Supporting Collaboration, **Enhancing Learning**
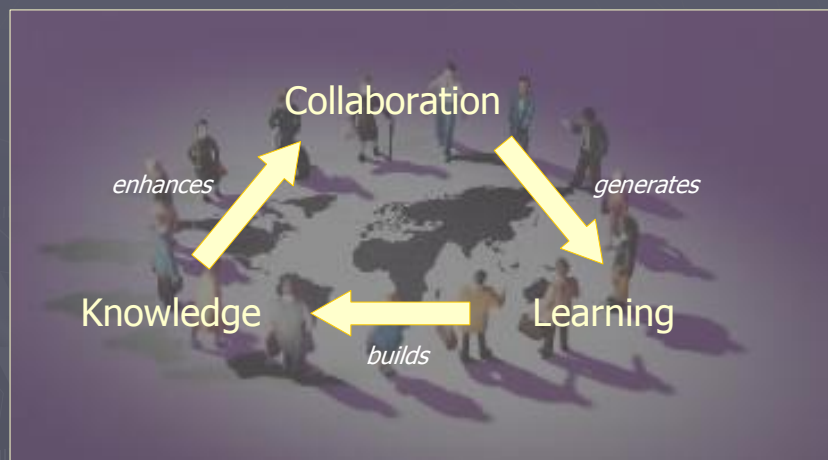
Nikos Karacapilidis

Research Academic Computer Technology Institute, Greece
&
University of Patras, Greece
karacap@cti.gr, nikos@mech.upatras.gr

Ni-Hao Project
Future Internet/IPv6 and FP7: 2-day Int. Networking event
November 19, 2007 - Beijing, China

Ni Hao
National IST Chinese Contact Point

Collaboration, Learning, Knowledge

Collaboration

enhances

generates

Knowledge

builds

Learning

1

Outline

- ► e-Collaboration, e-Learning
  - ▪ requirements & challenges
  - ▪ issues to be addressed

- ► The PALETTE project (FP6)
  - ▪ CoPe_it!
  - ▪ e-Logbook

- ► FP7 – Call 3
  - ▪ related objectives
  - ▪ ideas for collaboration

Requirements and challenges

- ► Management of information overload & cognitive overhead
- ► Social behavior
  - ▪ structures, relationships and interactions
- ► Situational differences
  - ▪ diverse collaboration modes and paradigms
- ► Expression of tacit knowledge
- ► Integration of legacy resources
- ► Data processing and decision making support

Issues to be addressed

► Use of communication technology to make collaboration more efficient and effective
► Work structuring in order to improve coordination
► (semi) Automation of data processing
  ▪ especially in data intensive situations
► Asset modeling
► User/group modeling
► Visualization
► Argumentation & reasoning mechanisms
  ▪ rules and procedures for achieving consistency

Services required

Category of services	Purpose
Information services	Information search and retrieval, interoperability, transformation, adaptability, …
KM services	Knowledge management, metadata, ontologies, annotation & tagging, knowledge reuse, …
Collaboration services	Conducting of debates, argumentation, negotiations, handling of conflicts, sense-making, decision making, awareness, …

The PALETTE project

► PALETTE aims at facilitating and augmenting individual and organisational learning in CoPs

► Towards this aim, an interoperable and extensible set of innovative services as well as a set of specific scenarios of use will be designed, implemented and thoroughly validated in CoPs of diverse contexts

► http://palette.ercim.org

The PALETTE project (cont.)

