

# ERCIM “Alain Bensoussan” Fellowship Scientific Report

Fellow: Dr. Ioanna Lykourentzou  
Visited Location : Luxembourg (Centre de Recherche Public Henri Tudor, FNR)  
Duration of Visit: October 1<sup>st</sup> – June 30<sup>th</sup> (1<sup>st</sup> part of the ERCIM “Alain Bensoussan” Fellowship)

## **I - Scientific activity**

My scientific activity during the first period of my fellowship at Centre de Recherche Public Henri Tudor focused on collaborative systems, Web 2.0 and collective intelligence. Specifically, the two main axes of my work on this field referred to the topic of corporate wikis and collective intelligence systems. These are briefly analyzed in the following:

### **Corporate wikis**

I worked on the research field of wikis in enterprise contexts. In general, the use of wikis is a topic that has attracted significant research attention, mainly regarding their use in public contexts (e.g. Wikipedia) or educational settings.

In the last 3 years however we have witnessed an increase in the research studies focusing on the more specific context of the use of wikis in enterprise settings. These studies report success and failure cases on the application of this new Web 2.0 technology on corporations of various sizes, types and sectors. Although rapidly increasing, no studies so far had focused on creating an overall picture of the success and failure factors of the application of wikis in enterprise contexts.

Based on an extensive survey of related literature, my research examined the use of wikis on a variety of organizational tasks that include the codification of explicit and tacit organizational knowledge and the formulation of corporate communities of practice, as well as more specific processes such as the collaborative information systems development, the interactions of the enterprise with third parties, management activities and organizational response in crisis situations. For each one of the aforementioned corporate functions, I highlight the advantages and concerns raised by the wiki usage and to identify specific solutions addressing them.

This research produced 1 journal and 1 conference article. The journal article is the first extensive survey on the use of wikis in corporate environments and it was accepted for publication in the “Enterprise Information Systems” journal (Taylor & Francis, Impact factor 2.8). The conference article, comprising specific best practices to be used when planning the integration of a wiki within an organization, was accepted at the DEIS (Digital Enterprise Information Systems) 2011 conference, to be held in London, UK on July 20-22.

### **Collective intelligence**

The second part of my research pertained to collective intelligence and more specifically on the use of machine intelligence, in the form of algorithms, to affect and coordinate the collaboration among web users, in order to enable the latter to better achieve their targets at community and individual level.

An example of the above is the use of algorithms to enhance the collaboration observed in collaborative content creation communities such as Wikipedia. Although this type of communities demonstrates impressive results, they also suffer from occasional insufficient quality of the produced wiki articles, delay in their production time and from high costs of self-coordination. This problem is even more significant in corporate environments. That is, although a lot of corporations are interested in investing in collaborative software, they also demand assurance of the final result in terms of content quality, production timeliness and reliability.

My research investigated the development of algorithms to identify the resources (i.e. the tacit knowledge and skills) of the members of the collaborating community and to allocate these resources to

the exact collaborative tasks (here being the wiki articles) that they can improve the most, in this way seeking to ensure and enhance the reliability of the final community result. This research, mostly interesting to me due to its extendibility to a significant number of other collaborative systems, as well as due to its highly novel character, produced 1 project proposal currently submitted for funding at the Fonds National de la Recherche Luxembourg.

### **Knowledge Management focusing on Operational Risk Management**

The final part of my research at Centre de Recherche Public Henri Tudor focused on knowledge management with a focus on Operational Risk Management. In this context, in collaboration with my scientific advisor, we developed an ontology for the domain of Operational Risk Management. This ontology is expected to help the sharing of ORM-related information across organizational units and enable computational inferences among the heterogeneous ORM applications of the organization. This research has produced 1 conference paper, which was accepted at the 13th IEEE Conference on Commerce and Enterprise Computing to be held in Luxembourg on September 5-7.

## **II- Publication(s) during your fellowship**

*Please insert the title(s), author(s) and abstract(s) of the published paper(s). You may also mention the paper(s) which were prepared during your fellowship period and are under reviewing.*

3 publications (1 journal and 2 conference papers) were achieved during the first period of my fellowship, thus reaching the target initially set by CRP Henri Tudor regarding the number and quality of publications to be produced during my stay. The details of the produced publications (citation and abstracts) are provided in the following:

1. Lykourantzou, I., Dagka, F., Papadaki, K., Lepouras, G., Vassilakis, C. (2011-accepted for publication) Wikis in enterprise settings: a survey, *Enterprise Information Systems*, Taylor & Francis, ISSN 1751-7575, DOI: 10.1080/17517575.2011.580008 (Year 2010, Impact Factor: 2.8).

