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## **BUSINESS PROCESS MANAGEMENT SYSTEM ARCHITECTURE AND USAGE SCENARIOS**

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### **3.1 INTRODUCTION.**

A recent study by Gartner [2] suggests that a great number of corporations have either acquired a Business Process Management System (BPMS) in recent years or they are assessing the situation to do so. Keeping in mind that the BPM technology is a relatively new area, the authors have decided to explore the general architectural characteristics and usage scenarios of business process management systems.

In the first section of this paper, BPM systems are studied from an architectural point of view to provide the reader with a better understanding of its modules. The second section focuses on the possible usage scenarios of BPM systems. In this manner, BPM systems are approached from two different perspectives; one that would define ‘what it is’ and the other one which would describe ‘what it does’.

### **3.2 METHOD**

This study was carried out as a pre-requisite for the study titled ‘Enterprise Information System (EIS) selection framework

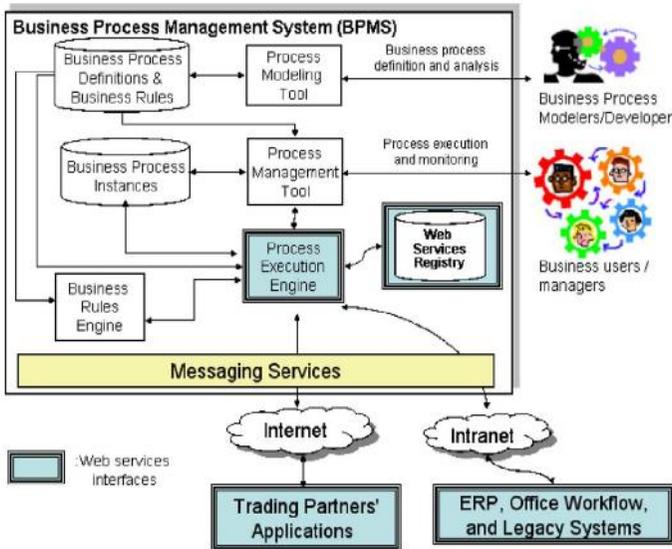
considering Enterprise Resource Planning (ERP) and BPM systems for corporations in Iran'. The information was gathered through studying the existing literature on BPM systems. BPMS architecture review has been derived from the paper titled 'Empowering collaborative commerce with Web services enabled business process management systems' [1]. The second section reflects the findings of Janelle B. Hill published by Gartner Institute in the paper titled 'The Top Four Usage Scenarios for a BPMS'.

### **3.3 BPMS ARCHITECTURE**

A BPM system has six main components as it is defined in the paper titled 'Empowering collaborative commerce with Web services enabled business process management systems' [1]. These components are:

- (a) Process modeling tool which is used by business process analysts and developers for mapping business processes by use of graphical notations.
- (b) Process management tool which allows users to execute, monitor and measure business processes.
- (c) Business process execution engine which uses the information stored in process models and rule engine to execute process instances.
- (d) Business rule engine which stores and in some cases interprets the business policies and regulations. This integrated approach helps organization to deploy the changes in all related business processes from a single repository.
- (e) Messaging services which provide the infrastructure for asynchronous conversations and message passing between web service consumers and providers.
- (f) Web services registry which stores meta-data about web services published by enterprise applications that can be bound to and used in business processes.

The following Figure 3.1 depicts these components and their relationships:



**Figure 3.1** Business Process Management System Components

### 3.4 BPMS USAGE SCENARIOS

Four main usage scenarios of business process management systems have been defined in the paper titled ‘The Top Four Usage Scenarios for a BPMS’ by Janelle B. Hill published by Gartner Institute. These four usage scenarios are not mutually exclusive and usage cases that some of the companies under study were involved in covered multiple areas of this spectrum. In the above mentioned paper these scenarios are defined as:

#### 3.4.1 Specific Process Based Solution

The main aim of the organization, in this situation, is to improve

the business performance through better coordination of mission-critical processes. The organization also needs to implement the application that could help them achieve this goal by minimal effort and time. The business processes are unique and therefore no off-the-shelf solution is found. On the other hand, the new system must also be able to communicate with the legacy systems and databases already existing in the organization. In such cases managing human centric business processes and workflows has more business value than system workflows. This pattern has been observed in government sector, charitable organizations, service providers, utilities and educational institutions. Processes which usually have this pattern are grants and funds management, research and prevention of disease control, student life cycle management, district-wide curriculum management, and consumer education resource consumption.

### **3.4.2 Redesign of a Process-Based Service-Oriented Architecture**

In this situation, usually the IT department considers the need to redesign the information and application architecture based on a service oriented approach. This plan follows a clear aim and that is to gain agility in business processes and re-arrange the application portfolio in a manner that supporting the agility of the business process. One of the side effects of this re-arrangement is the identification of redundant activities and normalizing these redundancies in software business services that could be consumed by many business processes. Business processes which tend to have a higher frequency of change are also identified in this manner. They are composed, recomposed and reused by use of the business process management system based on a service-oriented approach. In this scenario the business-friendly modeling environment, the ability to orchestrate external software business services and process components created in the authoring environment, user interface generation, prototyping of the solution

and business activity monitoring and management via graphical dashboards seems to attract different people in business and IT departments. This usage scenario could follow or be followed by the third type of usage scenarios (i.e. continuous process improvement) which is described next.

### **3.4.3 Continuous Process Improvement**

In this scenario, the organization has identified its business processes, documented it and wants to establish a continuous process improvement cycle. This culture is well understood and supported by top-level business managers and they want to have better control over business process change with less dependency on IT. The IT department is unable to meet the ever-increasing demand for implementation of these changes. The business managers also demand more visibility in managing the business in the process-level and the conventional departmental reports do not satisfy this need anymore. Business process owners also want more flexible ways to deal with exceptional process instances. In such a situation, the organization uses the business process management system to solve the above mentioned issues. This pattern has been observed in cases from the insurance industry, the banking industry, health care services, financial investment institutes and airlines.

### **3.4.4 Business Transformation**

This scenario could be traced in two types of companies; the ones which striving to survive the competition and therefore need to transform many of their core processes and also the ones who have achieved a high level of process-orientation. In this scenario the business process management is used for business process modeling, analysis and simulation to predict the effect of the changes that are to be made in business processes. It is also used as

an application delivery platform. All the benefits mentioned in the previous scenarios apply to this case as well. This pattern of usage has been found in financial services, real estate development and property management companies, and automotive industries.

### **3.5 CHAPTER SUMMARY**

This paper has been mainly derived from the sources which were studied during the literature review of the research titled ‘EIS selection framework considering ERP and BPM systems for corporations in Iran. The paper aims to contribute to the field of business process management systems. Two different aspects of BPM systems have been investigated. First, it includes the architectural components of BPM system which making up a BPM system and the other one describes the BPM system usage scenarios which have been recognized to be common. Further similar studies would consider the latest generation of business process management systems with automated business process discovery capabilities.

### **REFERENCES**

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