Portals for Workflow and Business Process Management

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INTRODUCTION

A growing number of portal software vendors offer functionality to allow users to manage business processes and workflows. This functionality is offered either out-of-the box (integrated into the portal software) or as a plug-in component that may be added at a later stage as the need for it arises, or through interfaces for linking the portal to specialised business process or workflow management software.

This article discusses the present landscape of the management of business processes or workflows through portals, focusing on the major features of the available technologies, their applications, and trends.

BACKGROUND

A business process is an identifiable set of activities that transforms some tangible or intangible raw material into a product that is valuable to a customer or to another process. The process is executable at definable times and places by human or other actors, has a clear beginning and end, is signified by events, and can communicate with other processes (Dalmaris, 2006). In other words, a business process involves a number of steps that are executed so that a wanted product is produced. Every organisation executes at least one business process that produces a tangible or intangible product from which the organisation generates revenue. Usually, organisations must execute secondary supportive business processes such as payroll or recruitment. Over the last 10 years, there is a trend of outsourcing these processes to external specialists. The importance of business processes has been highlighted by authors such as Davenport (1993), Hammer (1996), and Harmon (2003), who regard an organisation as a system of business processes.

The term "workflow" generally denotes a smaller or simpler (than a typical business process) document-based business process. Harmon (2003, p. 482) defines workflow as "a generic term for a process or for the movement of information or material from one activity (worksite) to another." The workflow management coalition also describes the term as being equivalent to a business process, albeit involving more documents or information than a general business process does (Fischer, 2000, p. 15).

Because of the similarity between the two terms, the term *business process* will be used to represent both in this article. This is not to say that the two are the same, but that they are concepts, which are related closely enough so as to be examined together for the purpose of this article.

As a business process is the engine by which revenue is generated for the organisation, there are two areas of business management that are of critical importance: the efficient and effective execution of the business process each time it runs, and the swift change of its configuration to meet new demands or conditions. What is generally known *as business process management* is the managerial activity that is predominately concerned with these two areas.

Over the last 10 years, software vendors have produced applications that allow managers to improve their ability to manage their business process. Typically called business process management systems (BPMS), these applications provide tools for the design, execution, control, and evaluation of processes.

Most design tools are graphical, allowing the process manager to connect icons representing process resources such as process members, data repositories or functions, thus, producing the execution pattern and configuration of the process. This is known as the process model.

Often, the graphical design tools can automatically generate computer-executable code[1] from the process model. The code can be submitted and executed by the BPMS's execution engine. This software engine can communicate with other systems of the organisation (HR databases, e-mail servers, document server, printers, etc.) or even external resources (various Web services are the most popular). The execution engine runs the business process, provides notifications of various events (i.e., *completion*, *interruption*), keeps logs of intermediate results, and transacts with other systems if required. A user can interact with the business process using a variety of methods. Predominately, either a Web interface is used or a client software application that runs on the desktop.

The process manager can use the control tool to inspect the progress of the process. At any given point, information about the past and present status can be shown in a graphical environment. In some cases, the process manager can intervene and alter the configuration of the process during run time, with the new configuration being committed to the execution server and incorporated in the currently running

process model. Finally, many vendors provide evaluation or simulation tools where the analysis of a completed (live or simulated) process runs provides useful performance information. This information can be used by the process manager to consider and design process improvements.

Vendors such as Intalio (Intalio|n), Lombardi Software (TeamWorks), IONA (Orbix E2A), BEA Systems (WebLogic Integration), Action Technologies (ActionWorks), and Fuego (FuegoBPM) offer powerful BPMSs.

PROCESS MANAGEMENT THROUGH BUSINESS PORTALS

Business portal vendors, recognising the importance of business process management to their customers, are now providing much of the functionality described above as part of their products. Users can design, monitor, and manage business processes using the familiar Web-based portal interface with the additional benefit of having business process functions and information fully integrated with the rest of their portal-driven work activities. Furthermore, portal-specific functions such as check-in/out, approval, and rejection of documents are used for the design and editing of process models.

With the popularity of both portal and business process management (BPM) solutions increasing steadily over the last 10 years, vendors from a variety of market segments have improved their products to include both. Apart from the original "pure" portal vendors (all of which have been acquired by well known organisations from the customer relationship management (CRM) and infrastructure domains), there are those that have entered this market, but have a core expertise elsewhere (Mercy, 2005):

- Infrastructure vendors such as IBM (WebSphere Portal), BEA (Aqualogic Integration), Oracle (Oracle Portal), Sybase (Sybase Enterprise Portal), and Microsoft (Shaperpoint Portal Server).
- Search and categorisation vendors such as autonomy (portal-in-a-box) and verity (in the process of acquisition by autonomy).
- Content management vendors such as Documentum (offers portlets for third party portals), Interwoven (WorkSite Server with WorkPortal module, WorkSite MP portlets for BEA), and OpenText (Livelink Portals Integration Kit portlets).
- EAI vendors such as Tibco (Tibco PortalBuilder and PortalPacks) and WebMethods (WebMethods Portal).
- CRM and ERP vendors such as BroadVision (BroadVision Portal), Vignette (Vignette Portal), SAP (Enterprise Portal), and PeopleSoft (acquired by Oracle).
- Business intelligence vendors such as Cognos (Cognos Portal Services), Business Objects (BusinessObjects Enterprise Portal Integration Kits), and Hyperion (this portal is part of Hyperion System 9 Foundation Services).

Each vendor builds on its core strengths when producing portal or portlet solutions. For example, Vignette, which acquired "pure" business portal vendor Epicentric, is offering a portal solution that can be extended to perform process management functions with the use of add-ons, such as the Vignette Process Workflow Modeler and the Vignette V7 Process Services products (Vignette, 2005). Vignette is building on its expertise in CRM/ERP applications and this is evident in the collection of functionality that comes with its portal offering.

Similar solutions are offered by Plumtree Software, one of the earliest "pure" business portal vendors. Plumtree has now been acquired by BEA with the objective of strengthening the span of their portal offerings (BEA, 2005). In this case, Plumtree Process, now part of BEA's Aqualogic product line, leverages on BEA's infrastructure and process management know-how and provides a designer tool for building and deploying business processes, and an execution engine for running them. The execution engine is also used for managing the portlets (the individual components that make up the portal's user interface implementing functions such as calendaring, instant messaging, search) that provide process information and functionality to the user. This way, the end user can interact with a business process via the portal Web interface without exiting the standard Web-based work environment (Plumtree, 2005).

Some vendors choose to enter the workflow-process management portal market by offering portlet components that can be installed and integrated into third-party portal servers. For these vendors, a portal is the execution environment inside which their portlets work. BusinessObjects, Documentum, and Tibco, to name a few to date, are following this avenue. BusinessObjects offers a variety of portlets that are compatible with IBM's WebSphere Portal Server, especially geared towards reporting and business intelligence. Following a recent technology partnership with Tibco, whose core expertise is in business process management, BusinessObjects is planning to add business process management capabilities to its business intelligence (BI) products (BusinessObjects, 2005). EMC Documentum's Portlets , which can be installed on BEA's WebLogic Portal, include a workflow portlet that allows a user to view active workflows and to participate as required (Documentum, 2005).

The main benefit of organisations implementing processes or workflows via their portals is financial because of the savings and increased productivity. A reduction or elimination of paper forms and other documentation, and the automation of its routing to process members, can yield savings in