#### **Abstract**

The wiki technology is increasingly being used in corporate environments to facilitate a broad range of tasks. This survey examines the use of wikis on a variety of organisational tasks that include the codification of explicit and tacit organisational knowledge and the formulation of corporate communities of practice, as well as more specific processes such as the collaborative information systems development, the interactions of the enterprise with third parties, management activities and organisational response in crisis situations. For each one of the aforementioned corporate functions, the study examines the findings of related research literature to highlight the advantages and concerns raised by the wiki usage and to identify specific solutions addressing them. Finally, based on the above findings, the study discusses various aspects of the wiki usage in the enterprise and identifies trends and future research directions on the field.

2. Lykourantzou, I., Djaghoul, Y., Papadaki, K., Dagka, F., Latour, T. (2011) Planning for a successful corporate wiki. Paper to be presented at the International Conference on Digital Enterprise and Information Systems, (London, UK, July 20-22), DEIS 2011.

#### **Abstract**

Corporate wikis are increasingly being adopted by enterprises as a solution to various organizational processes. Subsequently a significant number of research works have started focusing on providing results on both successful and unsuccessful corporate wiki implementations. Nevertheless, the scope of these studies is usually limited on a specific organizational case or focuses on a limited set of aspects of the wiki adoption, e.g. either the technological or the cultural one. Our objective in this work is to provide an overview of the key factors affecting the successful implementation of an organizational wiki, by analyzing thirty case studies reported in the research literature. The result of this analysis is the identification of a core set of common best practices to be taken into account by stakeholders when planning the integration of a wiki within a corporate context. In this way, the study aims at contributing to the planning and the realization of more successful corporate wiki implementations with enterprise environments.

3. Lykourantzou, I., Papadaki, K., Kalliakmanis, A., Djaghoul, Y., Latour, T., Charalabis, I., Kapetanios, E. (2011) Ontology-based Operational Risk Management. Paper to be presented at the 13th IEEE Conference on Commerce and Enterprise Computing (Luxembourg, September 5-7), CEC 2011.

#### **Abstract**

Operational risk management (ORM) is a process of critical importance to organizations. It refers to the systematic identification, assessment and mitigation of operational risks, i.e. risks stemming from processes, people, systems or external events. ORM is performed through different systems in the different business units of the enterprise – however a unified view of the operational risk management information is needed to enable its seamless exchange and horizontal expertise sharing. At the level of corporate governance this is already addressed but, at the technical level this issue is still open. As a solution in this paper we propose the development of an ORM ontology. The proposed ontology aims at facilitating ORM information sharing across organizational unit boundaries and at the enabling of computational inferences over the heterogeneous ORM applications of the organization.

### **III -Attended Seminars, Workshops, and Conferences**

*Please identify the name(s), date(s) and place(s) of the events in which you participated during your fellowship period.*

1. **Annual ERCIM Workshop on Constraint Solving and Constraint Logic Programming  
November 25 - 26, 2010, Fraunhofer FIRST, Berlin, Germany.**

Short description: This conference, on constraint solving and constraint logic programming enabled me to gain more insight on the methodologies used when dealing with multiple constraint systems and the necessity for task allocation within them. The acquired know-how was particularly valuable for my research on resource allocation and task planning in collective intelligence systems.

2. **Centre de Recherche Public Henri Tudor - Community of Practice, Subject : Collaborative Platforms and Technologies**

Short description: In this Community of Practice seminar, I gave a lecture on the issue of successfully integrating wiki technologies in organizational settings, based on my relative work performed at the premises of Centre de Recherche Public Henri Tudor.

3. **Centre de Recherche Public Henri Tudor - Community of Practice, Subject : Intellectual Property Rights Management**

Short description: In this Community of Practice seminar, I had the opportunity to gain know-how on an important element of scientific work, namely intellectual property rights management.

4. **Fonds National de la Recherche, Luxembourg – Information Day, Subject : Proposal Writing**

Short description: This one-day workshop, organized by FNR (Fonds National de la Recherche, Luxembourg) provided me with considerable knowledge on the field of successful proposal writing, a knowledge asset that I deem highly valuable for my future research career.

5. **Knowledge Intensive Systems and Services Unit, Centre de Recherche Public Henri Tudor, Internal meetings and seminars**

Short description: I also had the opportunity to attend a significant number of internal meetings and seminars organized by the Knowledge Intensive Systems and Services Unit in which I worked, during which I exchanged research expertise with the other members of the group and gained additional know-how on all the other research fields that the team focuses on.

### **IV – Research Exchange Programme (12 month scheme)**

*Please identify the name(s), date(s) and place(s) of your Research Exchanges during your fellowship period and detail them .*

Non applicable. (the fellowship is a 9+9 month scheme)