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The Method of Business Process Oriented Tool Selection in Information Systems Development Projects

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Abstract: The focus of this paper is to provide an overview of the nature of business process oriented tools and to develop a procedure that could help managers in the selection process in relation to the project goals, critical success factors, and business process oriented tools criteria. The proposed procedure is based on the Analytic Hierarchy Process (AHP) method, which is flexible and can be adapted to different company and project types.

Key words: business process management, business process modelling, business process orientation, information system, critical success factors, AHP method

JEL Classification: M100

Introduction

In the 1990s, organisational change efforts focused on internal benefits such as cost reduction, company downsizing and operational efficiency, which are more tactically than strategically focused. Nowadays, business process change strategies focus on the processes between business partners and the applications supporting these processes. These strategies are designed to address different types of processes with the emphasis on different aspects using IT (Phipps, 2000; Kalakota and Robinson, 2001, Chaffey and Wood, 2005): customer relationship management, supply chain management, selling-chain management, workflow management and enterprise

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resource planning. On the other hand, the information systems implementation process changes the organisation, but the majority of current information system development methodologies focus on only a sub-set of organisational problems (Maguire, 2000; Laudon, 2005). Historically, IS developers were primarily concentrated on the technical issues involved within the processes, but they need to widen their perspective on business process oriented approach.

The paper systemises and compares the objectives, common requirements and goals of business process modelling and information systems development projects, as well as the characteristics and functions of business process oriented tools used in these projects. The goal of this paper is to develop the framework to help managers and IT experts in making a flexible and customised selection of business process oriented tools. The paper is structured as follows: Section 2 describes and analyses the main characteristics of business process modelling and information systems development projects. The concept of business process oriented tool selection is presented in Section 3. A case study of the business process change project in a Croatian insurance company is presented in Section 4. The simulation of BPO tool selection process using AHP method is described by discussing and analyzing the results of the experiment. Section 5 presents some general conclusions and future work directions.

Business Process Modelling and Information Systems Development

Several authors have claimed that Hammer's well-known definition is too limited as it suggests that BPR is about making changes to processes, while IT plays only an enabling role (Grant, 2002; Koch, 2001; Siriginidi, 2000). The contributions of IT in BPR could be categorised in two different ways. Firstly, IT contributes heavily as the facilitator to the process of business change. Secondly, IT contributes in the reengineering process as an enabler to master the new process in the most effective way (Davenport, 1993). The advantages and disadvantages of IS modelling and the ERP systems as tools for realising business process change are discussed further. This discussion is corroborated by the overview of the application of business process modelling in IS development projects.

Business Process Change Projects for Supporting Information Systems Development or Vice Versa?

The importance of process redesign in IS development is supported by several earlier research findings which show that, traditionally, productivity and efficiency have

often seen the absence of improvement at the introduction of a new ERP system (Bashein et al., 1994; Guha et al., 1993; Moad, 1993; Davenport, 1998, Maguire, 2000). The recent ERP solutions are modular and flexible, and thus can be customised to a certain degree. There are, however, constraints in the design possibilities while major modifications are complex and extremely costly. The implementation delays and ERP product modifications could result in exponential growth in both direct and indirect costs. The above discussion suggests that it would always be better to complete the BPC project prior to information system modelling and ERP system development. Since the implementation of large information systems is not possible without first altering business processes, reengineering is essential to order to extract maximum benefit out of the ERP products. Therefore, IS development methodologies should take a more business-led perspective.

However, the analysis of business practices shows a different approach. Initiating BPC projects prior to ERP means that the companies must provide resources for two successive projects. The reason why many companies chose to conduct ERP system development was to attempt to solve all their organisational problems without changing business processes first. ERP implementation significantly impacts company culture, organisational structure, business processes, in addition to procedures and rules. Furthermore, ERP applications integrate many best business practices and much knowledge that could be worthwhile if included as a part of BPC projects. By taking the best practices inherent in ERP applications, companies can change their processes simultaneously with technological change. As a result, many companies changed their business processes to fit the ERP system requirements, and the possibilities of ERP systems have been used to underpin BPC (Koch, 2001). As ERP systems have traditionally taken too long to implement, a dynamic and incremental implementation of ERP components is recommended as opposed to massive reengineering (Bosilj Vuksic and Spremic, 2005).

