IST Network of Excellence Project

FP6-2004-IST-4-027219

Thematic Priority 2: Information Society Technologies

DEMO-net

The Democracy Network

DEMO-net: WP4 Research Workshop Report

Knowledge and Semantic Technologies for eParticipation

Editor :	Ann Macintosh
Revision :	1.0
Dissemination Level :	[TA p. 63]
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Due date of deliverable :	n/a
Actual submission date :	
Start date of project :	01 January 2006
Duration :	4 years
WP no.:	4
Organisation name of lead contractor for this deliverable :	ICCS of NTUA and Napier University

Project funded by the European Community under the FP6 IST Programme

The DEMO-net Consortium consists of:

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History

Version	*Date*	*Modification reason*	*Modified by*
V1.0	28th December 2006	created	A. Macintosh
V 2.0	8th January 2007	additions	G. Mentzas

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1 Introduction

This research workshop was held on 5th December 2006 in Athens. It was organised by ICCS at NTUA.

The workshop was concerned with knowledge management and semantic technologies for eParticipation and in particular, evidence-based policy-making. Funded research to date focuses mainly on citizen service needs, and the important aspects of knowledge technologies for policy-making have been neglected. The domain involves a large amount of knowledge that must be made explicit in different formats at each stage of the policy-making life cycle to different stakeholders. This includes knowledge from many different sources and channels. Policy-making thus articulates one of the fundamental problems of information and knowledge management, that of abstraction of meaningful messages from large volumes of heterogeneous data.

Knowledge and semantic technologies are considered as key enabling technologies for making explicit the information implicitly contained in documents. Over the last few years there has been considerable research and development into ontological engineering, automatic and semi-automatic ontology creation and semantic interpretation of linguistic content.

The workshop had the following specific objectives:

- To facilitate close and sustained cooperation between eParticipation researchers from different academic disciplines in order to better understand the role of knowledge management and semantic technologies in eParticipation processes
- To explore the specific opportunities and advantages that knowledge management and semantic technologies bring to eParticipation
- To identify research challenges which participation processes and practices pose for knowledge management and semantic technologies
- To think about the socio-economical issues related to the adoption of knowledge and semantic technologies in an eParticipation context.

2 Scope and format of workshop

Researchers interested in the intersection of Knowledge Management and Semantic Technologies and eParticipation were invited to actively participate in the workshop to reflect upon the meaning and practice of these technologies and their relationship to policy-making. Participants were asked to submit research white papers (2 A4 pages) on issues the authors believe to be the key research challenges posed by enabling knowledge management and semantic technologies for eParticipation research.

The agenda for the workshop is provided in the appendix along with the full list of those participating.

Five research papers were presented at the workshop. The papers are available at the workshop web site at: http://www.imu.iccs.gr/events/kmworkshop

After each presentation there was detailed discussion where the participants were asked to consider the need for knowledge technology research to support eParticipation and the challenges and barriers to progress this.

The questions addressed during the workshop discussions included the following:

- If eParticipation needs knowledge technologies, what exactly is the eParticipation knowledge that we have to manage?
- Are knowledge technologies mature enough in other domains, such as commerce, to demonstrate their usefulness in the eParticipation domain?
- Is there sufficient scope and are there sufficient difficulties in eParticipation that require knowledge technologies and new research in this area?

3 Issues arising

eParticipation is a relatively new and emerging area of research. Funded research to date has focused mainly on small-scale government engagement with citizens. Important aspects of large-scale engagement to support evidence-based policy making has been very limited. Therefore, it is perhaps not surprising that the need for, and the role of, knowledge technologies to support eParticipation have been neglected. In contrast, research into knowledge technologies has developed over the last twenty years through a number of EU funded research programmes that have supported both the development of the basic technologies and also the application of the tools and techniques in domains such as business and manufacturing. Given the success, or otherwise, of knowledge technologies in these very much bounded domains of commercial and industrial practice are there sufficient opportunities for knowledge technologies in the very much unbounded domain of eParticipation?

