IPRO 338: Building and Implementing a Knowledge Management System
Spring 2005
Midterm-Progress Report

Professor:

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Team Members:

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Revised Objectives:

The Project Reporting System (PRS) SubTeam has revised its original project plan objectives to include the following:

- Maintain PRS
- Usability Test System
- Implement changes as required
- Prepare to automate crossover from PRS to iKNOW

After realizing that the subteam's planned goal of further development of the administrative module of the Project Reporting System is not a priority for either system at this time, it has been decided that implementing the changes to PRS as necessitated by the usability study and management of the team will most likely consume the time of the only member of this subgroup. Furthermore, an idea has been suggested that in the Fall 2005 semester, the submission of Required Deliverables (not Work Product Deliverables) should be streamlined into one logical location. Since the greater submission point is iKNOW, the PRS subteam member recommends that the Summer 2005 IPRO 338 team develop an administration module that would manage and track the teams' submissions for the IPRO Office. This is the main reason that further development of the PRS administrative module is not anticipated at this time in the remainder of the semester.

The Development SubTeam has retained the goals originally listed in their project plan. These goals include implementation of a more useful expert and expertise database, design changes indicated by the results of usability testing, additional administrative functionality, logging of system events, and creation of developer documentation for the iKNOW system.

The SOAP SubTeam has revised its original goals in their project to include the following:

- Completely specify and document the SOAP interface (schemas and WSDL, supporting software engineering documents)
- Implement "basic" functionality of the SOAP mediator and backend for the iKNOW 1.3 database; this includes most of the functional requirements but notably does not include authentication
- Thoroughly test the implemented functionality, including writing a functional test plan

The original objectives and schedule for the subteam failed to fully take into account the learning curve for SOAP developers. The revised objectives reflect what team members agree to be a more realistic timeline and list of tasks to be completed. Notably, certain details that were not directly addressed in the project plan- but were recognized as requirements at that time- had to be singled out due to being deemed low-priority. Specifically, authentication is a complex issue requiring many man-hours of development that could be better rendered productive elsewhere. Authentication will be addressed to a limited extent in the SOAP interface and documentation, but no attempt will be made to implement an authentication scheme at this time. In addition, it is indeed a priority to complete an implementation with a single database backend, and, in turn, it has been decided that the backend will rely on the existing iKNOW 1.3 database. This means that implementing the backend for the updated iKNOW 2.0 database is a low priority task, to be completed, time permitting, at the end of the semester. Other than that, objectives for testing the SOAP interface have not changed.
* Is this iKNOW 2.0 or iKNOW 1.4?

The Roll-Out SubTeam has redefined its original project plan goals to include the following:

- Data Upload (Uploading Previous Semesters of IPRO Data into iKNOW)
- Expert Database (Seeking Out Experts and Areas Of Expertises Across IPROs)
- Team Liaison (Team Members Working Closely With Assigned IPRO Teams As iKNOW Team Liaison)
- Process Knowledge (Seeking Out Processes IPRO Teams Are Currently Experiencing/Researching and Perhaps Acquiring The Knowledge Within Those Processes To Aid Them With Their IPRO Work)
- Training Manuals (Training Users Through iKNOW Interface)
- User Manuals (Creating User Manuals On Using iKNOW and PRS)

The original project plan goal of creating marketing materials for the iKNOW system has been removed.

Summary of actual results to date:

For the PRS SubTeam, a functional requirements specification (FRS) has been produced, and the usability study has been completed along with the recommendations for the changes identified by it. A quick functional test reduced some fairly high-priority bugs such as unintended logout and frame inside frame reloading. The upload file limit has been increased to 50MB and is now presented in an easily readable format. Finally, broader planning for the two similar but different systems shall bring us into the 2005-2006 school year with the project at hand.

For the Development SubTeam, coding for iKNOW version 1.3 is complete and functional testing is currently in progress. The changes for iKNOW version 1.3 include: 1) Improved expert and expertise database structure, 2) Large file support, and 3) Logging.