The Application of Business Process Modelling in IS Development Projects

In the past, business analysts and IS professionals traditionally played distinct roles within organisations, each equipped with their own tools, techniques, skills, and even terminology. Nowadays, a rapidly growing number of frameworks and modelling tools have been developed for an integrated modelling of the entire enterprise focussing on both organisational modelling and information systems modelling (Hommes and van Reijswoud, 2000). Over the last three decades, a well-established procedure for modelling information systems was based on two complementary aspects of analysis: data modelling (entity-relationship modelling) and function modelling (data-flow diagramming). Since the events which trigger a response in an

information system come from within the organisation or from the external environment, it is obvious that the third representational framework is effectively a business process view (Scheer, 1998).

The development of the notation for enterprise architecture modelling is a relatively recent phenomenon apparently triggered by the popularity of two philosophies: enterprise resource planning (ERP) and business process change (BPC). IS architecture has been linked to business architecture resulting in comprehensive architectural frameworks often designated as enterprise architecture (McDavid, 1999; Zachman, 1999). Although evolving from different sources, ERP and BPC have become strongly associated (Maguire, 2004; Verboom et al, 2004; Ndede-Amadi, 2004). As a result of the importance of ERP systems in organisations today, business process modelling methods and tools were expanded to include those systems, thereby making the linkages between systems and processes more transparent (Verboom et al., 2004). On the other hand, the concept of enterprise architecture modelling treats process models as information resources (Ndede-Amadi, 2004). This information includes the data on all resources needed to reach the objectives and goals of the enterprise. The collection of actions needed to achieve these goals is called enterprise modelling.

Model driven development is one of the recent trends in the information systems development (Andres, 2006). Each ERP system uses a business process model to support the requirements analysis and business process driven information systems development. Nowadays, leading ERP systems vendors offer workflow management modules as integrated business process management systems. The notation of a workflow is clearly and closely related to the notation of a process and its execution. The main purpose is to avoid the programming, enabling the transformation of business process diagrams into tailor-made applications. The IS/WF modelling environment should have a formal foundation, providing a structured way of identifying and capturing all information, relationships and business rules that make up a business process (Kovacic et.al, 2003, Kovacic, 2004). To support the transition between the business process modelling and the information system (IS) modelling, direct mapping and transition of all entities, activities and business rules defined during business process modelling should be enabled. This concept should guarantee the standardisation of business process modelling notation and should enable the export of business process models to implementation platforms, such as WFM and ERP systems.

Business rules are explicit statements that regulate how a business operates and how it is structured. Besides being important as an organisational asset, they are also significant for the IS and workflow management systems (WMFS) that support the business (Steinke and Nickolett, 2003). Rule repository is the core of a development environment providing appropriate tools for process, workflow, data and

organisation modelling, process refinement, as well as for import and export capabilities. It can also be regarded as an integration link between business modelling and IS modelling. The motivation to develop a rule repository is to establish an environment in which business rules can be traced from their origin in the business environment through to their implementation in information systems. This provides the information necessary for rapid information system maintenance and adaptations to changes in the business environment. Its purpose is to describe the activities that must be undertaken to achieve an explicit goal and to establish a clear link between business process modelling and IS modelling. Two recently proposed standards for web service composition, Business Process Modelling Language (BPML) based on Business Process Modelling Notation (BPMN) and Business Process Execution Language (BPEL), provide the possibility of code generation by using graphical notation of business processes. Efforts have also been focused on creating generic XML business languages that incorporate BPM engine, while BPEL has become the standard for managing Web-based processes.

Although the software interfaces between process modelling and IS modelling have been developed, these interfaces might provide some syntactical translation but they still cannot bridge the semantic gap between business processes and IS models completely and accurately (Kovacic, 2004; van der Aalst, et.al, 2003; Kirikova and Makna, 2005) . Here the manual revision of IS models is often more efficient and useful than the use of interfaces, but the problem is expected to be solved by the producers of these tools using the appropriate rule-transformation approach and introducing the rule repository. Despite the fact that the potential of a new technology has been over-hyped in many cases, the selection of an appropriate business process oriented tool may be considered as one of the critical success factors for many business process change/management projects. Nevertheless, a business process oriented tool is often suggested and selected by project consultants and not as the result of a methodical decision process.