The issues arising in the workshop are grouped under five headings:

1. What is eParticipation knowledge and what are its characteristics?
2. Does eParticipation need knowledge technologies and what are the potential benefits of applying such tools and techniques?
3. Are there sufficient unique difficulties in eParticipation that require knowledge technology research in its own right?

3.1 What is eParticipation knowledge and what are its characteristics?

There is a need to understand the type and characteristics of the eParticipation knowledge we need to manage. However, the aspect of what constitutes 'knowledge' in eParticipation is interesting as it poses a number of challenges to current knowledge technology research.

This knowledge can be viewed from a 'government' and a 'community' perspective.

From the top-down view there is knowledge about how the legal system works, the knowledge of how we develop policy, and knowledge of how we make decisions under a representative model of democracy. All these can be considered knowledge about 'democratic processes'. There is also the factual knowledge about rules, regulations and existing policy, etc. Given the fact that policy can take years to develop and involves many cycles of activity, this knowledge tends to evolve slowly over time, with some instances of the knowledge becoming redundant or obsolete.

From the ground-up view, we can take, as an example, knowledge of citizens' rights, but other more informal knowledge is equally important from this perspective. Community networks are important for public dialogue on emerging policy and to monitor existing policy, therefore the unstructured knowledge contained in these needs to be identified, acquired and analyzed. Civic intelligence, which is distributed within a community of practice, is a source of knowledge. Citizens live and work in a territory and as such

become the real experts and practitioners of a territory. Again, the knowledge is dynamically emerging over time.

The knowledge itself can reside in formal documents, for example, legal documents, draft policy documents, committee reports, expert reports, consultations and informal documents such as recorded discussions and debates. Communities produces cognitive materials, for example, forums, documents, blogs, podcasts etc, again this material is not aggregated or structured but very much informal. Some of this informal knowledge will be fact-based others may be emotional-based – each having a place in the development of workable policy for a community.

This eParticipation knowledge has a number of characteristics which potentially differentiate it from other types of knowledge. Trust in knowledge is a complex characteristic for eParticipation knowledge. This can involve trust in the source of the knowledge, trust in how the knowledge is used, ie the correct context, and trust in how the knowledge is disseminated and shared. The 'trust' value of the knowledge may be different depending on who the user is and what perspective they bring to the debating table. All this implies that knowledge technologies need to account for the rational of why that knowledge is there, traceability of contributed knowledge and its accountability in use.

There also remains an important question as to how much knowledge is needed and/or actually used to form a political opinion and ultimately develop policy.

3.2 Does eParticipation need knowledge technologies - what are the potential benefits of applying them?

In industry and commerce the benefits of using knowledge technologies have been widely published. Knowledge technology initiatives are typically tied to business goals and are intended to lead to the achievement of specific outcomes such as shared intelligence, improved performance, competitive advantage, or new product innovation.

In eParticipation there are similar benefits but the focus tends to be less defined and different for the various stakeholders. One clear benefit is the potential for better grounded policy outcomes. There are also opportunities for knowledge technologies to record the lengthy and complex process of decision-making, which in turn can help to resolve conflicts and support consensus

Given the proven success of knowledge technologies in the business world, one could argue that the consequences of social and economic failure in producing the wrong policy are so high that knowledge technologies should be used.

Therefore one can consider the objectives of using knowledge technologies in eParticipation as: enabling informed decisions, better quality decisions, less chance of failure in not getting policy right. Other, more general eParticipation objectives are support in: problem solving, conflict resolution and consensus building.

3.3 Are there sufficient unique requirements in eParticipation that require knowledge technology research in its own right?

The wikipedia (http://en.wikipedia.org/wiki/Knowledge_management) describes 'Knowledge Management' as referring to a range of practices used by organisations to identify, create, represent, and distribute knowledge or reuse, awareness and learning across the organisation.

This very description of knowledge management immediately poses problems for knowledge technologies within the eParticipation domain. What are the boundaries, can we impose such boundaries so as to define a quasi organisation across which to share the acquired knowledge? One could argue that eParticipation activities are taking place in closed communities - often there is a natural boundary relating to the affected community. On the other hand, eParticipation provides an opportunity to cross boundaries - sharing knowledge across or between communities facing similar political issues.

