Chapter XIII

Re-Engineering and Automation of Business Processes: Criteria for Selecting Supporting Tools

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ABSTRACT

Re-engineering of business processes and their automation is an activity very common in most organizations in order to keep or create a competitive business advantage in the changing business environment. Business Process Modeling Tools (BPMTs) and Workflow Management Systems (WFMSs) are the most popular tools used for business process transformation and automation of the redesigned business processes within and outside organization's boundaries. This chapter describes a set of criteria for selecting appropriate BPMTs and WFMSs among the diversity of the tools offered in the market in order to assist the interested manager or business process engineer to more successfully manage the business process transformation. While establishing the proposed criteria, we considered currently available technology and standards for visual enterprise support and inter-organizational business process modeling and automation.

INTRODUCTION

An important aspect for every business, in order to be competitive, is the re-engineering of its business processes (see the two seminal papers by Hammer, 1990, and Davenport & Short, 1990, for an introduction to business process re-engineering) and their automation. Many enterprises have already started re-engineering efforts in order to keep or create a competitive advantage in a changing business environment, to address the rapid growth of the Internet market, to cross the chasm between organizational structures and e-commerce, and so on.

For a successful business transformation, new frameworks are needed for understanding the emerging organizational structures supporting new services (see for example the framework proposed by Schlueter & Shaw, 19970, as well as appropriate tools to support the whole business process lifecycle, i.e., every step and activity from capturing, modeling and simulating existing, redesigned or new business processes to their automation. Currently available commercial Business Process Modeling Tools (BPMTs) aim at supporting the first steps of the business process life cycle, i.e., the modeling and evaluation of business processes for improvement and re-engineering purposes (Enix, 1997).

The later steps of business process life cycle, i.e., implementation and automation, can be supported by a number of available technologies and tools like commercial groupware tools, Workflow Management Systems (WFMSs) or commercial transaction processing systems, depending on the type of process and on the degree to which a process depends on humans or software for performing and coordinating activities. Among these tools, the most popular for business process automation and implementation are the WFMSs. (See Georgakopoulos et al., 1995, for an overview on WFMSs and Dogac et al., 1998, for a collection of papers on a number of interesting issues related to WFMSs and interoperability.)

The rapid growth of the Internet and the provision of e-business services to increase sales and productivity introduced the need to model inter-organizational processes and consequently the support of inter-organizational workflows (i.e., the ability to model and automate processes that span several organizations). When dealing with inter-organizational processes, model interoperability becomes more of an issue. Relevant international standard organizations, such as the Workflow Management Coalition Group (WfMC, 2002), are currently dealing with the provision of protocols enabling the interaction and data exchange based on widely acceptable standards as the Extensible Markup Language — XML (WfMC, 2001). Thus, BPMTs and WFMSs should efficiently address interoperability issues to deal with inter-organizational processes.

A number of evaluation reports of existing BPMTs and WFMSs are being produced and updated regularly mainly by consulting companies such as SODAN, OVUM, Datapro, etc. These reports lean more towards the evaluation of specific products than the provision of a comprehensive framework for evaluation. This chapter aims at filling this gap by presenting a set of criteria to be taken into account by the person embarking on a search for suitable BPMTs/WFMSs and highlighting additional features they should support to conform with e-business requirements. Although the simultaneous attainment of all requirements is — and is likely to remain — moot, their awareness is likely to inform advantageously their prospective users, while being of use to developers/researchers, too.

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