The Business Process Oriented Tool Selection

Many companies use different business process oriented (BPO) methods and tools which integrate components for static and dynamic modelling and measuring of the performance of processes as well as the components for business process monitoring, execution and management. The focus of this section is to propose Analytic Hierarchy Process (AHP) method to be used for BPO software tools selection.

Selection Criteria of a Business Process Oriented Tool

In order to choose the most suitable tool for a particular application and business, a company needs to carefully research the products currently available on the market. Since there are hundreds of BPO tools on the market, there have been some attempts by researchers and organisations to define the desirable features of such tools and to find the 'best buy'. The goal of this section is to present the overview of the surveys made in this area defining the most important features of a business process oriented tool.

Hommes and van Reijswoud (2000) have developed a framework for the evaluation of business process modelling techniques that are the most important part of a process modelling tool. They refer to the quality of the way of modelling and the way of working of a modelling technique respectively. These criteria are:

- Expressiveness - the degree to which a given modelling technique is capable of denoting the models of any number and kinds of application domains;
- Arbitrariness - the degree of freedom one has when modelling one and the same domain;
- Suitability - the degree to which a given modelling technique is specifically tailored for a specific kind of application domain.
- Comprehensibility - the ease with which the way of working and the way of modelling are understood by the participants;
- Coherence - the degree to which individual sub-models of a way of modelling constitute a whole;
- Completeness - the degree to which all necessary concepts of the application domain are represented in the way of modelling;
- Efficiency - the degree to which a modelling process utilises resources such as time and people;
- Effectiveness - the degree to which a modelling process achieves its goal.

The selection criteria of BPO tools may consist of expected functionalities systemised according to by Harmon (2004) in Business Process Trends report. This classification focuses on the phases, organisations go through when analyzing and changing business processes. The six major features that managers and developers can use during each of the phases include: (1) strategy and business process architecture; (2) modelling and redesign or improvement of processes; (3) automation of processes; (4) improvement of performance; (5) measurement and management of processes and (6) implementation of redesigned processes.

According to Hall and Harmon (2005) several expected characteristics for business process oriented tools, from which evaluation criteria can be derived, can be identified:

- Modelling and simulation capabilities.
- Usability and user interface.
- Different modelling tools have different groups of users in mind.
- Support for different types of process and architectural frameworks, e.g. SCOR framework.
- Different methodologies (e.g. BSC or Six Sigma) support.
- Support for different notations and standards (e.g. BPMN, UML).
- Support for specific technical infrastructures.
- Integration with other products.
- Report generation capabilities.
- Pricing.
- Vendor, product positioning, and support.

A great interest in BPC projects resulted in a growing number of business process oriented tools on the software market which could be considered an advantage for companies buying these tools. On the other hand this situation could lead to a very complex and cumbersome process of software selection and decision making.

BPO Tools Selection Using AHP Method

As it can be seen from the above discussion, the BPO tools selection is a typical multi-criteria decision process. Therefore we propose to use the Analytic Hierarchy Process (AHP) method (Saaty, 1977), which is very appropriate for making multi-objective decisions. The main concept of the method is assigning the weight to objectives, because all of them are not equally important. Possible decisions, e.g. BPO tools, are then evaluated according to each criterion. The best alternative is determined by summarising these scores considering the appropriate criterion weighs. More than one decision maker can make separate evaluations, and their evaluations are combined for reaching final decisions.

Wei et al. (2005) describe an AHP-based approach to ERP system selection. Their framework systematically constructs the objectives of ERP selection which support business goals and strategies of an enterprise. The AHP method is then used with selected objectives by several decision makers. The paper also presents a real-world example where the framework has been applied successfully. Literature review shows that the AHP method has been used or proposed as a decision making tool in

several software selection cases (Merad and de Lemos, 1999; Alves and Finkelstein, 2002; Spanoudakis, 2003).

In this paper the AHP method is proposed to be used as the essential element for BPO tools selection. The concept of BPO tools selection consists of the following steps: (1) the discussion and identification of relationships among project goals, CSF, and criteria, (2) the identification of relevant tools, (3) the development of the AHP model and determination of the criteria ponders and (4) analysis, discussion and final decision making.

