Chapter III
Process Modeling for Holistic Process Management

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ABSTRACT

This chapter presents a process modeling approach for holistic process management. The main idea is that domain specific process models are required both to capture the contents of a process based application and to present a process model in a user friendly way. We presents how perspective oriented process modeling supports domain specific process model. Besides we describe how this approach can be implemented by applying a multi level meta modeling approach.

1. FUNDAMENTALS OF PROCESS MANAGEMENT

"Business process management (BPM) is a method of efficiently aligning an organization with the wants and needs of clients." (W3C, 2008). We want to complement this characterization and claim that clients could stem from inside of an enterprise or are external, i.e. customers of an enterprise. Despite the strong emphasis of enterprises, we prefer to talk about process manage-

ment, neglecting the term "business" in order to indicate that processes are general, i.e. they span the business field, the technical field and many other application domains. We regard a process as a collection of activities that consume some input in order to produce a certain output; hereby, applications (systems, tools, etc.) are used. Agents are necessary to initiate and drive the execution of processes. Often agents are special applications but sometimes agents are human users who are interacting with applications in order to drive a process.

1.1 Process Management Life Cycle

The main idea behind process management is to find out how a certain application should be performed. The assumption is that this application is composed of single activities which have to be executed in a certain order. A process describing this application will be defined and then implemented. Usually a graphical modeling language like BPMN (Object Management Group, 2006a) is chosen to specify a process; the result is a process model depicting the main features of a process.

Figure 1 depicts a sample process describing a clinical path. After a patient is registered, he has to be examined. Then a physician has to be assigned that is performing the surgery. After surgery a follow-up examination has to be performed. The boxes above the process steps illustrate data that are produced and consumed by the process steps. Although we omit to discuss this process model in detail, the graphical representations provides a quite good overview on the whole process. This process will be refined in the following subsections; especially we introduce the notation that is used in Figure 1. The process depicted in Figure 1 is just a small part of the real process; however, this part is sufficient to introduce the main concepts of process management.

The enactment of processes shows many facets. Two extreme enactments are rather important: A first popular enactment strategy is to create a process model (i.e. the schema of a process) from an existing application that describes its function in detail (descriptive enactment). The main usage of such a descriptive enactment is to use the process model for reengineering (i.e. improving) the application. Another important enactment is to create a process model in order to subsequently automate its execution, i.e. a process management system is used that proactively drives and supervises its execution (prescriptive enactment). What kind of enactment will be selected is mainly depending on the purpose and goal of a process model: If the process model is considered to be descriptive, it illustrates how a certain application should be performed. Thus the actual implementation of this application can be tracked and points of improvements can be identified by comparing process model and data from the execution. Prescriptive process models instead define a clear guideline how a process must be performed. Whether this guideline refers to its strict enforcement or to a flexible guidance depends on the characteristics of the application. Activities which determine how a process is modeled and executed are summarized in the process management life cycle (W3C, 2008).

Figure 1. Sample process
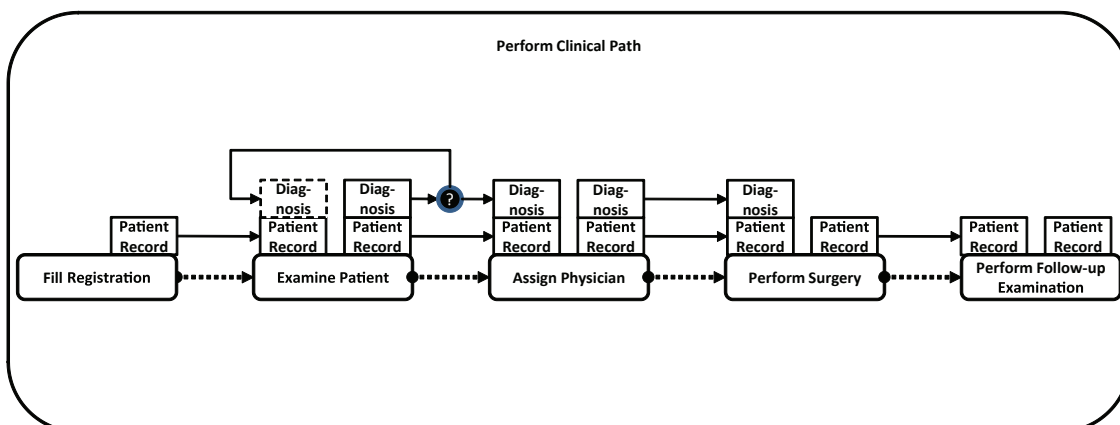
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