Reengineering and Automation of Business Processes: A Case Study with Universities Travel Request Business Process

Abeer Al Hattami¹, Bodor Almotairy², Ola Toraba³, Salma Mahgoub⁴

^{1, 2, 3, 4}King Abdualaziz University, Department of Information System, Jeddah, Saudi Arabia

Abstract: The acceleration evolution in the business world makes the traditional business process that focuses on the success of each department individually, ignoring the organization vision and its success, not feasible. Therefore, business process management started to transform their business processes to be more automated which increase the productivity and achieve the business goal. This transformation leads the business processes to be reengineered to meet the new vision. This paper addressed the travel request at universities and how its cost influence universities budget as well as that create a bias between employees and their managers as there are no limitations for the travel approval. In this paper, an implementation of a business process reengineering using Bizagi platform is presented, to enhance the travel request business process. The reengineering involved specifying entitlement to reduce travel costs and increase the transparency between employees and their managers. A simulation to the new business process is then performed to analyze different benefits by the new To-Be Model.

Keywords: Business process reengineering, business process automation, travel request, business process management

1. Introduction

The acceleration evolution in the business world is increasing the competition between the corporations, and this would threaten the business persistence. For that reason, the business organization started to improve their business to precede other competitors and gain customer satisfaction. The business process management (BPM) emerged to control the business improvement by set of activities including methods, tools and techniques to support analysis operation, design, authorization of business and management. It aims to reach customer satisfaction [1]. Today, business corporations have a lot of challenges in dealing with competitors in the worldwide, reduce the business cost and develop the products and services offered to their customer [2]. To make the organization to get a high level of success, they are applying new ways of management to extend the improvement and increase the enterprise profit. This is done by rethinking and redesign of business processes which is called business process reengineering (BPR) [3]. BPR consists of activities that identifying the current business process, analyzing this process and redesigning it in a way for maximum effectiveness in manufacturing and service environment [3]. The improvement pursued by organization must be implemented using methodologies and technologies that use information system and human performers to automate and control the workflow tasks [2], and this technology is called business process automation (BPA). There are different kinds of BPMs such like ProcessMaker, Joget and Bizagi. This paper utilized Bizagi BPM, as it considered the best performance comparing

¹ https://www.bizagi.com

with others [4]. Bizagi¹ is a system for software development and process automation that implements the business process model which is reinforced with process automation to execute systems directly.

In this paper, we studied universities travel request which is considered as a burden the universities budget because of the high cost of expenses and lack of integrity in providing it.

In addition, it contributes the business process reengineering and process automation using bizagi platform to reduce the travel cost, decrease the bias that may happen from the employee managers and increase the transparency between employees and their managers. It also utilizes simulation to prove the effectiveness of travel process reengineering.

This paper is organized as follows: section 2 is the theoretical background that discussing the business process management, reengineering, automation and corporate travel management. Section 3 is the related work that addressed the business process automation. Section 4 illustrates our research motivation. From section 5 till 9, it covers the travel request process model as is, and the proposed solution to be, and provides a simulation for the proposed process automation. Section 10 discuss the future work. Finally, the conclusion is outlined.

2. Theoretical Background

This section aims to present detailed concepts for the development of this paper based on specific and scientific articles with this paper topic.

2.1 Business Process Management (BPM)

Volume 8 Issue 11, November 2019 <u>www.ijsr.net</u> Licensed Under Creative Commons Attribution CC BY

2.1.1 Definition and Concepts

Since the end of the 1980s, the field of business process management (BPM) becomes essential, and it has been extensively discussed. Thus, the project management, which defines a critical part of the BPM, become more efficient and offers many methodologies, models, and classification approaches [5]. Nowadays, numerous organizations trying to figure out their business process by identifying and measuring the key performance indicators and use these keys based on the business plan in order to implement means for process improvement and innovation [6]. Under this perspective, developing their policy based on the "best practices," thereby, how they can consider the transformation between countries [7].

BPM is one of the main objects, which is based principally on management activities that are linked to the business process [6]. Its effectiveness has been proven by helping organizations to boost and establish; as a result, the application of this process has developed in the context and scope [6]. Companies that routinely exercise BPM can continually improve the results obtained from their current operations, as reported by Nikolova-Alexieva (2012) [8].