Discussion and identification of relationships among project goals, CSF, and criteria is the critical step in the selection process. An overview of the criteria from Section 3.1 may be used at this point. Simultaneously with the development of the goals-criteria model a set of relevant tools has to be identified. To make a quality decision, it is necessary to collect as much information as possible for each considered tool. The relevant literature (e.g. Hall, Harmon, 2005; Miers, Harmon, 2005), tools documentation, information obtained from resellers and/or consultants of tools, previous knowledge may be used at this step. The tool selection process has two phases, namely a rough selection, in which the unqualified tools are removed from the candidate list, and a fine selection using the AHP method. At this point the eliminating criteria for rough selection are determined. The criteria that are highly related to the critical success factors are the main candidates to be put on the eliminating criteria list. The tools are evaluated using these criteria and a smaller number of appropriate tools are selected.

The development of the AHP model and the determination of the criteria ponders is the core phase of the selection process. In our case the decision alternatives are the candidate tools selected in the previous phase. The overall goal is to select the best tool, i.e. the tool that best fits the overall organisational and project goals. The criteria for the AHP have already been determined, so it is necessary to identify possible hierarchies, the way in which each criterion is evaluated, and weights for each criterion at this point. Decision makers estimate the relative importance of each criterion in terms of its contribution to the achievement of the overall goal. This judgement has to be based on the previously developed goals-criteria model. Decision makers and evaluators have to be carefully selected. The members of the two groups may consist of process owners and managers, IT personnel, and even members of the top management in case of selection of business process management tools, which is related to organisational strategic goals.

Each tool is evaluated for each criterion using either pair wise comparison of tools or determining absolute values. Different criteria may have different evaluators. For example, comprehensibility of process modelling techniques and user friendliness of the tools may be evaluated by users (e.g. process owners, managers, and performers), process modelling technique expressiveness, tool's simulation capabilities, and TCO

may be evaluated by consultants, etc. The project team (evaluators, project manager, consultants) analyzes and discusses the selection, which is finally approved by the project manager.

Business Process Change Project in a Croatian Insurance Company: A Case Study

The projects of business process change and information system development in a Croatian insurance company have been ongoing for several years. These projects are of differing scope, with differing goals and cover the core business processes of the company, such as: non-life insurance, life insurance with premium analysis, premium accounting of non-life insurance and claims of non-life insurance with analytic accounting. This section presents one of these projects.

An Example of a Business Process Change Project

The selected project had three main goals: (1) the development of an integrated model of business processes for strict registration and premium accounting; (2) the simultaneous development of the data model for those processes; (3) the implementation of both models (process model and data model) through developing an application for strict registration and premium accounting. The implementation of software application should prove the unique and standard technology and method of work, as well as enable standardisation and greater efficiency of the process. The most important critical success factors (CSF) of the project were identified: (1) well-defined goals of the project; (2) top management commitment and support; (3) willingness of employees to change; (4) right identification of the processes to be improved. Among the critical success factors of the project were:

- An integrated model of business processes should allow for the documentation and standardisation of the process (procedure, routine, business rules), and with it the implementation of ISO standards. In this way, the quality of operations should be improved, resulting in a positive impact on the satisfaction and efficiency of employees, as well as users and business partners.
- The application of premium accounting should become more efficient, integrated and standardised in comparison to the previous application enabling the end-users to use them more easily and efficiently, providing greater independence, but also responsibility for employees.

- The new applications should become part of the workflow management system, enabling the management to monitor process flow and measure process performance.

The completion of the project was planned within two years. The project team consisted of 5 employees (information technology experts) and 2 external consultants. The selection of the appropriate tool was not one of the CFS of the project. Among the numerous business process modelling tools, ARIS was used according to the suggestion of consultants. The project was conducted according to Customer Development Method (CDM). ARIS (version 6) was used for modelling processes and ORACLE Designer 6i and ORACLE database for developing applications. The accomplishment of the goals was measured by monitoring the project results and comparing those to the planned values, as well as by supervising the documentation and comparing the solutions to the CDM standards for creating data, database models and applications.

