# BUILDING A BUSINESS PROCESS MAP USING BPM TOOLS AND BPMN NOTATION

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Abstract: This paper aims at discussing business process management tools and the BPMN notation, identifying particular strengths of these tools and notation, supported by a case example, namely a project case on business process re-engineering. We will explicitly consider the phases that we normally follow in realizing such a project (project organization, key people, tasks, resources, deliverables and a project management method). This will support our concluding about strengths of the above-mentioned tools and notation.

## 1 INTRODUCTION

This paper aims at discussing business process management tools and the BPMN notation, identifying particular strengths of these tools and notation, supported by a case example, namely a project case on business process re-engineering. We will explicitly consider the phases that we normally follow in realizing such a project (project organization, key people, tasks, resources, deliverables and a project management method). This will support our concluding about strengths of the above-mentioned tools and notation.

In general, companies need Business Process Management (BPM) model(s), as a way of assuring good organization. The process mapping related to this is therefore essentially important. It appears like a key activity in managing and organizing all (business goal –driven) activities within a company.

In considering BPM strategies in our work, we are based on the PDCA interactive four-step management process (PDCA stands for 'plan–do–check–act'); the PDCA process is typically used in considering quality issues. It is also known as the Deming circle (Walton & Edwards, 1988).

As suggested by Fig. 1, a problem definition should come first, followed by analysis & objective setting, measures determination, consideration of alternative solutions, and identification of the best solution. All this concerns the planning. Then solutions need to be applied and evaluated, and finally improvement actions and/or standardization would need to be applied.

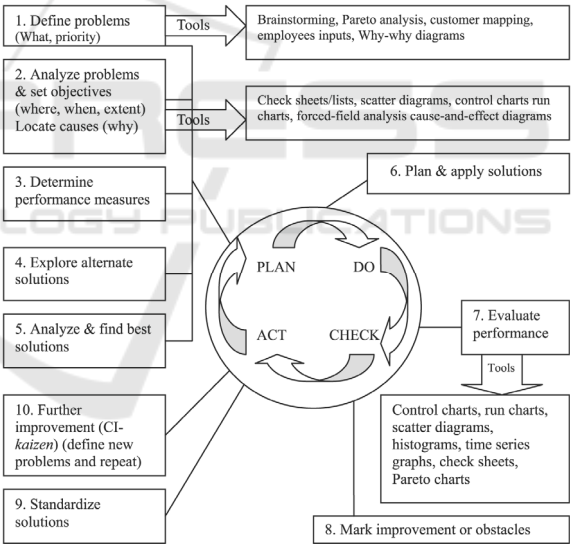


Figure 1: A typical PDCA model.

This is known in theory but applying adequate management and establishing appropriate control in practice remains a challenge.

As already mentioned, we aim in the current paper at considering BPM tools + BPMN notation, and identifying particular strengths of theirs with regard to the above challenge.

The remaining of this paper is organizaed as follows: Section 2 will briefly introduce and discuss the BPMN notation; further on, Section 3 will consider a business process re-engineering process;



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Section 4 and Section 5 then discuss these in the light of a case study – introducing the case is done in Section 4 and tool consideration is done in Section 5; Section 6 contains the conclusions.

## 2 MODELING STRATEGY USING BPMN NOTATION

Being a business process modeling standard, BPMN was developed by Business Process Management Initiative (BPMI), and is currently maintained by the Object Management Group (BPMN Home, 2011).

With respect to this, it is interesting to consider BPMN from a methodological perspective - origin and which are the key elements, which it possesses. It is interesting not only discussing this but also establishing where to obtain more information and which are the principal institutions linked with BPMN.

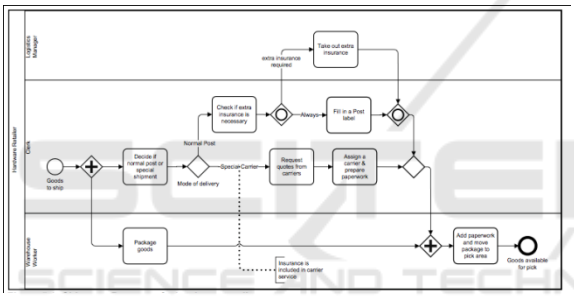

Figure 2: A shipment process of a hardware retailer (a sample).

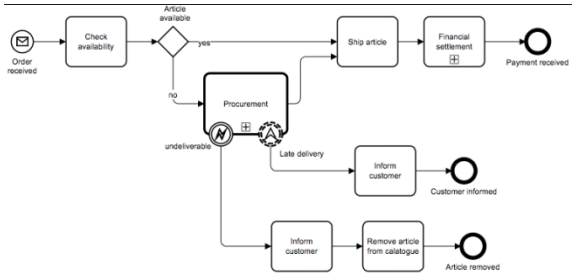


Figure 3: Order fulfilment and procurement (a sample).

Figure 2 and Figure 3 illustrate some important features of BPMN and for more information interested readers are referred to (BPMN Home, 2011).

For the sake of brevity, we will not discuss BPMN in more detail in the current section.

## 3 PROCESS RE-ENGINEERING PHASES

As according to Dietz (1994), the re-engineering of business processes needs sound modeling and proper notations, such that the re-designed (part of the) business processes are guaranteed to fit in the broader context.

