

Chapter 6.11

Business Modeling in Process–Oriented Organizations for RUP–Based Software Development

Francisco J. Duarte

Blaupunkt Auto-Rádio Portugal, & Universidade do Minho, Portugal

João M. Fernandes

Universidade do Minho, Portugal

Ricardo J. Machado

Universidade do Minho, Portugal

ABSTRACT

Several organizations nowadays are not particularly comfortable with their internal structuring based on a hierarchical arrangement (sub-divided in departments), where collaborators with a limited view of the overall organization perform their activities. Those organizations recognize the need to move to a model where multi-skilled teams run horizontal business processes that cross the organization and impact suppliers and clients. To develop software systems for any organization, the development process must always be appropriate and controlled. Additionally, for organizations that

want to migrate to a horizontal business processes view, it is required to model the organizational platform where the organizational processes will run. This necessity is also true when the organization under consideration is a software house. In this chapter, a proposal of a generic framework for process-oriented software houses is presented. The way of managing the process model and the instantiation of their processes with the rational unified process (RUP) disciplines, whenever they are available or with other kind of processes, is recommended as a way to control and define the software development process. To illustrate the usefulness of the proposal, the chapter presents

how the generic reference framework was executed in a real project called “Premium Wage” and shows, in some detail, the created artifacts (which include several UML models) during the development phases following the RUP disciplines, especially the artifacts produced for business modeling.

INTRODUCTION

A generic reference framework for process-oriented organizations is presented in Fernandes and Duarte (2004). Here, that framework is specialized to the specific case of organizations that develop software (software houses) and we describe its main characteristics. From now on, the term “target organization” is used to refer to those organizations where the software is deployed and installed. The term “software house” is used to refer to the organization that develops software to run in the target organizations.

The main objective of this chapter is to present a reference framework based on processes and RUP disciplines for software houses and to show its usage in a real software development project, as a demonstration case to illustrate the applicability of the proposed model.

With the proposed framework, a holistic view of any software house is straightforward to obtain, allowing a more accurate definition of those processes directly related with the software development, without disregarding the management and support processes.

Process-Oriented Organizations

The concept of a process-oriented organization is a way of focusing the activities of an organization toward the clients needs (Hammer, 1996). These activities are oriented toward and validated by the clients, whose necessities must be satisfied efficiently and with quality. Reengineering, and its process orientation, must be applied to anticipate

change and not as a corrective procedure when bad business indicators occur. In process-oriented organizations, clients’ needs must be continuously satisfied, which mandates an easy and fast adaptation to changes. This favors and forces the continuous improvement of every aspect of the enterprise, being it process-, product- or organizational-related.

Information technologies are among the principal factors to permit a process-based restructuring of a given organization (Spurr, 1994). The development of a software application for organizations of this kind must consider their process framework. Thus, the software engineering processes must take into account the organization structure. With this model, the application becomes more useful to the target organization, and maintenance is facilitated since no major modifications and adaptations to the process framework are needed.

A process framework inside an organization contains processes, and these can be viewed as a set of activities that has as inputs and outputs a set of services and/or materials. This view must be oriented toward the necessities of the client and to the creation of added-value. This implies that the clients’ requirements must always be considered, both in the design and in the performance of the system. In an organization, there are other processes rather than those that provide added-value to the clients. The existence of different types of processes is necessary to assure, for example, the strategic planning for the organization, the recruitment of the human resources or the fiscal duties. As illustrated in Figure 1, these processes are instantiated in Management and Support Processes.

Within an organization, the management by processes requires a structure that differs from the typical functional hierarchy. It is mandatory to synchronize the processes among them and to fulfill the strategic objectives of the organization. For a process-oriented organization, a structure with the following elements should exist:

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/business-modeling-process-oriented-organizations/29519

Related Content

Formal Methods for Specifying and Analyzing Complex Software Systems

Xudong He, Huiqun Yu and Yi Deng (2009). *Systems Analysis and Design for Advanced Modeling Methods: Best Practices* (pp. 243-264).

www.irma-international.org/chapter/formal-methods-specifying-analyzing-complex/30026

An Industrial Case Study on Managing Variability with Traceability in Software Product Lines

Taeho Kim and Sungwon Kang (2015). *International Journal of Software Innovation* (pp. 1-15).

www.irma-international.org/article/an-industrial-case-study-on-managing-variability-with-traceability-in-software-product-lines/121544

Machine Learning Classification to Effort Estimation for Embedded Software Development Projects

Kazunori Iwata, Toyoshiro Nakashima, Yoshiyuki Anan and Naohiro Ishii (2017). *International Journal of Software Innovation* (pp. 19-32).

www.irma-international.org/article/machine-learning-classification-to-effort-estimation-for-embedded-software-development-projects/187169

Integrated Software Testing Learning Environment for Training Senior-Level Computer Science Students

Daniel Bolanos and Almudena Sierra (2009). *Software Applications: Concepts, Methodologies, Tools, and Applications* (pp. 2029-2045).

www.irma-international.org/chapter/integrated-software-testing-learning-environment/29493

Proposed Secure 3-Use Case Diagram

Madhuri Gedam and Bandu B. Meshram (2022). *International Journal of Systems and Software Security and Protection* (pp. 1-18).

www.irma-international.org/article/proposed-secure-3-use-case-diagram/293237