The definition of the processes and the data lasted for 6 months. It took one year to design and create the application. Application changes and implementation also continued through one year. The project was successful although certain problems were evident:

- there were not enough team members, the members had limited time (along with working on the project, they continued to work their regular jobs);
- the project tasks were insufficiently defined;
- the end-users did not understand the process models, therefore they were not able to commit that models met their requirements;
- the inability of ARIS to connect and transform business process models into information system models, accurately, precisely and without the manual revision (it must be pointed out that most of these problems were solved in the latest version of ARIS);
- the business project models did not contain business rules and the information needed for the development of applications was collected, analyzed and verified step by step, through subsequent interviews with the users;
- the end users did not test the application which resulted in a greater number of mistakes;
- the changes, enhancements and improvements of the application were conducted during the implementation phase;
- during a relatively long period of conducting the project business changed, which was reflected in the project.

The above stated problems influenced the time and the efficiency of the project realisation. Despite this, the project was successfully completed, primarily owing to the continued and strong support by top management.

The Simulation of BPO Tool Selection Process Using AHP Method

The problems discussed above stressed the necessity to align the selection of business process oriented tools with the project's objectives and requirements. Therefore, the authors have decided to make the simulation of business process oriented tools selection using AHP method. On the basis of CSF and the project goals, the following requirements for the BPO tool were identified:

- the BPO tool should provide a single business process repository and the use of a common process vocabulary, encouraging the standardisation of business processes, procedures and routines, as well as the implementation of ISO standards,
- the BPO tool is expected to be formal enough to serve for software development purposes,
- the BPO tools should enable the export of business process models to implementation platforms, such as workflow management and enterprise resource planning systems; to support the transition between the business process modelling and the information system (IS) modelling, the direct mapping and transition of all entities and activities defined during business process modelling should be provided,
- the BPO tool should interrelate several business process modelling methods and techniques,
- process models have to be expressive, denoting all necessary modelling elements,
- process models should be easy to design and understand for the IT specialist, as well as for the end-users,
- the BPO tool should provide the functions needed to analyze, tune, simulate and optimise the processes of a company,
- the BPO tool is expected to be ranked among the best in its category,
- the BPO tool should be represented on the Croatian market, having the vendor support in a form of training, consulting and technical services,
- Total Cost of Ownership (TCO) related to the BPO tool must not exceed financial resources defined by project's plan.

Process modelling tool selection started with searching for a suitable tool. We used our experience, available reports about the tools, vendor descriptions material and also contacted some vendors of the tools. We selected five candidate tools: ADONIS, ARIS, iGrafx, WebSphere, and Ultimus. Other tools were eliminated because of their costs, weak or no support on the Croatian market, unsuitable functionalities (integration with implementation platforms, formality, price, support and reputation), or insufficient information about the tool.