The BPM's core consists of looking outside the functional boundaries in order to offer value to customers and to separate the business processes from the formal organizational structure [9]. Furthermore, it aims to increase the adaptability and performance of the organizational processes over innovation and improvement [10]. However, the implementation of BPM requires all organizations to be committed because of the lead to different roles, define new responsibilities, and manage other tasks that are entirely extracted by shifting both vertical to horizontal and functional to process focus [10].

2.1.2 Life Cycle

The BPM is primarily a multidisciplinary subject, "from theory to practice" requires knowledge of several fields: linguistics, organizational economics, and management theory, and mathematics. Given its multidisciplinary nature, the life cycle of generic business process modeling has many points of view, since the relation between the project and business reality is always unique, because of that we can say that it's impossible to predict its implementation manner [11]. The life cycle of BPM is generic and can be applied to any project. It is recognized as a continuous life cycle of integrated activities which is processed in an iterative way, including such as make the plan, do the full analyses, propose the design and modeling, implement the prototype, ensure the monitoring and control, and finally perform the transformation affected by many fundamental factors: society culture, its values, and beliefs [12]. Figure 1 shows the main component of the BPM.

Planning: This step has been implemented strategically, through processes and methodologies, in order to guarantee the added value to the customer and to take into consideration his expectations. It is very important to better understand customer-centric management and its organizational structure to ensure alignment with customers,

systems on strategy, and processes, beyond functional borders [12].

Analysis: During this phase, business process issues are extracted, delineated, documented based on desired objectives. At this stage, we integrate methodologies to provide an overview of the suitable model of business process, increase performance, resiliency, and find relationships. Several points are analyzed: the objectives of business modeling, the modeling scope, stakeholders, and the business environment [13].

Design and modeling: Belong this phase, we define the manner in which the organization wants this process to be, and this modeling has to be like questions answers, questions usually are: W4 (What, who, why, and when), and how.

The design covers have to be for future improvement process, not limited to the identification and design of existing business processes. It is essential to show the importance of the component design to ensure convenience measures. Thus, they are applied to enable performance and set measurement to be compliance. There are many software support design modeling involve actors, messages, process flows, notifications, or operational operations for future systems [12].



Figure 1 BPM Lifecycle. Source: [12]

The modeling phase illustrates many activities that aim to generate specific representations with a certain precision of proposed business process or an existing one [14]. This process aims to understand how the process should act variously and to analyze the design of the process [14].

Implementation: This step ensures the possible way to make the transition between what we have in theory and what we will execute. In other words, the processes considered the translation of abstractions to become executable by define changes from the "as is" to "to be" process. Although it must be prepared and executed [12], this can implement and commits two complementary facets: change management organizational, known as the set of activities required allow involved actors in the processes to accomplish things and process automation, which require to

Volume 8 Issue 11, November 2019 <u>www.ijsr.net</u> Licensed Under Creative Commons Attribution CC BY

configure and implement an information system that supports "as is" and "future" processes [13].

Monitoring and Control: During this step, process monitoring individually determine the necessary resource adjustments and generates performance statistics based on key measures that are related to organizational objectives and value. Thus, it can lead to improvements, redesign, or restructuring to control the process execution. [12]. "Every good process ends up becoming a bad process" [15] unless there are ongoing measurement and monitoring of business processes to keep pace with changing environment, the needs of customer, and also competition [13].

Transformation: In this last phase, iterative process life cycle outputs and data are carried out to optimize the flow of information, particularly, to improve the process. Otherwise, constraints and possible organizational change management issues are identified to optimize processes, reduce turnaround times, human interventions, and costs. On the other hand, the optimization process is managed so that it can be friendly to environmental changes and may achieve consistent and accurate results. Because if process optimization does not match the wanted results, it is recommended that implementing new engineering process to gain efficiency and productivity [12].

2.2 Business Process Re-engineering (BPR).

BPR is the fundamental overhaul and radical rebuild of business processes that dramatically enhance the contemporary and critical performance metrics such as speed, service, quality, and cost [16]. BPR's objectives are to improve customer service and reduce costs, raise technology, change organizational structure, rebuild business processes, change direction, or radically change [17].

Generally, the process starts by giving a definition of whole scope and extract the main objectives of the reengineering, after that, understanding process with many actors such as employees, customers, competitors, non-competitors, and new technologies. Alongside this knowledge base of a future vision as a consequence, new business processes design can be created. Given the definition of the *To-Be* state, an action plan can be generated depend on the difference between the structures, technologies, and current processes, and where the accomplishment. Figure 2 shows the reengineering phases [17].



