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# Process modeling in the Bulgarian enterprises

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## Abstract

Process modeling is a popular technique used by process practitioners to capture, organize and communicate information about business processes. Process models can be drawn on blackboards, on paper, or they can be represented in digital form in various types of process modeling software. Process models, as a significant part of process management can be very high level abstractions that define phases of activity or they can be very detailed representations of the steps taken and the decisions made in a specific operation. The survey used the term “process modeling” very broadly to allow us to consider any and all types of modeling. This report summarizes information provided by 520 respondents who completed Process Modeling Survey between January and September in 2012. The information in this report will provide readers with insights into the ways that process modeling is being used in the Bulgarian organizations today. The respondents of this survey are registered members of Confederation of the Employers and Industrialists in Bulgaria and they are more managers and practitioners interested in a comprehensive approach to process management than those interested in more narrowly focused concerns, like Six Sigma, Business Rules or Business Process Outsourcing. As a result the survey shows that in Bulgarian organizations the number of managers who are working to change processes increased significantly. Vast majority of Bulgarian enterprises, the large and the small and medium as well, getting more mature in process management and they used mix of methodologies, that are traditions in business process work. One tradition is focused on Quality and is currently represented by Lean and Six Sigma, one is focused on IT and is represented by software – focused methodologies, and a third is a management tradition focused on improving the overall performance of the organization, associated with Business Process Reengineering.

## 1. Introduction

Over the last decade, Bulgarian enterprises focused on the projects for the improvement of a specific process. Today leading organizations are focused on enterprise business process architectures [1] and on developing corporate performance management and measurement systems that will allow senior executives to plan, monitor and manage enterprise-wide transformation efforts. Many of these enterprise efforts are being facilitated by newly available business process frameworks, that make it possible to create enterprise models and performance measurement systems in weeks rather than months. During the same this period, new tools and methodologies have become common among those under taking business process change projects in Bulgarian companies like Six Sigma and

Business Process Reengineering projects [2]. Six Sigma programs in most major organizations have expanded and now include Lean technologies. New process modeling notations have begun to replace earlier notations. There has also been significant work done to integrate business process modeling techniques with business rules technologies[3]. In a similar way new software tools have made it possible to automate and day-to-day management processes. Business Process Management Systems (BPMS) were unknown in 2005 for the Bulgarian managers and are now widely available and becoming very popular. During the same time period a number of technical standards have been created to support these new software tools. A significant portion of the Bulgarian companies seeking to describe or document business processes use either Word to create outlines, or graphics tools like Visio or PowerPoint. The advantage these tools offer is simplicity and familiarity. Most business managers already have them and are familiar with their use. The disadvantage of these products is that they are not designed to create a database or repository that can save and accumulate information about business processes. Thus, they tend to be used on isolated business process projects. It is nearly impossible to maintain business process documentation in these tools, and, thus, redesigns done using these products tend to be useless for subsequent redesign projects or for the development of an enterprise process architecture. Most BP Modeling tools allow analysts to identify and save business rules. Most BPMS tools incorporate rule management tools that at least allow for the identification of business rules used in specific business processes. In some cases the Rule Management tools can be used to actually analyze business rules at runtime and generate or suggest decisions using logical inferencing techniques.

This report summarizes information provided by 520 respondents who completed Process Modeling Survey between January and September in 2012. The respondents of this survey are registered members of Confederation of the Employers and Industrialists in Bulgaria and they are more managers and practitioners interested in a comprehensive approach to process management than those interested in more narrowly focused concerns, like Six Sigma, Business Rules or Business Process Outsourcing. The main goal of this survey is to draw picture of the ways that process modeling is being used in the Bulgarian organizations today and the results reflect the perspectives of a broad base of Bulgarian managers interested in Business Process Management. Report offers to reader's insights into the kinds of BPM development efforts currently underway and the ways their own company's BPM efforts compare with those of other companies.

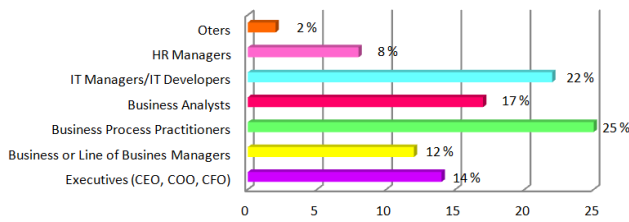
## 2. Exploration

For settle what is the importance of BPM and how process modeling is being used in the Bulgarian organizations today this survey was held in 520 Bulgarian

enterprises during the 2012. In this case we sent an e-mail to the membership of Bulgarian Chamber of Commerce and Confederation of the Employers and Industrialists in Bulgaria – CEIBG invited them to participate in the survey. The selected sample of study consist of small, middle and large companies that represent broad cross section of Bulgarian industries. Partial completes are not included in the tabulations. In the charts and tables that follow, some of the totals will add to less than 520 because some questions are not relevant to some respondents, or because some questions allowed respondents to select more than one answer. In addition, total percentages do not always sum to exactly 100% because of rounding, or because the question allowed the respondent to select more than one answer.

