

Process-Centered Knowledge Management and Case-Based Reasoning

Frank Maurer

University of Calgary
Department of Computer Science,
Calgary, Alberta, Canada, T2N 1N4
maurer@cpsc.ucalgary.ca

1 Introduction

This short paper addresses three questions:

- ?? What are adequate representations for business processes?
- ?? How far should a system enforce prescribed (business) processes?
- ?? Can existing workflow systems be used as a basis for process-oriented KM?

Before answering these questions, let's take a step back and discuss a more basic issue: What is a business process?

A business process is a set of activities that are carried out to reach a specific goal. To execute a business process, humans have to communicate and collaborate. The flow of activities needs to be coordinated. To carry out an activity, a human needs specific skills and background knowledge as well as concrete input information for the task at hand.

A major criterion to distinguish one kind of business process from another is the amount of flexibility required to reach the goal. For example, a software development project usually requires quite a bit of creativity of the involved personal to be successful. It's concrete activities depend on many aspects including quality requirements, maturity of the technologies used, size of development team, On the other side of the spectrum, pure administrative processes are often very stable. For example, how a parking ticket is processed by a city administration is usually fixed.

Knowledge should be attached to the activities carried out as part of the business process. This makes sure that the knowledge is goal-oriented and focused on what is needed to do the job. Clearly, the description of the process in itself is important knowledge.

What knowledge should be attached to an activity?

- ?? Background knowledge that is required to carry

out this type of activity. This may include detailed descriptions of how to do the job, checklists, manuals.

- ?? Skill-related knowledge. This may include tutorials and training material that helps a person to improve her skill set for the task at hand.
- ?? Context information. This may include information about the project, important stakeholders.

As one can imagine, the amount of knowledge that is relevant for reaching a business objective/goal may become huge. Hence, a question is how to filter this body of knowledge so that only relevant information is presented to the user. For filtering, a system can use

- ?? Information on the skill set of a responsible team member. For example, a Java expert does not need to see introductory tutorials on Java.
- ?? Information about the project. For example, if a software development project has low quality requirements, knowledge about formal specification techniques need not be presented.
- ?? Information about the type of task. For example, when executing a testing process, information about requirements engineering need not be displayed.

To implement this filtering, various techniques can be used. These include hypertext links, text retrieval, databases, similarity-based retrieval, ontology-based retrieval. Currently, we do not have good empirical evidence that would allow determining which technology is best in a given situation.

2 Position statement

Returning to the questions stated above, it should be obvious that different types of processes have different

requirements concerning their knowledge management aspects.

What are adequate representations for business processes?

From a cognitive perspective, a representation that is based on the concepts of the domain instead of artificial concepts is easier to understand for humans. Hence, a representation formalism for business processes should provide primitives for expressing the “natural” concepts of the concrete environment for which the process is described. This may include

- ?? Activity/process/task/step/milestone/action item
- ?? Team/department/group
- ?? Resource/team member/agent/worker/actor
- ?? Skills/education/training
- ?? Document/input
- ?? Responsibility/task assignment/resource allocation

Depending on the purpose of the representation of the business process (descriptive, operational, managerial etc.), only part of the listed information is required or additional information may be added. For example, for automatically delegating activities to other personal, a system needs to determine who can be a replacement of the absent person.

How far should a system enforce prescribed (business) processes?

The answer to this question heavily depends on several criteria

- ?? The flexibility required in the business domain.
- ?? The quality of the prescribed process and how far it is up to date.
- ?? The training of the people involved in the business process.
- ?? The tool support for enacting the process.

Can existing workflow systems be used as a basis for process-oriented KM?

In principle this should be possible because they represent task. This should allow attaching knowledge to a task in the same way as this is done in various research prototypes. The problem is only that current workflow systems are not good at supporting flexible processes. And in general these flexible and creative processes are more knowledge oriented than pure administrative processes.