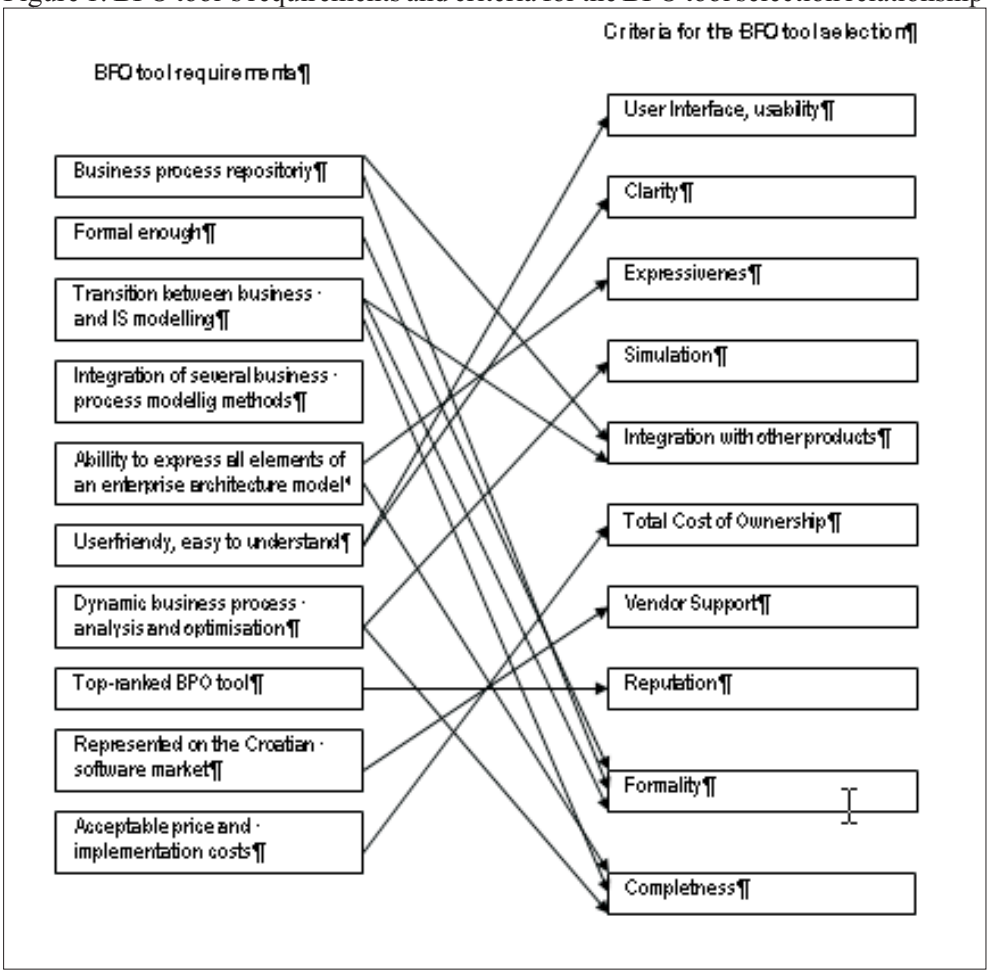
On the basis of the criteria for process modelling tool selection found in literature and the requirements discussed above the following criteria for the tool selection were identified:

- User interface and usability of the tool: the tool should be designed to support primarily general business users and more technical analyst as well. Business users should be able to model processes and then distribute and share their models with other users in the organisation.
- Clarity and comprehensibility of models: the models have to be clear, understandable to members of project group and end-users. This characteristic depends on the modelling technique the tool is based on. Since most of the contemporary tools support the BPMN standard, the modelling techniques will become very similar eventually.
- Expressiveness: the tool and the underlying modelling technique should be capable of denoting all necessary modelling elements. Generally more complex tools have higher expressiveness but are on the other hand less user-friendly and more expensive.
- Simulation capabilities: analysts should be able to perform simulation, evaluation of processes and what-if analysis.
- Integration with other products: the modelling tool should support integration with other third-party tools and applications in order to export and import modelling and other information that can be used for project management, publishing and diagramming, software design, and for databases development efforts.
- Total Cost of Ownership (TCO): they include both direct and indirect costs related to the tool. TCO includes the cost of purchasing the tool, plus the costs of installation, training, upgrades and support.
- Vendor support: it includes vendor consultant and training service, technical support, the speed of service, and the presence of local representatives as well. All the considered tools lacked local representatives.
- Good reputation: if the tool is used in other Croatian organisations, the scale and market share of the vendor.

- Formality: the level of the unambiguousness of the models. This criterion is important from the viewpoint of software development possibilities.
- Completeness: the possibility to model different aspects of business, e.g. process flow, data, organisational structure.

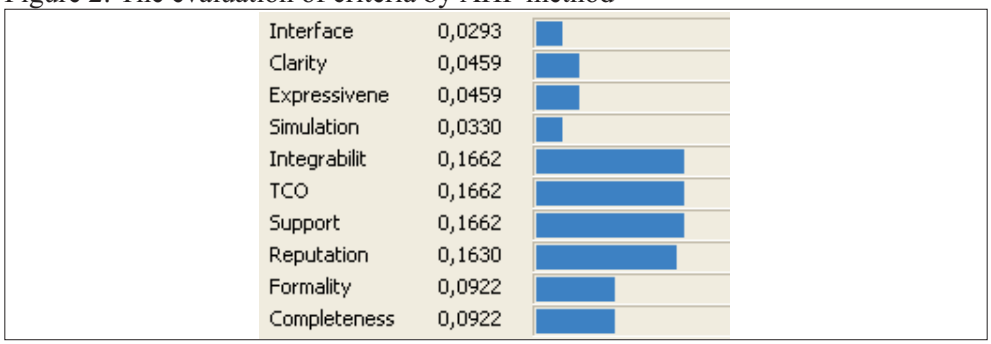
Before starting to develop the AHP model, it was necessary to identify the connections and relationships between BPO tools' requirements and criteria for BPO tools selection. Figure 1 shows the relationship between the requirements defined by project team members and the criteria identified and planned to be used in the AHP model.