For the SOAP SubTeam, the development of the SOAP object has relied heavily on documentation of existing functionality and proposed new functionality. The subteam has produced a use case document for the existing functionality, from the point-of-view of the user, and used those use cases to identify required functionality for the SOAP

interface, which have been captured in a proposal for design and development strategy, and a software requirements specification for the SOAP mediator. A Java interface for the SOAP mediator has been coded and documented, identifying, in detail, the methods the SOAP mediator will expose. This interface will most likely provide the basis for the actual implementation of the SOAP mediator. A simple file backend and an interface for extension have been coded to be used in the mediator implementation. An XML schema of the data types with inline documentation has been completed, minus the annotations that will be used to bind the schema to Java classes. The subteam has worked with members from the Development subteam to arrive at a database design for iKNOW 2.0. In addition, there has been discussion with contacts at Topiary Communications, the sponsor for IPRO 338, to discuss what is needed in the SOAP interface from a commercialization standpoint.

* Is this iKNOW 2.0 or iKNOW 1.4?

For the Roll-Out SubTeam, it first requested that the rest of the team help upload the previous semesters' data for their respective team-liaison IPROs while the subteam uploaded all other IPRO data, which was completed at the third week of the semester. In addition, documentation in the form of an inventory list compilation for the data uploaded into the iKNOW system by IPRO, semester, data type, and the uploader(s). For Expert Database, the Development subteam asked the subteam to create a spreadsheet with all obtained experts at this point for them to parse from into iKNOW and minimally provide experts within it. The experts and areas of expertise were obtained and extracted from the IIT Faculty and Senior Staff Expertise Database while their e-mail contact information was cross-referenced with their e-mail contact information that could also be obtained from the IIT e-mail search engine. For Team Liaison, the entire team (with the exception of two members from the SOAP subteam) have been working with an assigned IPRO team by attending one of their weekly meetings, recording observations pertaining to iKNOW, and submitting them in an individual form to be combined later. The observations come in the form of concerns/suggestions from members within the assigned IPRO team and recommendations on the behalf of the iKNOW team liassions when it comes to how iKNOW can help their teams. For Process Knowledge, the Roll-Out Subteam has obtained potential candidates to be considered from what the team members also serving as iKNOW team liaisons perceive to be process knowledge areas that could help their respective teams or help IPRO teams, in general. This process knowledge observation was also recorded into the individual weekly iKNOW team liaison forms to be compiled cumulatively. For Training Materials, the Roll-Out Subteam proposed the innovative idea of replacing the iKNOW 1.3 interface tutorial currently in text form with a two to three minute video clip. This video clip would show a user using the iKNOW system where everyone is able to see everything the user sees and uses while a voice-over narrates from the background explaining it all.

Revised schedule of events or tasks:
*Is this where you put the Gantt chart? Aside from PRS and Development listing they still follow their original schedule, Roll-Out and SOAP did not do this section.

Updated Individual Assignments and Team Organization:

For the PRS SubTeam, its only member is Ben McInturff- all assignments for this subteam have been and will continue to be completed by him. The remaining tasks that must be completed for the rest of the semester include the following: 1) implementing the changes identified and recommended by the usability test of PRS and 2) automation of submissions from PRS to iKNOW. Furthermore, the system administration of both systems must be documented and a short tutorial of the systems must be provided for the IPRO office staff. Finally, the interface to the iKNOW SOAP web service must be developed and tested to assist in the testing of that system.

For the Development SubTeam, its members are Dusty Hendrickson and Vance Thornton. The responsibilities for design, coding and documentation for iKNOW versions 1.2, 1.3, and 1.4 are shared between the members.