Figure 2: Breakthrough Reengineering Model. Source: [17] Over time, many radical and decisive improvements and continuous improvements have been developed to address the challenges of applying major changes in the business. It is difficult to find a unique tactic that exactly matches the requirements of an organization. The main challenge is to determine which approach to use, when, and how to succeed in order to achieve net operational results. [17].

2.3 Business Process Automation (BPA)

BPA is the technological automation of business processes. Mainly, the automation process is a topic that can be approached from various sides. Broadly speaking, this may mean automating any part of the procedural work that included in a specific business process, from small operation complex processes [18].

Business Process Automation should not be confused with (BPM), which is a broader discipline implicate the management of complex organization-wide processes using different methodologies [18].

In fact, there are fascinating reasons to automate business processes [19]. First of all, business process automation can be a starting point for embracing the culture of continuous transformation. Second, the mapping process can bring transparency to all employees and also serve as a training resource. Third, the analysis of an automated process provides a clear understanding of the gap between the process as it is and what it should be ideally. Business Process Automation allows the organization to expect a consistent standard of results every time. Fourth, standardization helps to position the organization as reliable, which in turn can help broaden the customer base. Finally, one of the great results of the process automation system is the streamlining of processes; clear accountability, customizable notifications, valuable information, and shorter lead times facilitate the elimination of unnecessary activities and focus on improving value-added tasks.

2.4 Corporate Travel Management (CTM)

Corporate travel Management (CTM) is described as the employees' travel of a certain organization that commonly manages and consolidates its travel arrangements into a centralized function [20]. Corporate travel is a business consumption service [21] that end-users often use, book and purchase in a centralized way. Furthermore, corporate travel is a consumer service because only the individual consumer of the service uses it as a completed product. This kind of travel could be classified as a business service since commonly employers pay for it when need their employees to travel for work-related issues [22].

Like all business consumption services, corporate travel demands the whole organization keep up the great effort and constant interactions [21], centralizing managerial and operational levels [23]. Travel services are contracted at managerial level on the grounds of competitive bids [21]. However, the operational level manages bookings and payments to vendors and employees' daily allowances [23]. Corporate travel Management (CTM) is considered a task of a company's travel policy managing, the talks with every supplier, the daily program, safety and security of the traveler, and data management of credit-card and travel and expenses (T&E) [21]. Salary and benefits reflect the first highest controllable annual expense for various companies, while T&E costs come second but usually before IT or real estate costs. As the prediction of Global Business Travel Association (GBTA) in 2015, the total global business travel

Volume 8 Issue 11, November 2019 www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

expenses could exceed U.S. \$ 1.25 trillion. It also predicted that the Latin America could spend about U.S. \$ 52 billion, while India could spend 26 billion, and emerging Europe, Middle East, and Africa segment could have claimed U.S. \$ 82 billion [24].

Travel costs (employees and customers meals, taxi rental, tips, client gifts, and all supplies) are entailed in T&E costs besides those of travel (airline, rail, hotel, carfare, etc.). Corporate travel management also involves travel data management such as credit card, meeting arrangement, and the security and safety of the traveler [20].

3. Related Work

In this section, the most recent development in the field of Corporate Travel Management have been reviewed.

Study [25] contributed in the CTM filed by inventing an algorithm for calculation of flight delays. The study claim that travel disruptions have been increased lately due to the expansion of the number of corporate travels. These travel disruptions led to major negative effect on the corporate's budgets. For that, this study aimed to minimize the travel disruptions impact using new algorithm and therefore reduce the cost for corporate travels. The study constructed a model that involve the new algorithm which allow corporate travels to estimate the cost of the travel disruptions then take proper action to prevent it. An experiment has been conducted to evaluate the new model efficiency. The study tested the model in collaboration with an actual company at Washington D.C. The evaluation result shows that the new model was able to increase the productivity of the company in the defined experiment time.