The respondents were asked to identify the industry in which they worked. The categories match those used by Bulgarian Department of Labor. The largest group (68%) chose "Food/Beverage", and second largest group is from financial services – 58%. The companies from Food/Beverage industry and from financial services industry is very competitive, generates high profit margins, and depends on computer systems to support or implement its services. Thus, they have always been quick to invest in any new IT hardware or software that might give them a competitive advantage. The next largest groups (53%) is in telecommunications and from the computers/consumer electronics/software industry (48%) and retailing (48%). Most of those choosing computers/consumer electronics/software are probably in the software area. The problem with this industry group comes in distinguishing those who are vendors of business process products and services, and those whose companies use BPM products to support their internal process work. Other groups are as follows: Education –42%, Energy-35%, Light manufacturing – 33%,Business consulting - 32%,Travel/Entertainment- 29%, Heavy manufacturing – 19%, Health care/Medical Equipment – 18% and Chemicals- 14%.The largest group (23%) chose "Other", and most of those identified their industry as consulting.

Each respondent were asked to describe his or her job or function within his or her organization. The chart, presented in Figure 1, shows how the respondents answered this question. About half (42 %) describe themselves as either a business analyst or business process practitioner (See Figure 1.) The other respondents saying they are from IT – 22%, and about 24% saying they are business managers and executives. The number of respondents selecting "Other" is only 2%. Some described themselves as a kind of an architect, with a significant number describing themselves as "business architects." This is new for Bulgarian practice, and represents a growing interest in that job title. Besides "architects," most of the other respondents who wrote in a title suggested that they were serving in some kind of consulting or advisory role.



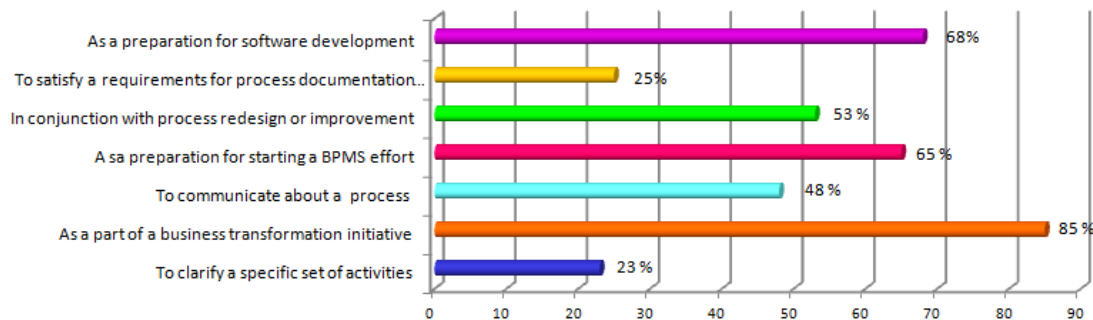
**Fig1.** Respondent's job title or function.

The respondents were asked if they would be describing their entire organization, or simply a division or business unit within a larger organization. 24% percent said they were reporting on the entire enterprise, 19% on a division, and 57% said they were reporting on a single business or functional unit

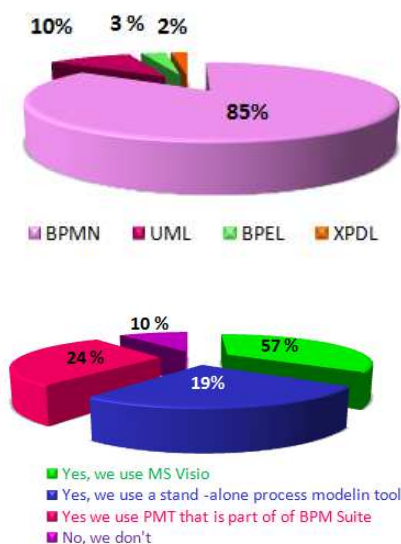
When they were asked to indicate the overall size of the organization he or she would be describing, 56 % were reporting on a company employing 50-99 employees, 30% on companies with 10-50 employees and 14% were in

organizations with over 100 employees. This represents a nicely balanced response. If one factors out consultants and small companies, one finds that the number of executives represented in the survey drops. In this survey, the respondents divide between small, midsize (50-99 employees) and large organizations, with approximately one third in each category.