For the SOAP SubTeam, its members are Aron Ahmadia, Atif Khan, and Hart Wilson. Aron will continue to meet with Topiary to discuss progress and updated requirements. The tasks for the mediator frontend, to be completed by Hart, have been refined as design decisions were made. These current tasks include the following:

- Annotate the XML schema of the data types for binding
- Generate Java classes corresponding to the data types in the schema and bind those to the schema using JAXB
- Write a WSDL for the SOAP interface, based on the existing Java interface and data types schema
- Code and document a Java implementation of the mediator

The tasks for the mediator backend, to be completed by Atif, have not been changed other than to make the iKNOW 2.0 database back end a low-priority. These current tasks are:

- Complete a back end for the mediator in Java using the iKNOW 1.3 database
- Thoroughly test the mediator backend

And for the Roll-Out SubTeam, its members are Andrei Pop, Mark Riego de Dios, and Justin Vonashek. Andrei is responsible for the Training Materials and Process Knowledge, but he has delegated the latter task to Justin, in addition to working with Experts and Expertise Database, due to fall-out from the Team Liaison duties. Justin has gathered thirty-six process knowledge topics from the Team Liaison duties as he works with the rest of the team to expand, clarify, and better define those thirty-six process into the targeted one hundred and fifty process knowledge topics. He is also currently working with Tom Jacobius of the IPRO Office to help obtain access into Web for Students to extract the currently updated and available course information (with professor) to extend on the Experts and Expertise Database. Andrei is currently putting together a training video to appear in the iKNOW 1.3 interface as well as devising a narration script to be used during the actual filming. Mark was responsible for coordinating the Data Upload, which was completed earlier this semester. As a result, his primary task is creating user manuals for iKNOW 1.3 (user-level), PRS, and iKNOW 1.3 (administrator-level). The first draft for each user manual will be produced every two weeks while revisions will be made in subsequent weeks.

Barriers and Obstacles:

For the PRS SubTeam, its only issue experienced has been a tightness and lack of manpower (due to the subteam containing only one member) and resources due to the

needs of other teams (due to the subteam's only member higher-priority role as the team leader).

For the Development SubTeam, one of the obstacles this team encountered while completing tasks so far was the difficulty in deciding how much to change the structure of the database for the current version of iKNOW. There were many changes to the database which the subteam thought would be beneficial, but they could not be made because the subteam needed to keep the amount of change to the current code to a reasonable level. The biggest barrier remaining for this sub-team is time. There are a lot of things which are absolutely necessary for this team to accomplish, but the subteam calculated the time needed to accomplish all of this to be greater than the time provided to them in the semester.

For the SOAP SubTeam, the most significant barrier has been the learning curve for the numerous technologies to be used in the mediator. Team members have needed to spend time learning and experimenting with XML Schema, WSDL, JAXB, JDBC, and Apache Axis. Another barrier was the late formation of the SOAP subteam and the reorganization this required. A lack of communication between subteam members, particularly between Hart and Atif, has been a minor inconvenience up to now, but as the work of these members becomes more interdependent in the coming weeks, this may become a larger barrier if it is not targeted for improvement.

For the Roll-Out SubTeam, inexperience and unwillingness have been the main barriers and obstacles that the members have faced. Andrei and Justin are new to this IPRO. While this is Mark's second continuing semester with this IPRO, the six assignments delegated towards the three are entirely new to them as well as to the semester. Mark's technical skills with capturing and editing screen shots in Adobe Photoshop and creating bookmarks within the table of contents in Microsoft Word is limited because he has never worked with either software to that extent before. Justin's Team Liaison duties have been postponed for four weeks because the information gathered on the teams being worked with has become the same- teams haven't been using iKNOW as much as IPRO 338 envisions them to. Even then, other members of the team, who could have provided two teams' worth of additional information, are unwilling to participate in the Team Liaison duties, perhaps due to Justin's inexperience, which affects his role of authority with this IPRO. Justin also experienced unwillingness on Tom Jacobius's part to help him gain access into Web for Students for the current course information. Andrei's inexperience with the iKNOW system deters his process for completing the training video, in spite of his technologically adept skills with several software. At this point, experience and perseverance will only help the subteam achieve completion of their six objectives at the end of the semester.