Moreover, study [26] also used new algorithm to enhance the productivity of the corporate travels along with reducing their costs. The study relies on a specific principal of the organizational growth which is creating a motivating environment for the employee. The study suggests a new policy approach of optimal seat upgrading for employees with certain conditions that could motivate them and at the same time consumes the budget wisely. They stated their ultimate goal is to improve the efficiency and effectiveness of the employees during a business trip. Two quantitative models have been constructed. The first model designed to help organizations that need constraint-free policy for seat upgrading. While the second helps organizations that need budget constrained policy for seat upgrading. The study performed a basic cost benefit analysis for both models. The data collection has been gathered from a large multinational technology company's internal reimbursement records of business air travel in 2015. The performance efficiency of both models can be concluded by saying that the benefit and cost increase as budget increases, in addition to that, the net benefit will be increases too.

The study [20] highlighted the issue of the value conflicts among stakeholders in corporate travel management. The study indicated that value conflicts can lead to inefficiency in the management process. The aim of the study was to increase corporate travel management efficiency and reduce cost. For that, the study adopted the model called "Soft Value Management Model" in order to address each stakeholder independently along with their own values and objectives. The Soft Value Management Model originally created for project management in the field of engineering. The model work by coordinating the value and goal of both the team members and clients through effective interaction. Therefore, the model was appropriately applicable to measure the value conflicts in corporate travel management. The data collection that used to test the competence of the model has been taken from the Association of Corporate Travel Executives (ACTE) South African database. The data collection included around 520 South African corporation, 600 corporate travelers, 100 travel suppliers and 200 travel management companies. The data analyses results confirmed the presence of value conflicts in corporate travel management. But at the same time, using the model show success in coordinating the goals and values of these companies.

The study [26] carried out a comprehensive research about improving efficiency and reducing cost for corporate travel management. They used interviews and policy documents from two research projects focused on business travel and travel management in Sweden. The study discovers that one of the major issues facing corporate travel management is coordinating the travel management programs across different national countries. Another issue is organizing the priorities for the corporations and employees, where corporations focused on keeping travel costs down and employees needed comfort and convenience. The studies suggested the "meetings management" strategy as a solution for the previous issues. This strategy expands the communication among all the corporations' parties in order to reach a common satisfaction.

Since that reducing costs is a primary goal for corporate travel management, a strict policy strategy has been adopted by the corporations. The study [27] investigated the impacts and the suitable solution for the strict policy strategy in corporate travel management. The study declares that leisure travel and corporate travel management had similar aims, hence, the strict policy strategy can negatively affect the service quality. Thus, the study introduced two alternative strategies from the literature review. The first strategy based on the control-oriented, while the second strategy was based on the commitment-oriented. The paper initiated a case study to evaluate the efficiency of each strategy. The case study involved three parties: the buyer (Aalto University in Finland), the intermediary (hereinafter BTA), and the technology provider (hereinafter TeP). The data collection had been built by conducting direct observations, recordings, and interviews. The study concluded the data analyses results with stating that commitment-oriented strategy can provide better productivity for corporations and hence it will reduce cost.

4. Research Motivation

University travel purchases, which is the aim of this study, have some distinguishing features rather than any other

10.21275/ART20202804

1036

corporate travel. Firstly, despite the considerable funding sources (government, EU, private foundations, researchfunding agencies, etc.), little money is designated to travel. Secondly, there are worldwide travel destinations generally without typical or regular places. Thirdly, the hosting partner usually negotiates and picks out options for accommodation for participants in conferences and workshops. Thus, the control of university travel purchases is difficult unlike other private organizations [27].

In addition, some kind of bias in accepting and rejecting the application from some employees may arise. This can happen in cases of the large number of travel requests and fraudulent expense claims. Since big universities have a lot of travel requests, which cost high expenses. On the other hand, productivity of the university is achieved when efficiently executing employees travel [27]. Hence, the core of this study is about the crucial need to have a policy to control the travel requests, reducing costs and avoiding bias at the same time.

5. The As-Is Travel Request Process Model

This section presents the BPM models of current Travel Request processes [28]. This modeling aims to create an accurate and complete representation of Travel Request procedures. The current Travel Request Process is modeled by Bizagi studio.



Figure 3: AS-IS Travel Request Business Process Model

This process starts when the employee applies on a travel request to book a flight ticket. It also includes reserving a hotel and getting cash advance as an optional requirement as needed. The employee's manager will take the decision either to approve, reject or ask for a modification to the request. If the request has been approved, the administrative department will begin managing the travel request starting from booking a flight ticket, buy the ticket, reserve the hotel if required and preparing the advance for the employee trip. If the request has been rejected, a notification will be sent to the employee with the manager decision. If the manager asked for a modification, it request will return back to the employee to make adjustments, then it will send it back to the manager to take the decision, Figure 3 shows the Business Model of the Travel Request.

