

**KUISCI: the Collaborative Project Management Based on Expertise Analysis**  
**Thatsanee Charoenporn and Virach Sornlertlamvanich**  
**National Electronics and Computer Technology Center**  
**Nuansri Denwattana and Tawatchai Iempairote**  
**Burapha University**

**Abstract**

Project management is very important and can be applicable to many activities that require a good planning, organizing, and managing resources to bring about the accomplished completion of specific goals and objectives. (PMI, 2003) How to manage either human resources or granting budgets for national research and development projects by means of project management's discipline and tools is particular challenging. KuiSci is developed as a social network system for the scientific and technology researcher community in order to facilitate the collaborative project management based on expertise analysis. KuiSci supports community collaboration in terms of knowledge creation and exchange on the internet. This social networking system also includes meeting point where callers are able to post their problems and the responders pick the problem that satisfies the requirement in order to find out its solution. High competency in the management of national research will then be undertaken by KuiSci.

**Introduction**

A large amount of budget has been dumped for granting research and development projects every year and by almost every academic community or research institutes. It is announced by the National Research Council of Thailand (NRCT, 2008) that in 2005, Thailand spent about 16,667 million Baht or 0.24 of GDP for the sake of research and development. And there are about 34,000 researchers who registered with research institutes or similar organization, such as the National Science and Technology Development Agency, the Thailand Research Fund, and National Research Council of Thailand. According to both this very big research grant and a number of researchers, project proposals applied for getting funding has been increases every year. Some are coincidentally similar to others. Some can be illustrated as a part of others. And it was recently found that the same group of researchers is involved in many researches, and there was a question whether he or she really has any action in the project. Grant organizations currently put every effort to review and accommodate the proposals, but it is accepted that there still be found much duplication of granted projects, since the proposals can be endorsed directly to organizations which raise funds for the national research and development system. Moreover, it is not convenient for the seekers, who have the idea or know what they want, to find an appropriate researchers. Because of no integrated database provided. More often that right jobs were not assigned to the right men.

To overcome the current situation, collaborative project management system is particular challenging. There are 4 factors in project management perspectives.

- Budgets, funding, researchers or experts, and proposals belong to various institutions.
- Numbers of researchers work independently.
- Funding institutes work independently.
- A large amount of information related to urgent research topics, funding, and experts needs to be explicitly shared.

Additional, nowadays network technology is very advanced. The global buildup of the internet connectivity and growing availability of less expensive computing and communication devices have made the World Wide Web, which is a very important media for exchanging information among users around the world. The internet users can easily share resources or opinions. The social network members can also collectively contribute to their community and generate massive content behind their virtual collaboration.

Concerning these real problems and the urgent inquiry of the collaborative "project" management, KuiSci has been developed by integrating the advance of IT and the discipline of project management. In this paper, we introduce "KuiSci", a collaborative project management framework and tools for scientist networking and research information exchange. KuiSci is derived from "KUI" which is a platform for knowledge development that enables connection and collaboration among individual intelligence in order to accomplish any complex mission.

In the rest of the paper, we introduce KuiSci and some aspects related to KuiSci's development. A conceptual and components of KuiSci are also presented.

## KUI: A Collective tool for Knowledge Management

KUI or “Knowledge Unifying Initiator” is a knowledge development supporting tool of a web community. (Sornlertlamvanich et al., 2006, 2007, 2008) KUI is a platform to unify the various thoughts created by following the process of thinking, i.e. (1) new task, to allow a participant to initiate a task, (2) opinion, to allow a participant to post his own opinion, (3) localization, to allow a participant to bring in a new knowledge into the community by translation, and (4) public-hearing, to allow a participant to post a draft of concept for conceptualizing the knowledge. The process of thinking is done under the selectional preference simulated by voting mechanism in the case that many alternatives occur. Exhibit 1 shows the process of how knowledge is developed within a community (KUI, 2008).