Tose of respondents who do modeling were asked how they use business process modeling. They had 8 choices from which they could pick more than one (See Figure 2.). It could divide the responses here into roughly three groups: Those who said they use process modeling to Clarify and Satisfy a Process Documentation Requirement were each between 23%-25%. Those who use process modeling to Communicate about the process or use it in Conjunction with Process Redesign or Improvement were between 48-53%. Respondents who said they use process modeling as a preparation for software development, or as a preparation for starting a BPMS effort, or as a part of a Transformation Initiative were between 65 and 85%.



**Fig2.** How do you use business process modeling.



**Fig 3(a).** The business units describing; (b) Process modeling notations and standards.

Most of the respondents are not IT developers, but business process practitioners, systems analysts or business managers. With that qualification, process modeling is

being used to define, redesign and communicate information about processes. Its use as a preparation for a transformation effort or for software development is still significant, but its use for ERP or for BPMS, is strictly tertiary. We also checked this result with more specific functions. For example, the pattern is the same with Business Analysts as with those who defined themselves as Business Process Practitioners and it is the same for respondents who identified their industry as computers or consulting, as with those in other industries [4],[5].

Similarly, one can use digital diagram to create models in tools like Visio, or one can use much more powerful modeling tools in which each element of the process is defined in a database. The value of database-based (also one can use digital diagrams to create models called repository-based) modeling tools is that they save the models and allow their reuse. More important, they allow managers to begin to build a database of all of the processes, and information about specific processes, used in the organization. A repository-based modeling tool is hardly simple [3], but it's relatively simple compared with a BPMS suite or platform that allows not only create a diagram of a process, but to execute the process at runtime (as one does with a workflow system or with an ERP

application). The process modeling, in a BPMS tool functions as the instructions which the BPMS engine implements when it processes a customer request. We are not interested in BPMS tools or BPMS applications, as such, in this survey. We are interested in BPMS as a driver for process modeling, and as a kind of “advanced” process modeling environment [3]. To simplify things, we will divide our discussion, first considering simpler diagramming tools (like Visio) and repository-based process modeling software, and then, in the following section, we will consider the role that BPMS software is playing in the process modeling arena.

We asked about use of software tools – whether or not one is used to create or save process models – and if, yes, what kind of tool is used. (See Figure 3 (a).) The vast majority use a software tool to create or save their models. Only 10 % do not. Most use MS Visio (57%) and the rest are pretty evenly divided between those who use a process modeling tool that is part of a BPM Suite (24%) and those who use a stand-alone tool (19%). Keep in mind that respondents could choose more than one response, and as we will see later, many use both Visio or a stand-alone process modeling tool, and a BPMS suite.

The respondents were asked which modeling notations or standards they are using. They could choose more than one. (See Figure 3 (b).) The vast majority (85%) are using BPMN. Standard UML, listed by 18% but more than BPEL (3%) and XPDL (2%). Clearly the only process modeling standard that is really important to our respondents is the OMG’s BPMN standard. BPMN is not only a notation, but, it is rigorously used as a language that can be used to generate code. For organizations that are doing process modeling today and want to keep the option open for moving to BPMS applications in the future, BPMN is the best way to maintain their flexibility [3].

We asked respondents who used process modeling tools – again we are talking about 44% of the total number of respondents – to tell us what three features of a tool are most important to them. The future considered by the majority (67%) as most important is the ability to store models and process data in a repository. The next two important features, considered so by similar numbers are the ability to create complex nested models (55%) and the ability to create simple models of processes (42%). Two other features were essentially tied for 3rd place – the ability to print models (26%) and to support for a standard notation or modeling language (23%). Next in line is the ability to create complex models of processes (20%), ability to post models on the web to be widely shared (19%) and ability to do simulations (12%).

### 3. Conclusion

The interest in process work is growing steadily in Bulgarian enterprises. More process practitioners are using process modeling tools today than ever before. Bulgarian

companies need to model and improve their processes, and become convinced of the value that process improvement can deliver, before they will be ready to invest in expensive BPMS tools. Smart BPMS vendors need to work to increase the numbers of organizations that use process modeling, they need to encourage organizations to develop process architectures and create good process measurement and management systems as a prelude for automated process management. They need to work with leading organizations that are already heavily committed to process work, to create a few killer applications that will convince the majority of organizations that they need to adopt this new technology or be placed at a significant competitive disadvantage.

With the important qualification that this survey was completed by an audience that had self-selected itself as being interested in business process change, 90% of the respondents said they or their organizations were doing business process modeling. The process modeling, in its various forms, is the major technology or tool used by process practitioners and business analysts as they seek to define the way their organizations do work. Visio is still the most widely used process modeling tool, but, compared with even few years ago, the number of practitioners using more sophisticated modeling environments that allow users to save and reuse information about their processes, has grown rapidly. Moreover, the great majority of today’s practitioners prefer the Object Management Group’s BPMN standard – suggesting that a common notation is beginning to permeate the business process community.

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