On the other hand, if the employee did not get an advance, there will be a sub process to report the expenses paid through the trip to pay it off to the employee as shown in Figure 4.

According to the previous scenario, only three roles are engaged in both business process they are:

1) Employee: an employee who is applying the travel request.

- 2) Manager: the decision maker for the employee request bases on HR confirmation.
- 3) Administrative Assistant: the employee who are handling the travel processes (flight ticket, hotel reservation and cash advance).

6. The *To-Be* Proposed Solution

As mentioned in section 4, big universities have a lot of travel requests, which cost high expenses. At the same time, universities designate little money to travel. Therefore, universities crucial need to organize travel requests process to curb expenses. Of course, this curbing will reduce the chances of employees to have travel, appearing some kind of bias in accepting and rejecting.

So, to help reduce cost and eliminate this kind of bias we propose and automate a new business process. The automation of a proposed business process provides a transparent travel request management since it engages the human resource (HR) section in travel approval decision. The HR approve or reject the travel request depending on employees' rights. The existence of such a process reduces the presence of managers' biases, as managers will have to provide justification for rejection the requests of employee who has met the conditions.

Volume 8 Issue 11, November 2019

<u>www.ijsr.net</u> Licensed Under Creative Commons Attribution CC BY

International Journal of Science and Research (IJSR) ISSN: 2319-7064 ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426



Figure 4: AS-Is Expenses report business process model Model

Of course, each enterprise has its policy to set conditions of entitlement to travel. This paper proposes and applies four conditions. First, the employee must not exceed the allowable number of travels based on the enterprise policy. For example, the company allows its employees to have three travels in a year, the employee has the right to travel as long as he\she did not travel 3 times at the same year. Second, the employee must spend a certain period in service based on the enterprise policy. Third, the employee must have the required visa to enter the requested country. Finally, the employee's travel request must comply with the enterprise policies.

7. The To-Be Travel Request Process Model

The process will start when the employee applies on a travel request to book a flight ticket. It also includes reserving a hotel and getting cash advance as an optional requirement as needed. The request will be transferred to the human resource section to confirm the employee's right in traveling, If the employee does not deserve the trip, a notification will be sent to the employee with the HR decision. If the request has been approved, the manager will receive the request to decide in the employees' request. The employee's manager will take the decision either to approve, reject or ask for a modification to the request. If

the request has been approved, the administrative department will begin managing the travel request starting from booking a flight ticket, buy the ticket, reserve the hotel if required and preparing the advance for the employee trip. Of Course, there are a limited option during book flights and hotels procedures to ensure the minimum cost.

If the request has been rejected, a notification will be sent to the employee with the manager decision and comments. If the manager asked for a modification, it request will return to the employee to make adjustments, then it will send it back to the manager to take the decision, Figure 5 shows the To-Be Business Model of the Travel Request.

According to the previous scenario, we add one role in the business process which is human resource, finally we come out with four roles, and they are:

- 1) Employee: an employee who is applying the travel request.
- 2) HR: Human resource section which confirm the employs right in traveling.
- 3) Manager: the decision maker for the employee request based on HR confirmation.
- 4) Administrative Assistant: the employee who are handling the travel processes (flight ticket, hotel reservation and cash advance).

8. The *To-Be* Process Monitoring and Optimization

8.1 Concept

The proposed model has simulated in order to evaluate its performance over long periods of real time and under different configurations. We used Bizagi Simulation [29] which follows BPSim (Business Process Simulation) standard. Bizagi Simulation only allow to simulate business process built in BPMN. Bizagi Simulation help to validate process, throughput time, and needed resources.

Through process validation level, we can validate that all instance tokens have ended, all messages and gateways are synchronized, and decisions assigned are correctly. Throughput time validation level is useful in detecting delays in the process flow by calculating end-to-end process time.

Volume 8 Issue 11, November 2019 <u>www.ijsr.net</u> Licensed Under Creative Commons Attribution CC BY Resource validation demonstrate the possible effect of resource constraints on process performance.