As process improvement is concerned, the typical process re-engineering phases are to be taken in consideration, being reflected in addressing the following points: project organization, key people, tasks, resources, deliverables and project management method.

For the sake of brevity, we will not go into further detail here, presenting only (for partial exemplification) the "Buldeza´s Project" that has been realized in the northern Bulgarian city of Pleven.

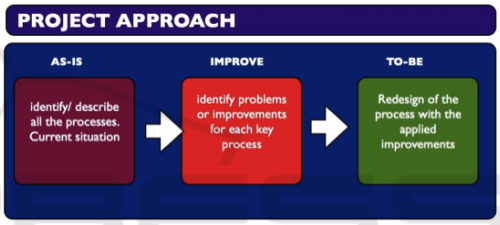


Figure 4: The approach followed in the “Buldeza’s Project.

As seen from Fig. 4, the ‘to be’ situation is reached by properly projecting improvements, having an ‘as is’ situation as starting point.

The way we are modeling and the notations we are using are thus of great importance for appropriately introducing our intention in a real-world business system.

## 4 DESCRIPTION OF THE “BULDEZA’S” PROJECT

As already mentioned in the current paper, we will discuss a case study – the “Buldeza’s” project.

### 4.1 Why a BPR Project

The company under consideration is undergoing reorganization in its plant in Bulgaria (Pleven), focused on the improvement of management processes efficiency. The need for reorganization has been motivated not only by the company’s

growth but also by a forecast concerning the support of this increase in next years.

### 4.2 The Project

The project has been structured in the improvement of three principal areas: production, confection and store of raw material. Also initially, has been setup the control of presence of the people, using an integrated system with the headquarters in Spain.

In production area has been proceeded the improvement of the manufacturing processes, as well as a reorganization of the human resources. There was established a performance control system in plant. After realizing this step, one proceeded to analyze the flow of confection and to establish mechanisms to increase the performance as well as the traceability of the garment inside the area. Later been setup the logistic control integrated to BULDEZA's central warehouse.

The system is based on a method of locations and areas management, , where, since the receipt of the raw material, a total traceability exists: the spinning is identified in the warehouse and is located in a specific position of the store sorted by: qualilty of the spinning, color, and dyed.

### 4.3 Results

After finishing this project, the company has in production area one performance control system in plant diary, in different perspectives: machines, articles, people or section.

The Warehouse of raw materialis integrated with the production process, then when an order of manufacture is emitted, the spinning is visualized and the system tell us the number of kilos availabe in the Warehouse and his exact position (X,Y).

For this reason, the time of search of the spinning has diminished because now this information is obtained automatically.

Definitively, nowadays the set of processes of manufacture – confection are more efficient and have allowed to optimize the resources and at the same time to increase the productivity.

## 5 TOOLS USED

Both for the sake of managing the project and introducing improvements, it is necessary to apply modeling tools and graphical notations in directions discussed already in the paper; Fig. 5 and Fig. 6 are just illustrating this.

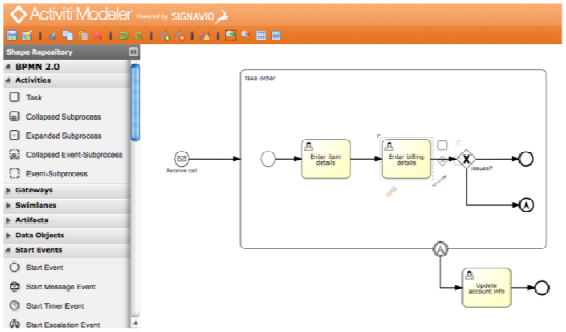


Figure 5: Tools used (Take Order).

As it is seen from these figures, the tools have potential for supporting the management with regard to possible (re-)design of business processes, simulating them, and visualizing their execution.

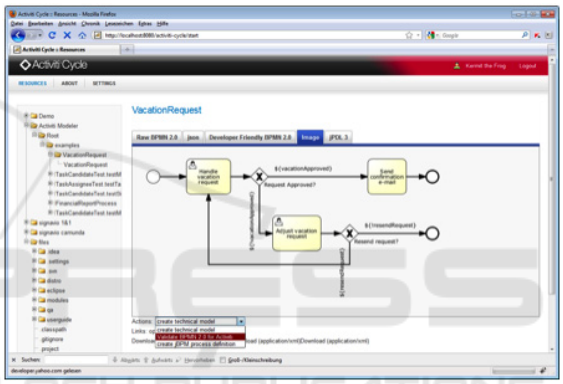


Figure 6: Tools used (Vacation Request).

This potential has been demonstrated in the case study considered.

## 6 CONCLUSIONS

Business Process Modeling Notation (BPMN) is a graphical representation for specifying business processes in a business process model. BPMN was developed by Business Process Management Initiative (BPMI), and is currently maintained by the Object Management Group since the two organizations merged in 2005. On the other hand, there are business process modeling tools available on the market, based on BPMN, that could be helpful in realizing process generation using an easy and understandable process map. These tools can be grouped by functions such as: modeling, documentation, simulation and execution (in essence, BPM tools take graphical process descriptions as input). A process is composed of

activities that are connected with transitions. Processes represent an execution flow. The graphical diagram of a process is used as the basis for the communication between non-technical users and developers. This all makes BPM tools and the BPMN notation useful at the management level of companies, as a way for mastering complexity and leading businesses properly.

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