Chapter VI

Enhancing RUP Business Model with Client-Oriented Requirements Models

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ABSTRACT
This chapter presents a strategy for the construction of RUP business models using client-oriented requirements models that are written in natural language. The RUP business model, whose objective is to understand the context of the system, is represented with business use cases and a business objects model. As there is no concrete strategy for its development, an integration of client-oriented requirements models and strategies that enhance the construction process of the business model, while keeping the RUP philosophy of using the language of the customer for the first stages of development, are proposed in this chapter. These models describe the context of the system from a different perspective through the use of a lexical model to describe the vocabulary, a model of scenarios to describe the behavior, and a business rules model to describe the policies of the organization. These models are manipulated through a set of heuristics in order to define the UP business model and to enhance traceability between the models. We use a case study to exemplify the strategy throughout the entire chapter.

INTRODUCTION
Unified Process, well known as RUP (Jacobson et al., 1999), is one of the object-oriented methodologies used more frequently at the present time. UP is an iterative, incremental, and use cases-driven methodology. As any methodology, RUP starts with the requirements capture stage, in which RUP considers that “the major challenge is that the customer, who we assume to be primarily a non-computer specialist, must be able to read and understand the result of requirements capture. To meet this challenge we must use the language of the customer to describe these results. As a consequence, we
should be very careful when introducing formality and structure and when introducing details about the system's internal working, in the results” (Jacobson et al., 1999, p. 113).

As part of this early requirements definition stage, RUP proposes the task of defining the system context to acquire the knowledge of the organization in which the software will operate. The system context is defined through a business model, more concretely, a Business Use-Cases model and a Business Objects Model. There are no concrete strategies for the model development; for this reason, we highlight the necessity of integrating client-oriented requirements models and strategies to enhance the construction process of the business model and keep the RUP philosophy of using the language of the customer for this stage. We adapted the strategy presented in Leonardi (2001) to be used in the context of RUP. This strategy proposes a set of activities and heuristics to define a conceptual objects model starting from natural language-oriented requirements models belonging to the client-oriented requirements baseline (Leite & Oliveira, 1995; Leite et al., 1997). These models describe the overall context — also known as Universe of Discourse or UofD (Leite & Oliveira, 1995) — in which the software will be developed and operated from different perspectives as follows: through a lexical model known as LEL (Leite & Franco, 1993) to describe the vocabulary; through a scenarios model (Leite et al., 1997) to describe the behavior, and through a business rules model (Leite & Leonardi, 1998) to describe the policies of the organization. The strategy enhances traceability between the models. Specifically, the use of the heuristics allows for pre-traceability (Gotel & Finkelstein, 1994) between the RUP business model and LEL and scenarios and business rule models.

The chapter is organized in the following way: First, the requirements baseline models are presented; this is followed by a section that briefly introduces the RUP business model; next, a definition strategy of the business models construction starting from requirements baseline models is described; the chapter then deals with the traceability aspects of the strategy. We conclude with a comparison of other works, and provide a general conclusion and summary of future work.

We will use a case study to exemplify the strategy through the entire chapter. The case study is “Car Purchase Saving Plan Administrator” case. The objective of the administration is the “making up” of groups of subscribers to buy automobiles through a saving and bid system. In order to be a subscriber of a group, the applicant will complete an application form. If he or she is accepted, the applicant will subscribe to a plan according to an adhesion contract. There are different types of plans. The subscriber has to pay a monthly installment, which gives the subscriber the right to participate in monthly acts of “Draw or Bid.” The subscriber may bid money each month with some money by using a bid envelope. The subscriber becomes a grantee when he or she obtains the automobile by any of these two mechanisms. In this particular case, he or she will request the car by means of a special form and pay a special fee in order to receive the car. The grantee can opt for an automobile of a higher or lower value based on a set of existing rules. The subscriber can transfer his or her rights of the plan to another person and can reject the plan or be separated by the administration. He or she will have to pay for a life insurance. A group can be dissolved by decision of the adherents (e.g., discontinuing the manufacture of the car) or by the administration if there is a lack of group members or irregularities in payments. The full case and the requirements-related models may be obtained in Leonardi (2001).
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