21 Business Process Retrieval of Company Policies

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21.1 Introduction

In large enterprise architecture solutions corporate policies, operations, and standards are commonly described by use of graphical business process descriptions and textual governing documents. These documents are usually lengthy, and not specific to particular tasks or processes, and the user is left to read through a substantial amount of irrelevant text to find the fragments that are relevant for the execution of a specific activity. Since the users tend to use the process models as a guide in their daily work, it is often desirable to start with the activity in the process model and automatically retrieve the parts of the governing documents that pertain this activity.

Even though they document the same domain, the existence of both governing documents and graphical business process models are necessary. The expressiveness of business process models can not eliminate the importance of governing documents. Similarly, the importance of business process models can not be eliminated by giving governing documents a process oriented structure. The challenge is to find methods that enable:

1. Content consistency between the two information sources
2. Retrieval of information across both representation formats.

In this work, three different text mining approaches (Latent Semantic Indexing, Association Rules, and document expansion using WordNet) are applied to establish links between business process model elements and relevant parts of governing documents.

The techniques are thoroughly studied and implanted. The approaches are evaluated based on available documents and accompanying model fragments covering the Procurement & Logistics (P&L) area in Statoil ASA.
The evaluation of our results indicates that the information retrieval approach to integration has potential. Of the text mining techniques under evaluation, Latent Semantic Indexing (LSI) gives the most promising results, but both this and the other techniques should be more thoroughly evaluated in a continuation of this work.

21.2 Statoil ASA

Statoil is an integrated oil and gas company with more than 25,000 employees and activities in 31 countries. The group is operator for 60 percent of all Norwegian oil and gas production. Statoil is also a major supplier of natural gas in the European market and has substantial industrial operations.

21.2.1 Business Process Model

As a tool to help managing complexity Statoil started to document the different business processes of their enterprise. The main purpose of this initiative is to change their established functional view of the enterprise areas into business processes, as part of an enterprise architecture plan for the corporation. The Statoil Business Process Model (BPM) is used to document relations between business processes, information and IT systems.

Information in Statoil is stored in a number of different systems and formats, which complicates communication between knowledge databases. This further motivates for removing redundancy in an attempt to improve the information flow between systems and databases. The aim is to have relevant information available at the right time and place in a simple way.

BPM is a top-down hierarchical model of the Statoil enterprise. At each level business processes are described by graphical business process models and related governing documents. A screenshot of the BPM showing both a graphical business process model and links to related governing documents is shown in figure 1. The graphical business process models visualize subsequent and aggregated processes / activities, involved resources (documents), events and decision points.

The governing documents are related to the graphical business process models through hyperlinks in the BPM. While the graphical models give a nice overview of the business processes in the BPM, the governing documents contains all the information (guidelines, procedures, descriptions, etc.) that are necessary for successful process execution.

Today, elements in the graphical business process models are manually related to relevant governing documents. For each process, a list of relevant governing documents is maintained. As governing documents are lengthy, include formally structured bodies of text and describe issues that are not directly relevant for the execution of specific business activities, it is in many cases bothersome to locate the fractions of text that are of importance. The links point from the graphical models to whole documents and no indication of where in the document the relevant part(s) occur is given.