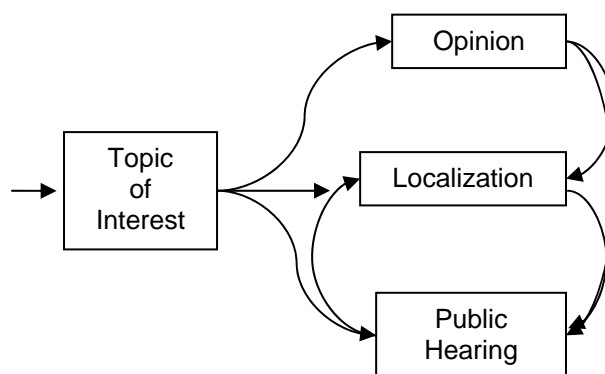


Exhibit 1 - Knowledge Development Process in KUI

## Collaborative Project Management

To serve a scientist community and to integrate the research funding process, KuiSci has been developed. KuiSci, or the Knowledge Unifying Initiator for Science is a social networking system for scientific and technology researcher community. The system supports community collaboration in terms of knowledge creation and exchange on the internet. This social networking system also includes meeting point where organizations or callers are able to post their problems and the responders then pick the problem that satisfies the requirement in order to find out its solution.

In short, KuiSci is (1) a meeting place for discussion among scientists and technologist, (2) a place for presenting national and global scaled problems, (3) a forum for brainstorming, skill and expertise exchange among scientists to harness the collective solutions, and (4) a place for innovative work creation.

## KuiSci Components

There are 4 main components in KuiSci system, those are the Caller space, the Responder space, KuiSci Marketplace, and the project workspace.

### Caller space

The callers or seekers who have challenge problems use this space to denote their proposals for researchers, scientists, or experts to find out solutions. The information related to each topic or proposal provided includes a summary of the entire requirement, deadline of proposal submission, and relevant conditions such as duration of project and funding. Exhibit 2 is a sample of caller space: a page of proposed problem.

### Responder space

Responder space is where the researchers, scientists, experts or by another word, the solver, can apply their intellectual and creativity for solving the proposed problems. The experts who have been already registered in the researcher database will be invited to solve a particular problem that matches to their fields, abilities or experiences. Otherwise, they may search from the list an interesting proposal. The detailed and thorough description of any solution or answer can also be proposed here.

### KuiSci Marketplace

The virtual marketplace is allocated for collaboration between the callers and the responders. It is a “space” where callers can get approach to responder, and responders can discover any either interesting or challenging problems. Currently, KuiSci Marketplace phase I covers 5 main domains with more than 500 challenge areas, including general science, engineering and technology, medical science, science of agriculture, and open source. Taxonomy of the entire area is provided in KuiSci to facilitate the members, either callers or responders, to meet their real requirement. Exhibit 3 shows a part of challenge areas from KuiSci Taxonomy.

