Design and implementation of a task-centric social content management application for end-users

Michael Ostner
22.02.2016
1. Introduction
2. Objectives
3. Model & REST API
4. Demo
5. Conclusion & Outlook
6. Discussion
Master’s Thesis Michael Ostner

Title (en): Design and implementation of a task-centric social content management application for end-users

Abstract

Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modelling. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text readable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to support knowledge work. These processes normally cannot be expressed by typical business process management systems because of their unpredictability and error-proneness. Recent researches worked out requirements and characteristics which are needed to provide a system supporting knowledge-intensive processes including the ability for modeling and abstracting.

The goal of this master’s thesis is to combine a Hybrid Wiki with aspects of a system supporting knowledge-intensive aspects. The focus is not to create an application for modeling purposes but to create an application, which helps to structure and document processes for knowledge work based on the idea of tasks combined with the characteristics of the Hybrid Wiki.

Keywords: SocioCortex, Tasks

Design and implementation of a task-centric social content management application for endusers

Abstract

Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modelings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to support knowledge work. These processes normally cannot be expressed by typical business process management systems because of their unpredictability and error-proneness. Recent researches worked out requirements and characteristics which are needed to provide a system supporting knowledge-intensive processes including the ability for modelling and abstracting.

Source: adapted from Hauder, 2015
Tricia (Hybrid Wiki)

- Dynamic model schema
- Allows adding structured content in form of attributes
- Building types with bottom up approach

Darwin

- Modelling work plans for knowledge-intensive processes
- Monitoring the execution of processes
- Targeting end-users as well as modelling experts
1. Introduction
2. Objectives
3. Model & REST API
4. Demo
5. Conclusion & Outlook
6. Discussion
Objectives

1. Create UseCases to determine scope
2. Extend SocioCortex with process aspects of Darwin
3. Enable access the model via REST
4. Create basic web client for supporting UseCases
Task Navigation:
Use the navigation bar to drill down to the needed contribution. Find needed contribution based on a task drill down.

Source: adapted from Florian Katenbrink
Design and implementation of a task centric social content management application for endusers

Abstract

Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modelling. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to support this kind of knowledge management. Typically, hybrid wikis are not the best choice to support knowledge-intensive processes because of their small content-based searches worked out as described above. Therefore, it would be more useful to provide a system which supports knowledge-intensive processes while still maintaining the ability for modeling ordinary knowledge under a guided approach.

Hybrid Wiki with aspects of a knowledge management system would be a good basis for this. The focus is not to create an additional system for modeling knowledge-intensive processes, but to provide a guided approach which helps to deal with them efficiently.

Task Planning:
Defining initial task metadata values for instantiated templates and adjust them based on the visual feedback of the Gant chart

Source: adapted from Florian Katenbrink
Task Execution:
Create artefacts and document deliverable artifacts. E.g. edit the wiki and adjust the attribute values of the task or add artifact as attribute values.

Design and implementation of a task centric social content management application for endusers

Abstract
Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modellings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.
Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to support knowledge work. These processes normally cannot be expressed by typical business process management systems because of their unpredictability and error-proneness. Recent researches worked out requirements and characteristics which are needed to provide a system supporting knowledge-intensive processes including the ability for modeling and abstracting.
The goal of this master’s thesis is to combine a Hybrid Wiki with aspects of a system supporting knowledge-intensive aspects. The focus is not to create an...
Design and implementation of a task centric social content management application for endusers

Abstract
Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modellings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introducted to be able to support these kinds of processes because of their lacking well-defined processes.

Task Finishing:
Complete the artifact creation and finish thereby or skip the task if the artifact is not needed

Source: adapted from Florian Katenbrink
Design and implementation of a task centric social content management application for endusers

Abstract
Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modellings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to classify this knowledge. These processes are characterized by the fact that they cannot be expressed by simple algorithms, processes worked out are not yet known beforehand. Hybrid Wikis allow to provide a system for the handling of this flexibility, giving the ability for modeling complex processes and working with them.

Process Adaption:
Adopt the current process to special needs. E.g. add an additional task or remove a defined task on the current process, vise versa for task attributes.

Source: adapted from Florian Katenbrink
Design and implementation of a task centric social content management application for endusers

Abstract
Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modelings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various meta data. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to be handled by the application because of their specific behavior.

In order to provide a system for this kind of knowledge management the system SocioCortex was developed. This system takes advantage of Hybrid Wiki with aspects of a social content management application. The focus is not to create an application for knowledge exploration which helps users to find information, but rather an application which helps users to create, manage, and share knowledge by facilitating the whole process of knowledge creation from start to finish.

Task Notifications:
Remind users to complete their overdue tasks.

