

Business Process Management system using SOA

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Abstract

In modern enterprises, dynamic process management is one of the biggest challenge. By integrating Service oriented architectures with latest technologies and Business process management tools the above stated problem can be satisfied significantly. However, the dynamism is limited by number of factors. To implement process management successfully, five factors are identified. The identified factors are strategy, optimization and process management, process and IT architecture, project management and standards and measurements. Each of these factors is described and also the logical relationship interrelationship between these factors also discussed. This paper also discuss about the design, develop and implement stages of service architecture for a business process management system for virtual shopping service.

Keywords: Service oriented architecture, Business Processes management (BPM), Success factors, success model, BPM implementation.

1. INTRODUCTION

The increasing globalization and ongoing changes in business market situation requires Enterprises to adapt their processes in a flexible manner to satisfy the emerging requirement across the borders. Enterprises can not make agreements for long durations. In this dynamic environment, all enterprises requires well-organized

and adaptive business process for its survival. To be successful, current business process success factors needs to be identified. To achieve this, fundamental process reengineering is shifted into dynamic process management, industries are in the process of developing new systems such as Business Process Management System (BPMS) as well as standardized architecture like Service-Oriented Architecture (SOA).

BPMS helps industries to automate their standards procedures and processes, ability to visualize, Troubleshooting, changing business rules and processes without affecting other applications. Distributed applications are developed using SOA, where business processes are developed as services, published, discovered and bound together to develop complex business processes. This article aims at providing a success model for business process management using service oriented architecture, identifying factors for success model and its interrelation.

2. BUSINESS PROCESS MANAGEMETN AND SERVICE ORIENTED ARCHITECTURES

2.1 Business process Management

A business process is the complete set of collaborative and transactional activities performed by a company that delivers value to customers. It includes methods and techniques for design, administration, configuration and analysis of business process. It also enables supports technical and operational monitoring and user representation of business processes and rules. To understand the features of BPM, BPM life cycle can be used. The life cycle consists of

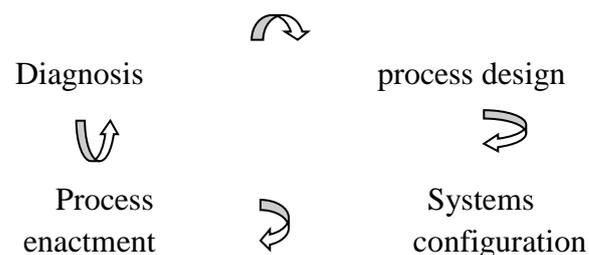


Fig. 1. BPM life cycle

Process Design: Graphical standards are used to model the business processes into electronic form in BPMS.

System Configuration: This stage configures the BPMS and its system infrastructure. It's very difficult to implement due to its differing IT architectures of different enterprises.

Process enactment: Electronically modeled business processes are implemented in BPMS engines using industry standard.

Diagnosis: The BPM analyst identifies and works on bottlenecks in the business processes using tools which are developed based on diagnosis standards.

2.2 Success factors for BPM

Success factors determines whether the process performance is satisfactory or not.

(i) Strategy : There is clear link between corporate strategy and company's core processes. Whenever a change happens in corporate, the required process needs to be altered. It is also classified further by factors such as strategic alignment, top management support and governance.

(ii) Optimization and Process management : It focus on cross functional processes. It does continuous monitoring, evaluation and measurement and process innovation by using standard approach. The sub-factors are process management, BPM methods and process improvement technology.

(iii) Project Management: It does planning, organizing,sercuring and managing of resources for successful completion of the project goals and objectives. Here, the sub-factors are project planning, project executing and control.

(iv) Process and IT architecture : Process architecture is responsible for structural design and general process system. It also concentrates on change management and process modeling. IT architecture provides policies and principles, services and common solutions, standards and guidelines for IT providers.

(v) Standards and Measurements : It measures the processes correctly to compare them with the specified goals and benchmarks. It also identifies the suitable change needed in addition of assessment of improvement.

2.3 SOA-based Business Processes Management

Service oriented architecture helps us to develop concrete solution to achieve business processes flexibility. SOA is a logical way of designing system which provides services to either end-user or to other services distributed over a network via

interfaces. Service registry provides information about the available services. This registry provides necessary details for the discovery, selection, binding and composition of services. The service interface description publishes the service signature and the capability description gives information about the purpose and expected results of the service. The functional and non-functional quality attributes are specified in Quality of service description. The attributes are security attributes, reliability, scalability, performance metrics and availability.

2.2.1 Trends in SOA

(i) Self -organized networking : It deals with dynamism, required methods and techniques for collaboration analysis.

(ii) Service provisioning: It is a logical extension OOP approach. Developed using Application Service provider software model. ASP delivers software-based services and solutions to end users across a network from central data centre. This model uses SaaS concept. But it has limitations like, inability to develop highly interactive applications and to provide complete customisable application. With the growth of service oriented approach, all the above stated limitations can be overcome and also provides dynamism.

(iii) Services composition : It is a technique for creating new service with the help of automatic composition method.

2.2.2 Dynamism limitation factors

In the development of BPMS and SOA, dynamism is limited by the following factors,

- Service discovery : Services are described using WSDL. Services are specified in human readable form or machine processable text. But it is not possible to classify services based on their informal description.
- Service binding : Services are suffered from ability to discover it's partner services due to security metrics.
- Service execution: Services has the inability to process business objects from different domains automatically. This problem arises because of data representation and matching of domains.

In the next section, a prototype system based on SOA has been discussed as a case study.

3. CASE STUDY: E-SHOP SERVICE

This case study is to evaluate recent technologies in the design, implementation and deployment of SOA architecture for Business process Management. An E-shop

services has been discussed based on the following activities.

- Listing the products
- supporting trial versions
- support for order placement
- delivering the product
- support for payment process

The scenario concerns buying a product in online store. Based on customers's view the overall process is stated as, select the desired product and proceed to checkout, he/she can purchase online or offline; in case of online payment the product will be delivered immediately; but for offline payments the customer receives invoice either by fax or email and goes to the bank; after purchasing the product customer receives payment confirmation and product, ie. customer is dealing with a single system.

The main goal of business owner is to maximize profit and minimize overhead costs. During payment, for each transaction some amount will be charges. To reduce this cost, he can handle all wire money transfers directly by his bank, while handling all other means of payments through existing shop. From his point of view, there are two systems for supporting one-stop online shop and another one for wire transfers.

4. CONCLUSION

Based on the current state and on the problem encountered during the implementation of case study, we must focus on Services binding, Service-oriented programming methodology and services life-cycle management. Service binding is a complex process to automate. It supports two classes, Static binding on the phase of modeling whereas dynamic binding during process execution. Service-oriented methodology help us to identify the rules and best practices of complete cycle of software development. Services life-cycle management, is one of the functionlity required for discovering the existence, availability, performance as well as control and configuration. The field of service management has practically received less attention so far and no deep investigation of problems relating to dynamic service management exists.

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