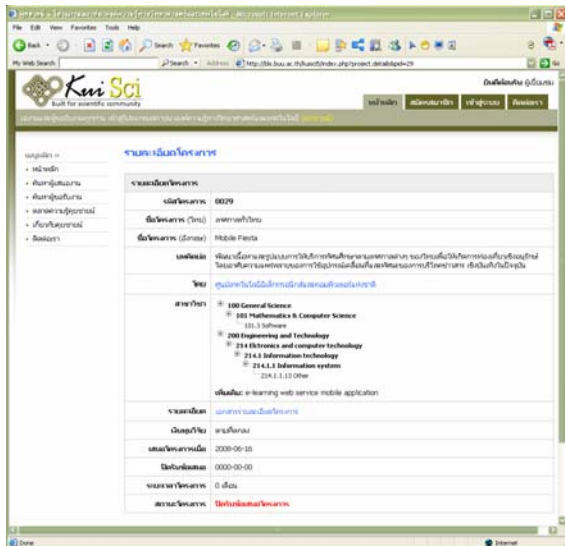


Exhibit 2 – Page of proposed problem

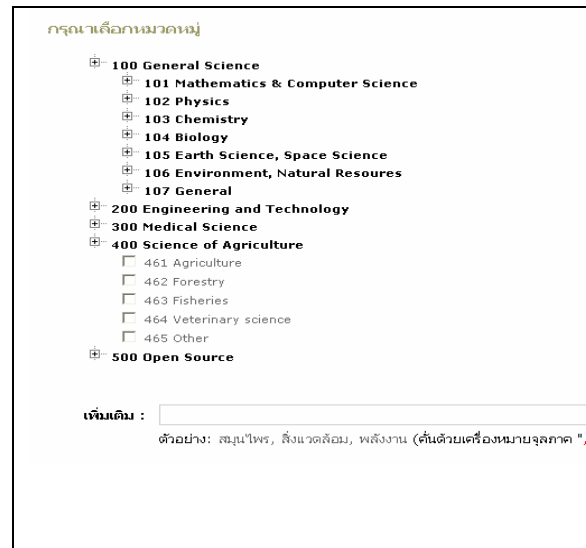


Exhibit 3 – Ontology of field of expertise

## Project Workspace

Adopting from KUI, KuiSci Project Workspace is developed to be a framework for domain specific knowledge development under the open community environment. It is believed that a thought is dynamically formed up by a ticker which can be an interest from inside or a proposed topic from outside. However, knowledge can be formed up from the thought only when managed in an appropriate way. We can consider the knowledge that is formed by a community in the following manner. (1) Knowledge is managed by the knowledge users, (2) Knowledge is dynamically changed, (3) Knowledge is developed in individual or community, and (4) Knowledge is both explicit and tacit

Sharing and collaboration are the considerable features of the framework. The knowledge will be finally shared among the communities by receiving the consensus from the participants in each step. To facilitate the knowledge development for an excellent project management, Project workspace provides 3 main functions, including Webboard, Web chat, and Poll.

### - Webboard

Webboard is an application for holding discussions and posting user-generated content. Messages within the board display either in chronological order or as threaded discussions.

### - Web chat

Web chat is a function for users to communicate in real time using easily accessible web interfaces. Web chat on KuiSci is an online chat that allows users instantaneous access. The discussion related to the question and solution between callers – responders or between researchers can be conducted via the provided 'Chat' frame before concluding an opinion. Moreover, the chat log is provided to learn about the intention of the knowledge composers. Since we frequently want to know about the background of the solution for better understanding or to remind us about the decision, but we cannot find one. To avoid the repetition of a mistake, we systematically provide the chat log to keep the trace of discussion or the comments to show the intention of knowledge composers.

### - Poll

Poll is an interaction space among callers and responders. The problem discussed in the poll is general and it may use small amount of resources to solve such problem. In addition, the poll is used to set up a problem or question and later on such problem can be transferred to the problem's list in a marketplace.

In any poll development, an interesting topic is first proposed. Callers and responders or other researchers then give their opinions before drawing a conclusion.

Moreover, KuiSci project workspace also provide **File Manager** and **Member invitation** module to facilitate the management among participants.

## KuiSci Project Management Process

The scientific community processes can be initiated by individual, group or organization post the scientific requirement, including its specification, and conditions even funds or rewards, into KUISCI. The system will match the requirement with the registered researchers' expertise. Matched researchers will be invited to solve such problems. KuiSci will also support knowledge sharing with information and data exchange among experts in each subject area. Exhibit 4 below illustrates the project management process of KuiSci.