The most problems arising from setting resources constraints is that tokens may wait before it being processed at a given time. Thus, increasing in delays, thereby reducing the performance of the process. Therefore, the aim of this validation is to validate the process flow through all the model events. Plus, to minimize and identify the impact of these constraints in term of cycle time.

8.2 Validation Scenario

• **The number tokens:** as Bizagi has recommended we defied 1000 token instances to allow the execution to stabilize and present reliable outcomes [29].

• The gateway conditions:

Right confirmed: we assume that 30% of the requests have a right to travel.

Request approved: we assume that the manager approve the 50% of the requests to keep the balance in his department.

• Resources:

In this project validation, we only consider the human resources, the following human resources have set:

- 1000 employees.
- 30 managers, we assume each manager manage around 30 employees.
- 15 HR employees.
- 10 administrative department.



Figure 5 To-Be Travel Request Business Process model Model

1039

International Journal of Science and Research (IJSR) ISSN: 2319-7064 ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426



Figure 6 The validation of the proposed business process Process Model

Table 1: Proposed business	process validation result Proc	cess model Model
----------------------------	--------------------------------	------------------

Name	Туре	Instances completed	Instances started	Avg. time (m)	Avg. time waiting for resource (m)
Travel Request	Process	1000	1000	2231.2777248	
Travel Advance Required	Gateway	118	118		
NoneEnd	End event	882			
Request Approved?	Gateway	322	322		
Register Bookings	Task	118	118	128.90313220339	8.90313220338982
Gateway	Gateway	118	118		
Buy Ticket	Task	118	118	134.237288135593	14.2372881355932
Register Travel Request	Task	1100	1100	120	0
Disburse Travel Advance	Task	118	118	134.237288135593	14.2372881355932
NoneEnd	End event	118			
Approve Travel Request	Task	322	322	120	0
Manage Travel Advance	Task	118	118	128.90313220339	8.90313220338982
NoneStart	Start event	1000			
Right Confirmed?	Gateway	1100	1100		
Confirmation of right	Task	1100	1100	1687.93895854546	1567.48860509091
Notify Advance Approved	Task	118	118	12.0143593220339	12.0143593220339
Send Rejection Message	Task	882	882	0	0
Notify Employee	Task	118	118	12.8525966101695	12.8525966101695
Notify Reservation	Task	118	118	12.0143593220339	12.0143593220339
Report Expenses	Task	118	118	1440	0

- **Time:** In order to avoid delays, the tasks must not take long time. Therefore, we sat two hours for all tasks. Regarding the HR and the manager tasks, the processes do not need many procedures. Also, these days the hotel booking and buying the tickets processes do not consume time due to the online booking platforms facilities.
- **Calendar:** The work time is one shift, 8 hours, and 2 weekend vacation.

Figure 6 shows the resulted simulation; the HR is the most stressed resources followed by the administrative department. Table 1 shows the simulation results, all tokens have ended successfully, the highest delays is occurred in HR, it reaches 1567.48860509091 min.

9. The To-Be Travel Business Process Automation

The most important advantage in the design of proposed travel request business process is the transparency offered by the automated system. Transparency allows enterprises to find the right things to do. The To-Be travel request was automated by Bizagi studio. Bizagi studio allows building a data model and forms. It also allows writing an expression to control the processes.

 Request Information 					
Request Date:	10/21/2019				
Full name:	Abeer				
 Flight Information 					
Departure From:		Departure Date:	M/d/yyyy		
Arrival At:		Arrival Date:	M/d/yyyy		
Country:	Please select	•			
Flight Comments:					
 Hotel Information 					
Book Hotel:	🔾 Yes 🚫 No				
 Advance Information 					
Advance Required:	🔾 Yes 🚫 No				
				Save	N

Figure 7: Applicant -register travel request- form Process model Model

Figure 7 shows the first form which is the register travel request forms. In this form the employee fills the required information: departure from and date, arrival to and date, country, select if to book a hotel or not and if advance required or not. The applicant name, applying date and applicant location will be filled automatically once the request is submitted, the total advance required will be set automatically.

Figure 8 shows the HR - confirmation of rights - form. The applicant information will be filled automatically. The HR identify if the applicant matches each condition or not.

