q18: Before we continue, I became curious about another thing. Do your colleagues from the other offices have some programs for these processes?

A18: The Canadian seat uses Google Hire platform for hiring and recruiting, the time tracking is organized on the same way as ours, while same a program or I don't know how to call that that connects the accounting program, the same we have here, with the compensations. As I am informed, the other processes are done by HR managers solely.

The Belgrade office works same as us.

Q19: Do you have other benefits for employees and how that process goes?

A19: Since we answered this together with the compensation, I suggest skipping it and continuing ahead.

Q20: Ok, deal. So far we saw half of the main functions of HR, the hiring and recruiting, the compensation, benefits and retention. Now, can you describe how the employee-employer relationship is maintained? Do you have specific process or program for it?

A20: We have two-sided communication in this part, one that we have with our employees and the other our employees have with their clients where Cosmic appears as mediator or third party.

Our own communication is done personally. We have permanent communication with employees here for everything they need. For the same purpose we have weekly meetings where we discuss mutual things and questions, and the same are also discussed with the top management. As for all other processes, we also take notes for this.

The communication between employees and clients is also done with our help. The thing here is that employees do not chat with clients and their top management in person. They only have managers from there who communicate with them and their leaders for working

tasks, while for all other things, such as their days off, their performance, their compensation, promotion, shifting to other position and related, clients communicate with us, as representatives of the company. This communication is conducted by phone calls, Skype meetings or emails because our clients are from different corners of the world. Again, we must to take notes or store the emails since clients cannot enter their information in some mutual shared archive.

Q21: Again. Is there room for automation?

A21: Of course. We already pointed out that we need to have some shared database for updating all notes and coordinating our activities with clients.

Q22: How the training and development processes are organized, and of course, whether they are automated?

A22: We have program for planned training and development activities for the whole year. The program includes different courses, training, workshops, online specializations and conferences which our workers can attend.

Based on the previous year's achievements, we design individual program for each person according to personal needs. The program must have at least two and maximum six activities.

Q22a: Why these numbers for activities?

A22a: Because two training or courses are must since we work internationally, with people and within IT where things are changing so fast every day, and maximum six because we need to take into account the personal life of workers, the efforts, time and energy they spend on work, and also we believe that too much tasks or doing things in the same time may lead to side effects. So, six is an optimal number if the course or trainings are shorter, simple ones and so on.

When we create a list for each worker, then we group them in groups as they are going to attend same events.

This is also not automated thing and we are doing this on our own according to our resources. The info for personal needs is gathered from the evaluations and work performance reviews process, while the available learning and development events are found by HR assistant with collaboration with our partners. Then we plan a budget for that and schedule them in accordance with people who are going to attend.

Q23: Do you have maybe some separate program for the paperwork and all documents related to the legal regulations?

A23: No. We have the legal regulations in front of us as we need them all the time.

The paperwork is also not stored internally in program but in our computers, and we also keep it in hard copies.

Q24: What about resignations and termination of contracts?

A24: When it comes to this, first of all we must to speak with the employee in person, to see the reasons, and whether there is something we can do, fix or improve in the situation and keep him/her with us. This is in situation when the worker is the one who wants to leave. If there is a room for negotiation, we speak with the client and try to find

compromise. If the process finishes unsuccessfully, we conduct an exit interview or questionnaire to the worker and after that keep the answers given in hard copy.

If the company or client gives a termination to the worker, we must to notify 30 days in advance and to see if we can keep the worker to another position. If nothing of this works, the same procedure is repeated.

I don't need to mention that the exit questionnaires can be done electronically and at the same time stored in electronic database. No need for hard copies and tones of paperwork. If we have them in electronic version it would be very easy to transfer them in the annual reports and evaluation of the company.

Q25: Can you please describe more which HR automation tools you have already used?

A25: We started with using Google Hire as a tool for organizing and automating the hiring and recruitment processes. It is really useful one since it gives tutorials, videos and full assistance before you start using it, and after that everything is very easy. Google Hire helped us in organizing collection of resumes, all databases for existing candidates, to organize all scheduled hiring and recruiting activities and so on. It is very good for coordination and transparency of work. However, it is very limited since it is strictly narrowed to only one process. We needed more than that.

After that, as we used BPM tools and programs in the other fields of work, we saw the benefits that other departments had. We switched to BambooHR. That is a software solution that you can use once you buy it. It offers full or approximately full coverage of the HR processes and their automation. It is really good one and I personally know lot of companies that use it. But, I and the colleagues do not like the fact that it offers fixed solution that you cannot adjust to your preferences and needs. Also, if it does not offer something you need to automate, then you cannot work on that. For instance, there is no automation of the benefits changes processes, or there is no option for storing the data and documents for terminations, resignations, and exit interviews. When we considered these advantages we were more than sure that we want to have own program, or at least to buy some that can be modified.

Q26: As I know, you also tried Kissflow, right?

A26: Correct. But it is very similar as BambooHR, so we did not have some extra benefits or advantages of using it. I can say also that it might was little bit unsecure than the first one. We did not use it for very long time.

Q27: What do you suggest for possible solution?

A27: Well, I do not know how much we can do about it, but I am very sure that there is something that can be done. The world is moving forward so fast, lot of innovations are rising every day, the world is fully automated, so I believe we can automate our work too. I have visited lot of international conferences for this purpose and saw different ideas and solutions, so I think that having own automated processes is a huge step ahead.

Q28: My plans are to start developing a solution for improvement of the HR processes by developing internal software solution with the help of BPM. Do you think that it is possible?

A28: Absolutely yes. In fact, that is the future of HR. We are all going to be data driven, automated humans with different working tasks.

If there are already developed international programs for this purpose, then why not about having our own.

However, my suggestion before you start doing this is to do deep research in the company and the HR department's processes in order to see the workflow and identify the gaps and inefficiencies.

Q29: Can I ask you for further help during my work on the thesis and access to all materials and resources of the company that can be used by employees?

A29: Yes of course you can count on me and my further assistance.