Source: adapted from Florian Katenbrink
Agenda

1. Introduction
2. Objectives
3. Model & REST API
4. Demo
5. Conclusion & Outlook
6. Discussion
SocioCortex
Extended model with process aspects

Concept provided or extended by Darwin for the schema

Concept provided by Darwin to support process structure

Concept provided by HybridWiki supporting data structure
<table>
<thead>
<tr>
<th>Type</th>
<th>URL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>taskDefinition</td>
<td>/stages/{stageId}/taskDefinitions</td>
<td>GET: Returns a list of task definitions which are owned by the specified stage</td>
</tr>
<tr>
<td></td>
<td>/stages/{stageId}/taskDefinitions</td>
<td>POST: Creates a new task definition and adds it to the specified stage</td>
</tr>
<tr>
<td></td>
<td>/taskDefinitions/{taskDefinitionId}</td>
<td>DELETE: Deletes a specific task definition</td>
</tr>
<tr>
<td></td>
<td>/taskDefinitions/{taskDefinitionId}</td>
<td>GET: Returns a specific task definition</td>
</tr>
<tr>
<td></td>
<td>/taskDefinitions/{taskDefinitionId}</td>
<td>PUT: Updates a specific task definition</td>
</tr>
<tr>
<td></td>
<td>/stages/{stageId}/taskDefinitions/{taskDefinitionId}</td>
<td>DELETE: Deletes a specific task definition from a stage</td>
</tr>
<tr>
<td></td>
<td>/stages/{stageId}/taskDefinitions/{taskDefinitionId}</td>
<td>PUT: Adds the specified taskDefinition to the stage</td>
</tr>
<tr>
<td></td>
<td>/taskDefinitions</td>
<td>GET: Returns a list of task definitions</td>
</tr>
<tr>
<td></td>
<td>/taskDefinitions</td>
<td>POST: Creates a new task definition</td>
</tr>
</tbody>
</table>
Design and implementation of a hybrid wiki for social content management: application for end users

Abstract
Hybrid Wikis try to combine the high applicability of ordinary wikis with the approach of semantic rich but static enterprise architecture modellings. The main concepts of these hybrid wikis are on the one hand keeping the loose structure of ordinary wikis, which means pages with pure text editable by users with specified rights and on the other side the combination of various metadata. There are for example attributes, type tags, attribute suggestions, as well as attribute definitions with integrity constraints.

Generating knowledge is often a process with loose structure. Therefore, an extra category called knowledge-intensive processes was introduced to support knowledge work. These processes normally cannot be expressed by typical business process managemen systems because of their unpredictability and error-proneness. Recent researches works out requirements and characteristics which are needed to provide a system supporting knowledge-intensive processes including the ability for modeling and abstracting.

The goal of this master’s thesis is to combine a Hybrid Wiki with aspects of a system supporting knowledge-intensive aspects. The focus is not to create an "enduser tool" but rather aims to create an adaptable framework which allows to...
1. Introduction
2. Objectives
3. Model & REST API
4. Demo
5. Conclusion & Outlook
6. Discussion
Conclusion

The Generic Client supports basic execution of tasks, whereas the REST API is already able to create grouped tasks using stages.
The modular architecture of the client as well as the defined concepts provide possibilities for further development e.g. regarding Case Management.

### Instance Layer

**Enhancing CM features like**
- Support execution with rules and stages
- Creating automated features using jobs and MxL

### Type Layer

**Further implementation for process related features:**
- Implementing rules
- Enhance API with rules

### Generic Client

**Community based features:**
- Feed (already in progress)
- Profiles
- Statistics
- Authorization

**Features for more complex task support:**
- Enable different stages of a page with rules

### Modeling Client

**Incorporating missing features to support type editing:**
- Process management using stages, taskDefinitions and rules (e.g. CMMN editor)
Discussion
Backup
Components of the application

Generic Socio Cortex Client
Material Design

sc-angular

REST API

SocioCortex

Header
- Content Header
- Gant chart

Content
Attributes
Tasks

Model
Controller
Template
View
Directive
Partial

Backend

Frontend
Motivation

Tricia provides a generic meta model concept to support an evolving model approach.

Darwin that follows the adaptive case management paradigm enables users to instantiate task temples and dynamically execute them.

How to merge the generic emerging model concept of Tricia with the task-centered paradigms of Darwin?
SocioCortex – Feature Map

Source: Thomas Reschenhofer
Hybrid Wiki
Conceptual model

Source: adapted from Matthes, 2011
Darwin
Conceptual model

Source: adapted from Hauder, 2015
Hybrid Wiki concept extended with task-centric aspects

Initial Presentation Master Thesis – Michael Ostner