Finally, the HR set if the applicant has a right to travel or not. If the applicant doesn't have a right to travel, the applicant will be notified, and the process will be finished. In Figure 9, the manager receives the request which filled by applicant information and HR decision. If the manager accepts the request the applicant will be notified and the request will send to the administrative department to start the travel procedures, If the manager reject the request, he must write his justification. We only brows the forms which clarify the proposed solution, the remaining forms available on Travel Request processes [28] presented by Bizagi.

 Request Information 			
Request Date:	10/21/2019		
Applicant:	Abeer		
Email:		aalhattami0005@stu.kau.edu.sa	
Flight Information			
Departure From:	Jeddah	Departure Date:	10/22/2019
Arrival At:	London	Arrival Date:	10/21/2019
Country:	England		
Hotel Information			
Book Hotel:	Yes		
> Advance Information			
✓ HR Information			
Country Visa:		🔾 Yes 💭 No	
Employee Visa:		💭 Yes 💭 No	
Maturity Period:		💭 Yes 🔘 No	
Number of Travel Allowed:			
Number of Travel Taken:			
Travel Policy:		O Yes O No	
✓ HR Decision			
HR Approved:		🔾 Yes 💭 No	
			Saya

Figure 8: Applicant -register travel request- form Process model Model

Request Information			
Request Date:	10/21/2019		
Applicant:	Abeer		
Email:		aalhattami0005@stu.kau.edu.sa	
✓ Flight Information			
Departure From:	Jeddah	Departure Date:	10/22/2019
Arrival At:	London	Arrival Date:	10/21/2019
Country:	England		
Y Hotel Information			
Book Hotel:	Yes		
> Advance Information			
> HR Information			
W HR Decision			
HR Approved:		Yes	
V Approval Information			
Travel State:	Approved Rejected Request Change		
			Save

Figure 9 Manager - approved travel request - form

10. Future Work

To solve the delays and the HR consuming problems, we plan in our future to execute the same business process using Robotic Processes Automation (RPA) instead of real human resources in HR. RPA is a technological inspiration based on human acts which can define in an automatic way based on rules tasks which are structured, repetitive, with no added value, and for business processes in a cost-less manner, fast, accurate [30].

11. Conclusion

This paper proposed and implemented through Bizagi Platform the business process reengineering for universities' travel request which recommended to involve HR on their approval processes to check the employee entitlement for the trip, in order to decrease the travel cost by limitate the travel request approvals, reduce the bias and keep the transparency between employees and their managers. In addition, this paper suggested to use robotic process automation to solve the delay that may occur while involving HR process, and to make it fast, accurate and cost-less manner.

References

- A. H. M. Ter Hofstede, A. H. M. Ter Hofstede, and M. Weske, "Business process management: A survey," *Proc. 1ST Int. Conf. Bus. Process Manag. Vol.* 2678 *LNCS*, pp. 1--12, 2003.
- [2] D. Georgakopoulos, M. Hornick, and A. Sheth, "An overview of workflow management: From process modeling to workflow automation infrastructure," *Distrib. Parallel Databases*, vol. 3, no. 2, pp. 119–153, Apr. 1995.
- [3] Y.-C. Chen, "Empirical modelling for participative business process reengineering," 2001.

- [4] F. Mohamed Zeinelbdeen Abdelgader, O. O. Salih Dawood, and M. Mohamed Elhafiz Mustafa, "Comparison of The Workflow Management Systems Bizagi, ProcessMaker, and Joget."
- [5] D. Ćirić, B. Lalić, D. G.-I. J. of, and undefined 2016, "Managing innovation: Are project management methods enemies or allies," *ijiemjournal.uns.ac.rs*, vol. 7, no. 1, pp. 31–41, 2AD.
- [6] J. vom Brocke, S. Zelt, and T. Schmiedel, "On the role of context in business process management," *Int. J. Inf. Manage.*, vol. 36, no. 3, pp. 486–495, Jun. 2016.
- [7] B. Levy, Working with the grain: Integrating governance and growth in development strategies. Oxford University Press, 2014.
- [8] V. Nikolova Alexieva, "Exploring the State of Business Processes Management in the Bulgarian Enterprises," *Procedia - Soc. Behav. Sci.*, vol. 62, pp. 1350–1354, Oct. 2012.
- [9] J. Tang, L. G. Pee, and J. Iijima, "Investigating the effects of business process orientation on organizational innovation performance," *Inf. Manag.*, vol. 50, no. 8, pp. 650–660, Dec. 2013.
- [10] T. Schmiedel, J. vom Brocke, and J. Recker, "Development and validation of an instrument to measure organizational cultures' support of Business Process Management," *Inf. Manag.*, vol. 51, no. 1, pp. 43–56, Jan. 2014.
- [11] R. K. L. Ko and R. K. L., "A computer scientist's introductory guide to business process management (BPM)," *Crossroads*, vol. 15, no. 4, pp. 11–18, Jun. 2009.
- [12] A. of B. P. M. Professionals., "Guide to the business process management common body of knowledge.," 2009.
- [13] M. Dumas, M. La Rosa, J. Mendling, and H. A. Reijers, Fundamentals of Business Process Management. Berlin, Heidelberg: Springer Berlin Heidelberg, 2013.