Published papers talk about knowledge technologies helping such organisations to achieve their business objectives, in an eParticipation context these business objectives could be considered as good policy outcomes but from whose perspective and is it possible for all stakeholders to agree these?

Then there is the actual knowledge itself and as discussed earlier this is both factual and opinion-based and trust is a key issue. If we consider the 'seci model' of Nonaka and Takeuchi, we need to understand the socialisation, externalisation, combination, internalisation spiral for the knowledge which within eParticipation is a complex model.

The users of this shared knowledge cannot be considered as workers/professionals in an organisation wanting to achieve a shared business goal, but rather as a complex grouping of stakeholders. The social complexity of this large group of users needs to be understand in order to realise knowledge sharing. Then there is the 'ownership' of the contributed knowledge, where different stakeholders from different organisation will have part ownership. Here the issue of rationalising between different knowledge sources, such as CSO, NGOs and government will be complex as the very knowledge may be conflicting.

There is a need to understand how to integrate knowledge technologies into policy development and how to map knowledge management processes into existing democratic decision-making processes.

Therefore, to summarise, the unique requirements facing knowledge technologies for eParticipation include:

- Integration of knowledge management processes into eParticipation contexts and in particular the policy life-cycle phases.
- Understanding how knowledge technologies can support 'wick-problem' solving and recording of decisions
- Enabling shared ownership of knowledge and relevant knowledge processes, when the owners originate from different organizations with different perspectives.
- Understanding how to represent trust in different types of knowledge and use this trust in knowledge sharing – perhaps leading to a requirement for an instrument for evaluating different types of knowledge.
- Understanding the subsidiarity of eParticipation knowledge, i.e. what is relevant to the appropriate government level (local, regional, etc.)

4 Some conclusions

This workshop attempted to understand to what extent existing knowledge management and semantic technologies can be applied to eParticipation and what new research is necessary for this emerging domain. The five workshop papers highlighted the limited work that has so far been undertaken in KM for eParticipation. Most presentations either presented what has been done in other domains and therefore there possible relevance to eParticipation or a wish-list of what would be beneficial to achieve.

Knowledge technologies for eParticipation can be viewed as requiring knowledge technologies from other areas of applied research as in Figure 1 as well new research in knowledge technologies.

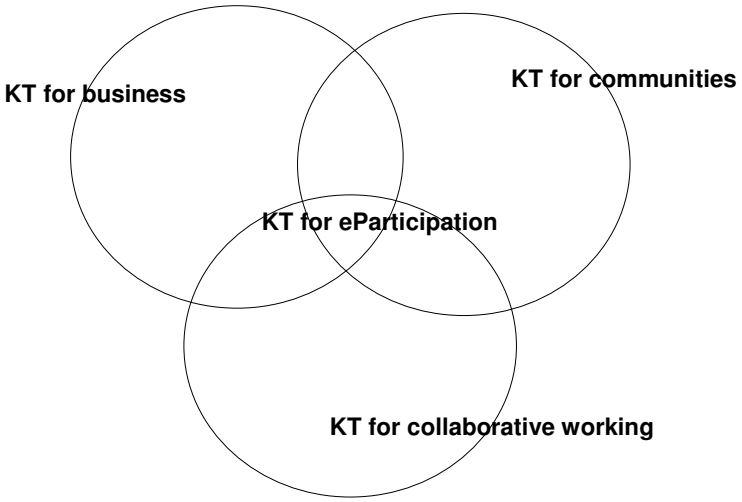

Figure 1: applied areas for knowledge technologies

The overall conclusion was that there was a need for specific knowledge technology research for eParticipation. eParticipation has some unique characteristics that require specific tools and techniques. There appear to be differences in the way knowledge has to be represented and shared between socially complex communities as opposed to knowledge technologies for corporate business. However, there was also consensus that applied research was necessary so that existing knowledge technologies could be evaluated in an eParticipation context.

