USING BPM AND SOA TO ACHIEVE THE AGILE ENTERPRISE

Businesses are constantly looking for ways to increase their performance and respond more rapidly to changing markets. Improving the many individual procedures (or "business processes") an organization undertakes to deliver products and services is often its most significant potential source of efficiency gains. These business processes are sometimes formally laid down, but more often are partly enshrined in organizational "folklore".

In recent years many organizations have greatly improved their operating efficiency and reduced errors (and the consequent reworking needed to correct them) by using Business Process Management (BPM) techniques to discover, document and continuously improve business processes, allowing them to be executed more quickly and repeatably. Recently Service Oriented Architecture (SOA) design techniques have also gained a strong following as way of improving business agility in the face of constantly changing requirements and enterprise software infrastructure. This paper is a short introduction to how specifications from Object Management Group (OMG) can help you use BPM and SOA together to improve the efficiency and flexibility of your business.

Pre-SOA Business Automation

Early approaches to improving business efficiency often leaned heavily on process automation via monolithic enterprise software packages, which did indeed offer potential savings – provided your organization worked in exactly the way the software demanded. Needless to say, many organizations did not, so had to reshape themselves to use the business processes assumed by their new software. Where this wasn't possible, the necessary manual exception handling introduced error and inefficiency, and if separate parts of the organization used enterprise applications from different vendors, there were often problems getting the applications to communicate with each other. These issues have contributed to the huge numbers of completely failed automation projects, and helped create organizations with impregnable information silos where information flowed between separate monolithic applications only with difficulty.

By contrast, a Service Oriented Architecture approach emphasizes the creation of independent, modular business services, each of which performs a specific and well-defined business function, thus providing the flexibility that businesses need. Sets of services can be used in different combinations to realize the different business processes with an enterprise – and when business requirements change or a new process is needed, services can be threaded together in new ways to support this.

Two key elements to using SOA successfully are precisely defining exactly what information a service operates on and how it's transformed (the so-called "service metadata"), and designing and implementing the "service orchestration" that defines exactly how a set of services is used in sequence to realize a particular business process. These essential components of a successful SOA strategy can be provided by BPM tools using a number of open standards.

Defining Service Orchestration

The first step in using BPM and SOA to deliver improved business processes is to capture, understand and document the existing business processes used within an organization. Two open

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standards are helpful here: the Business Process Maturity Model (BPMM) and the Business Process Modeling Notation (BPMN).

BPMM provides a reference model for appraising processes within the enterprise and helping prioritize improvements to them. It also describes an evolutionary improvement path that guides organizations moving from immature, inconsistent processes to mature, disciplined processes.

BPMM is based on Watts Humphrey's original Process Maturity Framework, which is also the foundation of the widely respected Capability Maturity Model for Integration (CMMI) used to help organizations institute repeatable software engineering processes. Following CMMI's success, as many as 200 different maturity models have appeared. However, most are simply descriptions of how an organization might look at different stages of evolution, giving little guidance on the specific steps necessary to move between maturity levels. By contrast, BPMM provides a detailed roadmap for business process improvement, and can also be used to assess risks when developing and deploying new enterprise IT applications supporting business processes.

Like all maturity models guided by the Process Maturity Framework, BPMM is divided into five maturity levels that represent different states through which an organization is transformed as its processes are improved, evolving from poorly defined and inconsistent practices (level 1), to repeatable practices at the workgroup level (level 2), to standard organization-wide end-to-end business processes (level 3), to statistically-managed and predictable processes (level 4), and finally to continuous process innovation and optimization (level 5). Achieving each maturity level also entails satisfying all the requirements of the lower levels.

Business Process Modeling Notation (BPMN) complements BPMM by providing a standard, simple-to-read visual notation for documenting business processes. It's intended to be used directly by the stakeholders who design, manage and realize business processes, but at the same time be precise enough to allow BPMN diagrams to be translated into software that orchestrates individual services to realize a particular business process. BPMN has an easy-to-use flowchart-like notation that's independent of any particular software environment.

BPMN is in turn supported by the Business Process Definition Metamodel (BPDM), a technical specification providing the bridge between business-friendly BPMN diagrams and software tools that create orchestration software using Model-Driven Architecture (MDA) techniques. By providing a common, syntax-independent vocabulary for business process concepts, BPDM standardizes the way BPMN diagrams are stored and exchanged; a vital facility for organizations that want to move business process definitions between different BPM tool suites.

Defining Service Metadata

A second key element of using SOA successfully within an organization is defining exactly what data each service provides and requires, and exactly how this information is manipulated by the service. A key open standard for creating these definitions is the Semantics of Business Vocabulary and Business Rules (SBVR) specification, which provides the means to precisely define business terminology, formally and unambiguously specifying each definition in terms of other definitions in the vocabulary. This allows the precise definition of business terms used in service and process definitions, helping to avoid the pitfalls of appealing to intuitive definitions, which may in fact differ across organizations.

SBVR also supports the definition of rules that use the terms in the businesses vocabulary. Although based on precise logic, SBVR rules are expressed in natural language to allow them to be easily read and written by business practitioners. SBVR's precise modeling foundation supports tools that allow vocabularies and rules to be mechanically checked for consistency, detecting undefined terms, inconsistencies and different rule statements that have overlapping meanings. By providing the tools to store and manipulate vocabularies, SBVR provides much of the glue that ties together business models created using other OMG BPM specifications.

Summary

BPM and SOA techniques hold out the promise of creating agile enterprises, which operate efficiently and respond rapidly to changing business needs. Open standards for service definition and their orchestration into business processes are a key element to achieving this promise.