Volume 8 Issue 11, November 2019

<u>www.ijsr.net</u>

Licensed Under Creative Commons Attribution CC BY

- [14] Z. D. Nastaran Hajiheydari, "BPM Implementation Critical Success Factors: Applying Meta-synthesis Approach," in *International Conference on Social Science and Humanity*, 2011.
- [15] M. Rosemann and T. Bruin, "Towards a Business Process Managment Maturity Model," *ECIS 2005 Proc.*, Jan. 2005.
- [16] M. Hammer and J. Champy, *Reengineering the Corporation: Manifesto for Business Revolution, A.* 2009.
- [17] S. Mohapatra, "Business Process Reengineering: A Consolidated Approach to Different Models," Springer, Boston, MA, 2013, pp. 1–38.
- [18] M. Dumas, M. La Rosa, J. Mendling, and H. A. Reijers, "Process Automation," in *Fundamentals of Business Process Management*, Berlin, Heidelberg: Springer Berlin Heidelberg, 2013, pp. 297–352.
- [19] E. F. Watson and K. Holmes, "Business Process Automation," in *Springer Handbook of Automation*, Berlin, Heidelberg: Springer Berlin Heidelberg, 2009, pp. 1597–1612.
- [20] A. Douglas and B. A. Lubbe, "Identifying value conflicts between stakeholders in corporate travel management by applying the soft value management model: A survey in South Africa," *Tour. Manag.*, vol. 27, no. 6, pp. 1130–1140, Dec. 2006.
- [21] F. Wynstra, B. Axelsson, and W. van der Valk, "An application-based classification to understand buyer-supplier interaction in business services," *Int. J. Serv. Ind. Manag.*, vol. 17, no. 5, pp. 474–496, Oct. 2006.
- [22] R. E. Bell, R. Anderson, and L. Pratson, "Gravity gradiometry resurfaces," *Lead. Edge*, vol. 16, no. 1, pp. 55–59, Jan. 1997.
- [23] A.-M. Holma, "Interpersonal interaction in business triads—Case studies in corporate travel purchasing," J. Purch. Supply Manag., vol. 18, no. 2, pp. 101–112, Jun. 2012.
- [24] G. B. T. Association., "GBTA Foundation annual forecast predicts global business travel spending to hit record high of \$1.25 trillion in 2015.," 2016.
- [25] L. Sherry, "A method for quantifying travel productivity for corporate travel managers," J. Air Transp. Manag., vol. 42, pp. 118–124, Jan. 2015.
- [26] S. Chen, G. Ren, and M. He, "A quantitative approach to determine a corporate's optimal seat upgrading policy of air travels," in 2017 6th International Conference on Industrial Technology and Management, ICITM 2017, 2017, pp. 108–113.
- [27] "Ensuring corporate travel compliance Control vs. commitment strategies," *Tour. Manag.*, vol. 51, pp. 60– 74, Dec. 2015.
- [28] Bizagi Company, "Travel Request Bizagi Suite," 2016.
- [29] "Bizagi 11.2.3 BPM Suite User Guide Digital Business Platform." [Online]. Available: http://help.bizagi.com/bpmsuite/en/index.html?simulation.htm. [Accessed: 19-Oct-2019].
- [30] S. Aguirre and A. Rodriguez, "Automation of a business process using robotic process automation (RPA): A case study," in *Communications in Computer and Information Science*, 2017, vol. 742, pp. 65–71.

Volume 8 Issue 11, November 2019

<u>www.ijsr.net</u>

Licensed Under Creative Commons Attribution CC BY