

Chapter 10

A BPM Framework for NPD Process Knowledge Management

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ABSTRACT

In today's context of strong competition among organizations and rapid changes in business surroundings, the organizations really need to start thinking about improving their performance, especially in knowledge intensive processes such as New Product Development. Business Process Management and Knowledge Management can represent organization's strategic resources to the extent in which they are viewed as a base of success or failure, but they need to be supported by synergic systems that allow shaping the context in which knowledge is created and where knowledge can be re-used. Managing the explicit definition of the NPD processes and its resources allows the regulation of reusable "process knowledge," the achievement of standardization, the improvement of best practice reuse, the improvement of time/cost efficiency, and the support of workers in the retrieval of knowledge resources suitable to conduct the product development activities. Thus, the aim of the chapter is to study how to best support companies in the collection and organization of process knowledge in the domain of their new product development, and to present an NPD process knowledge management framework which, starting from BPM approaches and its related technologies, allows the building of the required knowledge for the product development process more effectively for users and stakeholders.

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1. INTRODUCTION

In today's context of strong competition among organizations and rapid changes in business surroundings, the organizations really need to start thinking about improving their performance, especially in knowledge intensive processes such as New Product Development (NPD) (Karadsheh et al, 2009).

Improving the product development process is a great challenge for its inherent uncertain, complex and multidisciplinary nature; it requires the creative management of resources, the implementation of experimental processes with uncertain outputs and the management of many different types of relationships among internal and external players: different departments (marketing, research, manufacturing, etc.), users, suppliers, partners, designers, research centres (Galbraith, 1977).

Different types of knowledge, skills, attitudes and values have to work together. In such a complex scenario, Business Process Management (BPM) and Knowledge Management (KM) represent organization's strategic resources to the extent in which they are viewed as a base of success or failure (Karadsheh et al., 2009; Jubileu et al. 2007).

BPM is a management discipline referring to "aligning processes with the organization's strategic goals, designing and implementing process architectures, establishing process measurement systems that align with organizational goals, and educating and organizing managers so that they will manage processes effectively" (Harmon; 2004).

The Business Process Management is basically divided in five phases: Analysis, Design, Execution, Monitoring and Optimization. The most important, difficult and risky of these phases is the Analysis one (Harmon et al, 2008), when knowledge of the process has to be gathered and made explicit with the help of people executing them.

In the last 10 years, a new interest has been registered around process management mainly focused on the developments of systems to support the whole BPM activities, but the Analysis has not really benefited from such developments. Even if new methods and languages have been strongly developed to support the representation of process semantics (BPMN, 2011), most of the effort has been concentrated on the capabilities for the translation of such processes into executable models, to orchestrate the mere sequence flow of the organization's activities (Silver, 2008), rather than on the capabilities to support human processes with knowledge (Harrison-Broninski, 2005). In fact, a substantial preference has been given to the production and integration process types, such as order management and on-line sales, rather than on critical organizational processes such as NPD.

Nowadays several examples of collaborative tools have been developed by BPMS and software vendors (i.e. Lombardi Software's Blueprint, SAP Gravity built on Google Wave, etc.). These tools mainly offer two types of capabilities: 1) graphical, standardized, semantically rich, intuitive and easy to use business process modelling through Business Process Modelling Notation (BPMN), and synchronous communication for ideas exchanging during collaborative sessions (Aurelio et al, 2009).

They represent instruments for collecting and exchanging core knowledge about processes in a shared and trusted context, but they are not enough for process knowledge management needs (Yamamoto et al., 2005).

Conversely, KM approaches have put a lot of emphasis on supporting the core knowledge processes, especially NPD (Balasubramaniam et al, 1999), focusing broadly on the integration of different knowledge sources.

Knowledge management systems usually aim at systematizing different kinds of knowledge, represented by different document types, by organizing them in knowledge maps or by providing advanced search engines to find them.

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