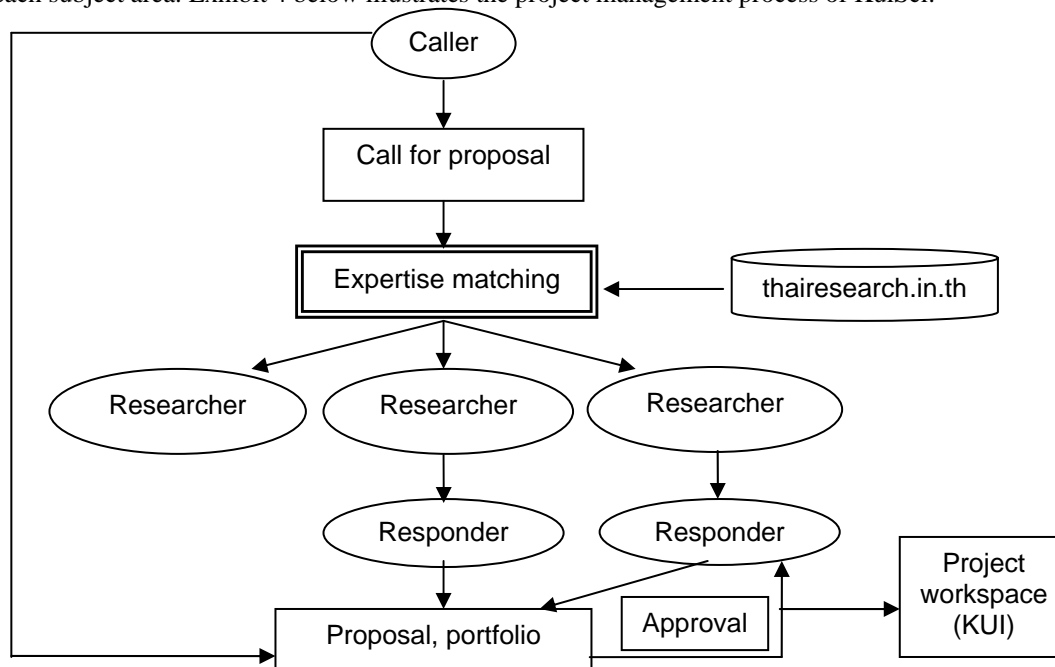


Exhibit 4 - KUISCI Project Management Process

## Conclusion

By mean of project management, KuiSci is developed as a social networking system for scientific and technology researcher community to support community collaboration. KuiSci is served as a meeting place for discussion among scientists and technologist, a place for presenting national and global scaled problems, a forum for brainstorming, skill and expertise exchange among scientists to harness the collective solutions, and a place for innovative work creation. When the problems or requirement are proposed into KuiSci, registered researchers are invited to solve such problems. KuiSci is also support knowledge sharing with information and data exchange among experts.

## Acknowledgement

KUISCI is the collaborative project between Thai Computational Linguistics Laboratory, NICT (Japan), Burapha University and National Electronics and Computer Technology Center, under the research grant of Science and Technology Knowledge Center, Ministry of Science and Technology, Thailand.

## References

- KUI. (2008) <http://www.tcclab.org/kui/>
- NRCT. (2008) <http://www.nrct.net/>
- Project Management Institute. (2003) *A guide to the project management body of knowledge, 3rd ed.* Newtown Square, PA: Project Management Institute.
- Sornlertlamvanich, V. (2006, December) *KUI: The OSS-Styled Knowledge Development System*. The 7th AOSS Symposium, Kuala Lumpur, Malaysia.
- Sornlertlamvanich, V., Charoenporn, T., Robkop, K. & Isahara, H. (2007, December) *KUI: A Self-organizing Tool for Multi-lingual WordNet Construction*. *AAMT Journal*, No. 41, 31-35.
- Sornlertlamvanich, V., Charoenporn, T., Robkop, K. & Isahara, H. (2008, January) *KUI: an Ubiquitous tool for Collective Intelligent Development*. Workshop on NLP for Less Privileged Languages, Hyderabad, India.
- Sornlertlamvanich, V., Charoenporn, T., Robkop, K. & Isahara, H. (2008, January) *KUI: Self-organizing Multi-lingual WordNet Construction Tool*. The 4th Global WordNet Conference (GWC2008), Szeged, Hungary.