Figure 1: BPO tool's requirements and criteria for the BPO tool selection relationship



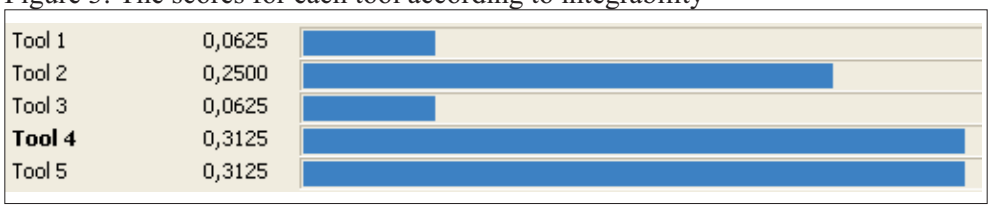
The next step was to develop the AHP model with the above criteria. For building the model we used the tool Saaty (http://users.volja.net/dimitrijr/). We constructed the pair wise comparison matrix by comparing the importance of the criteria on the scale from 1 to 9. From the matrix we determined the weights that are presented in Figure 2. As we can see, the most important criteria are: integration with other products, support, and TCO, followed closely by reputation.

Figure 2: The evaluation of criteria by AHP method



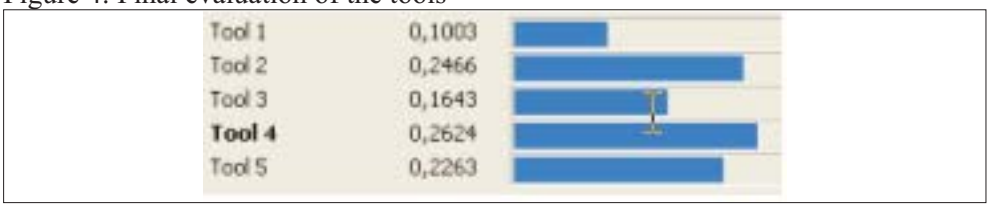
Consequently we continued developing the AHP model by determining the score of each decision alternative on each criterion. Figure 3 shows the results for one of the most important objective: the ability of integration. As we can see, Tool 4 and Tool 5 significantly outperformed other tools in terms of their ability to be integrated with other software tools.

Figure 3: The scores for each tool according to integrability



In the final step of applying the AHP method the best alternative was determined by considering the scores for all objectives and their weighs. The results are presented in Figure 4. Tool 3 (ARIS) and Tool 4 (WebSphere) were ranked at the top and their scores were close to each other.

Figure 4: Final evaluation of the tools



Results Discussion and Analysis

According to the results of the simulation, two BPO tools (ARIS and WebSphere) could be recommended for use in the project of Croatian insurance company described in Section 4.1. Although one of these BPO tools (ARIS) was selected and used in practice, it must be pointed out that the version of the tool used four years ago significantly underperformed the project's requirements, especially those related to the ability of integration, formality and completeness. In 2004 ARIS became the first BPO tool to support the major business process management standard in the industry: BPML, BPMN and BPEL. Nowadays a plethora of process modelling approaches is being proposed, ranging from simple flowcharts to advanced variants of Petri nets with high expressive power, but one of the most important proposals is BPMN. The evidence of the popularity of BPMN is the fact that the official BPMN Web page (www.bpmn.org) already lists 30 vendors of BPO tools that support BPMN.