A. Participants

Name	Organisation
Francesca Bertagna	Consiglio Nazionale delle Ricerche
Peter Cruickshank	Napier University
Kostas Kafentzis	ICCS at NTUA
Ann Macintosh	Napier University
Gregoris Mentzas (Chair)	ICCS at NTUA
Cristianni Peraboni	Università degli Studi di Milano
Andreas Rosendahl	University of Koblenz
Agnes Schneeberger	University of Leeds
John Shaddock	Yorkshire and Humber Assembly
Claudia Soria	Consiglio Nazionale delle Ricerche
Asta Torliefsdottir	University of Iceland
Maria Wimmer	University of Koblenz
Nicoletta Calzolari	Consiglio Nazionale delle Ricerche
Christos Chalaris	ICCS at NTUA
Dimitris Apostolou	ICCS at NTUA
Katerina Vaviloni	ICCS at NTUA

B. Photos from the workshop

Figure 2: The Chairperson

Figure 3: Some participants

C. Agenda and Position papers presented

12.30—13.30	*Welcome and light lunch*	
13.30—13.45	Introduction	Gregoris Mentzas, ICCS of NTUA
13.45—14.00	Knowledge management aspects in eParticipation contexts	Andreas Rosendahl and Maria Wimmer, University of Koblenz-Landau
14.00—14.15	The need for semantic technologies to Support Policy-Making	Ann Macintosh,Napier University
14.15—14.30	An eParticipation ontology as basis for the Demo-net virtual centre of excellence	Maria Wimmer, University of Koblenz-Landau
14.30—14.45	Strategies to organize and access knowledge in a civic online community: the need and some research directions	Cristian Peraboni and Fiorella de Cindio, Università degli Studi di Milano
14.45—15.00	NLP for eParticipation	Claudia Soria and Nicoletta Calzolari, CNR
15.00—15.15	*Visualization of knowledge in the eParticipation ontology*	Andreas Rosendahl, University of Koblenz-Landau
15.15—15.30	*Coffee break*	
15.30—17.00	**Exploiting current research** Topics to be discussed: • main technological/social elements of KM that are applicable to eParticipation • Requirements from eParticipation that can be covered by existing KM technologies/tools	*Moderator:* Maria Wimmer, University of Koblenz-Landau
17.00—18.30	**Exploring future research** Topics to be discussed: • main technological/social elements of KM that are applicable to eParticipation • Requirements from eParticipation that can be covered by existing KM technologies/tools	*Moderator:* Ann Macintosh,Napier University
18.30	Closing of workshop	Gregoris Mentzas, ICCS of NTUA