However, BPMN as a foundation for the development of information system models and applications was not unique, nor is it the most important criteria for BPO tool selection. The project was initiated in 2002 when ARIS was the only one BPO tool represented in the Croatian market. Nowadays, ARIS still has the first position in the Croatian market of BPO tools, but there are also the competitors: Corporate Modeler (Casewise) and WebSphere (IBM). The community of ARIS users in Croatia is rather strong and in accordance with their requirements, the level of support is high. There are about 30 Croatian large companies using ARIS in business process modelling projects, most of them from banking, financial, telecommunication and government sector. The reputation of ARIS in Croatia has been very high constantly, particularly because of its leading position on the Gartner lists. Nowadays, ARIS holds the majority of Croatian business process oriented software market.

The amount of Total Cost of Ownership for ARIS products is rather high, but it must be considered in relation to the functionality, complexity and wholeness of the tool. ARIS offers a model-based description of all aspects of an enterprise in a central repository. The ARIS methodology enables communication between all involved

parties and is therefore an excellent basis for a common requirement analysis. Using the ARIS Toolset the enterprise business processes are analyzed and described. Each object is defined through different perspectives: organisation, function, data and process view and attributes which could be used as the input parameters for ARIS Simulation, ARIS ABC (Activity Based Costing), and ARIS BSC (Balanced Scorecard) tool. Since ARIS Simulation is fully integrated in the ARIS Toolset, the data relating to the processes, recorded in the ARIS Toolset could be used as a basis for the simulation of business processes. This simulation supplies information on the executability of processes, process weak points and resource bottlenecks. There is also the interface toward workflow management tools, CASE tools and project management tools. ARIS Process Performance Manager (ARIS PPM) automatically identifies the performance data from company processes, especially those which span systems, thus making their analysis possible.

ARIS Toolset models, at some level, describe the functionalities that could be included in the ERP solutions. ARIS UML designer enables the conversion of ARIS models into use case models which are used for the software development project. ARIS for SAP NetWeaver solution provides the components to design and architect business process models that are seamlessly integrated with the SAP NetWeaver process configuration and execution model using BPEL. ARIS UML and BPEL solutions were developed after the project of the Croatian insurance company was finished, but nowadays these functions are stressed as the important advantages and therefore evaluated in the simulation of BPO tool selection process, influencing positively the results of the simulation using AHP method.

In 2002, IBM acquired Holosofx, a business modelling product vendor. Since then, IBM has rewritten the Holosofx product, enhancing its function and building it on the WebSphere environment (Miers and Harmon, 2005). The key products in the IBM WebSphere Business Integration (WBI) suite include: (1) The IBM WebSphere Business Integration Modeler (WBI Modeler), which can be used to define, model, analyze, simulate, and report business processes; (2) IBM WebSphere Business Integration Server (WBI Server), a comprehensive software product used to implement scaleable business processes requiring process integration, workforce management, and enterprise application connectivity and (3) IBM WebSphere Business Integration Monitor (WBI Monitor) that utilises visual dashboards to provide a dynamic view of business processes for improved business decision-making.

IBM WBI Modeler supports BPMN notation and generates BPEL and IBM is working simultaneously with others to define BPM standards. IBM's active participation in all leading standards initiatives assures that IBM's offerings will be among the leading BPM products in the future. Though this was not the case in the

project of Croatian insurance company, nowadays IBM WebSphere should be considered as a very powerful product in the process of BPO tool selection.

Conclusion

The analysis of the theoretical and empirical research reveals three points: (1) process oriented modelling is a fundamental discipline to create information systems that support business strategies effectively, (2) in order to choose the most suitable tool for a particular application and business, a company needs a framework for the evaluation of the BPO tools and (3) the selection of a BPO tool is a typical multi-criteria decision process, and therefore an appropriate method for making multi-objective decisions should be used.

This paper presents a procedure for the selection of a BPO tool. The proposed framework is flexible and can be adapted to different company and project types. The simulation of BPO tool selection process using the AHP method in the case study of a business process change project in a Croatian insurance company was conducted to analyse and discuss the feasibility and reliability of the theoretical concept. The results of the experiment showed that this concept is a good starting point for BPO tool selection process, but more case study research is needed to clarify the conditions under which it could be used in business practice. The authors plan to extend the research by applying the proposed concept in more cases of business process change projects both in Slovenia and Croatia. Based on the analysis of the results of these case studies some additional improvements might be suggested.

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