D. Some discussion comments

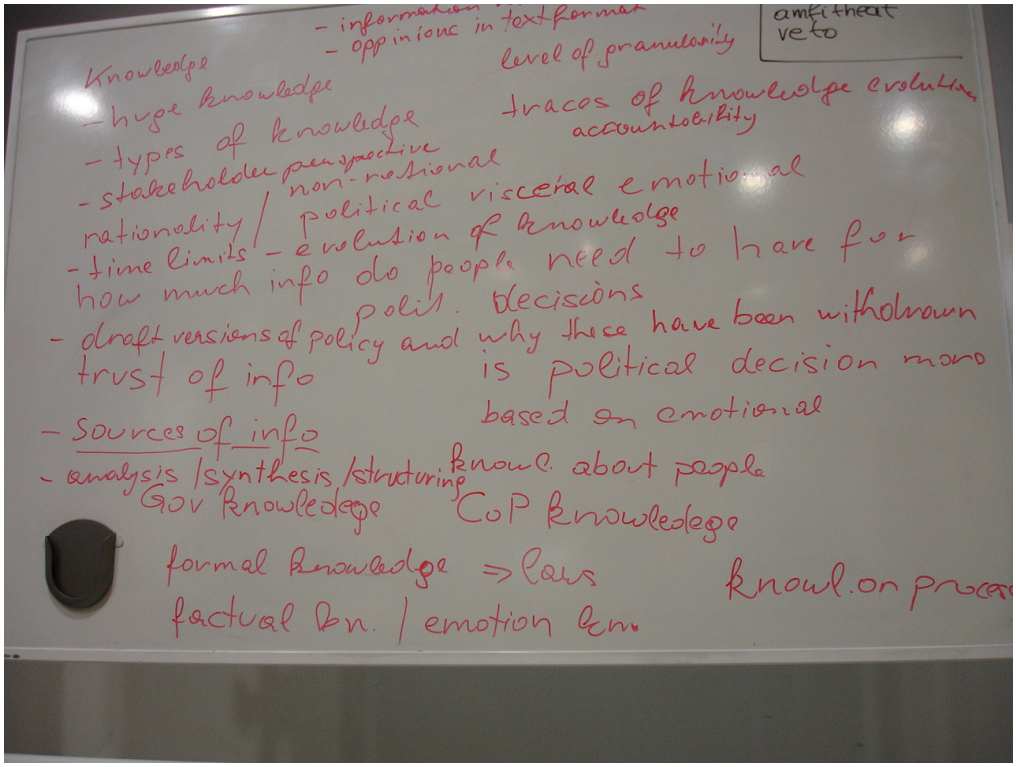

Figure 4: Discussion on "Does eParticipation need knowledge technologies?"

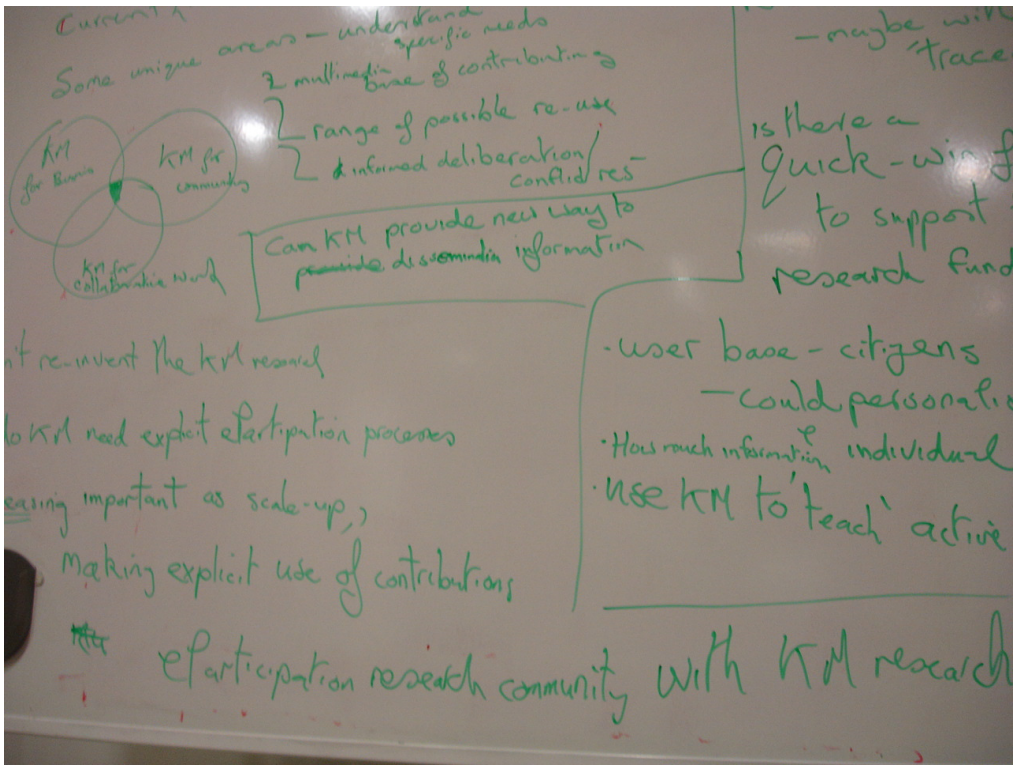

Figure 5: Discussion on "Is there a need for specific eParticipation KM research?"