► Strategic objective: Technology-enhanced Learning
► Project type: Integrated project (IP)
► Start date: 1 February 2006
► Duration: 36 months
► EU funding: € 6M
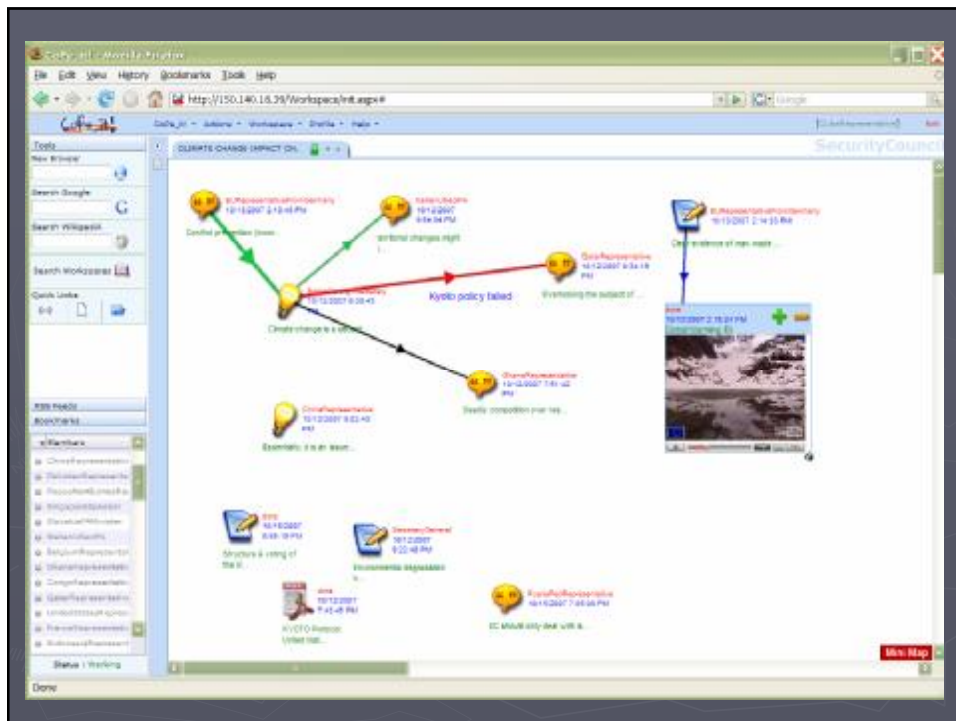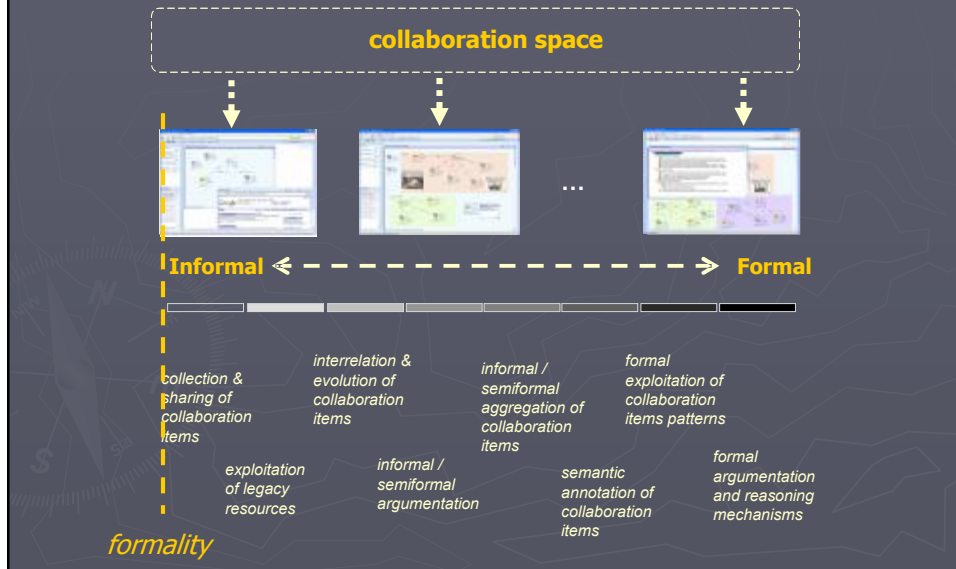► Number of partners: 14

PALETTE: Tools & prototypes

► Collaboration services
  ▪ CoPe_it! - a web-based system that assists and augments collaboration
  ▪ e-Logbook - a collaborative web-based environment offering mediation & awareness services

► Knowledge Management Services
  ▪ SweetWiki - a new wiki engine developed around the semantic web technologies
  ▪ ECCO - an environment for cooperative ontology development
  ▪ Generis - a knowledge management tool working as a web platform treating knowledge as information within some context
  ▪ Sewese - a semantic web application development platform
  ▪ BayFac – a service that aims at providing a mean to semi-automatically index textual documents

► Information Services
  ▪ LimSee3 - a multimedia authoring tool based on extensive use of templates and adaptable user interfaces
  ▪ Amaya - a tool used to create and update documents directly on the Web
  ▪ DocReuse - a tool enabling the semi-automatic reuse of web documents within communities
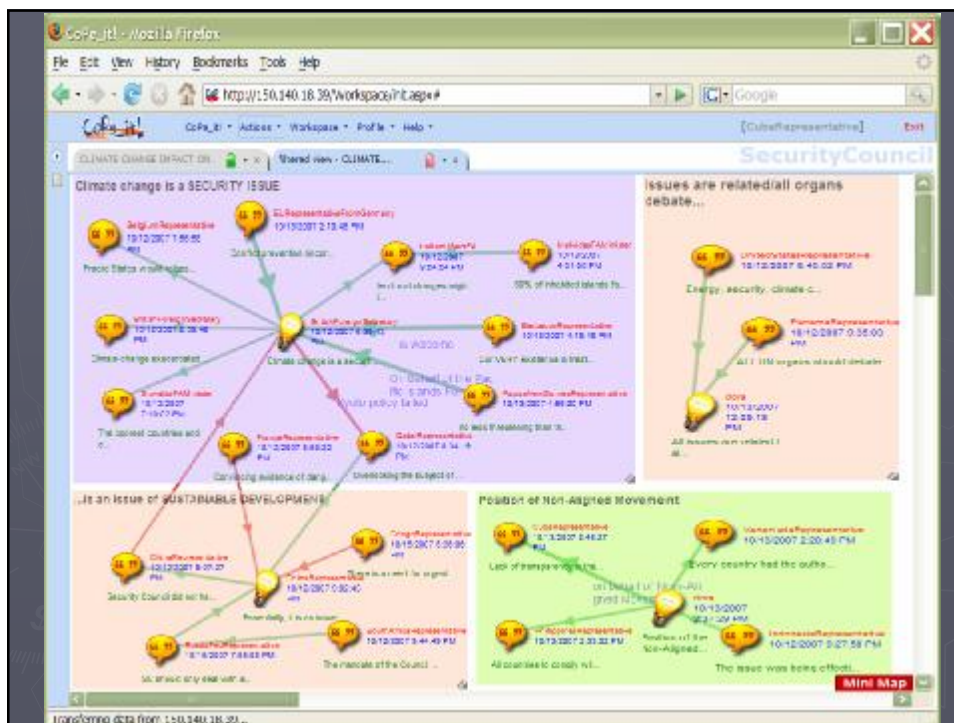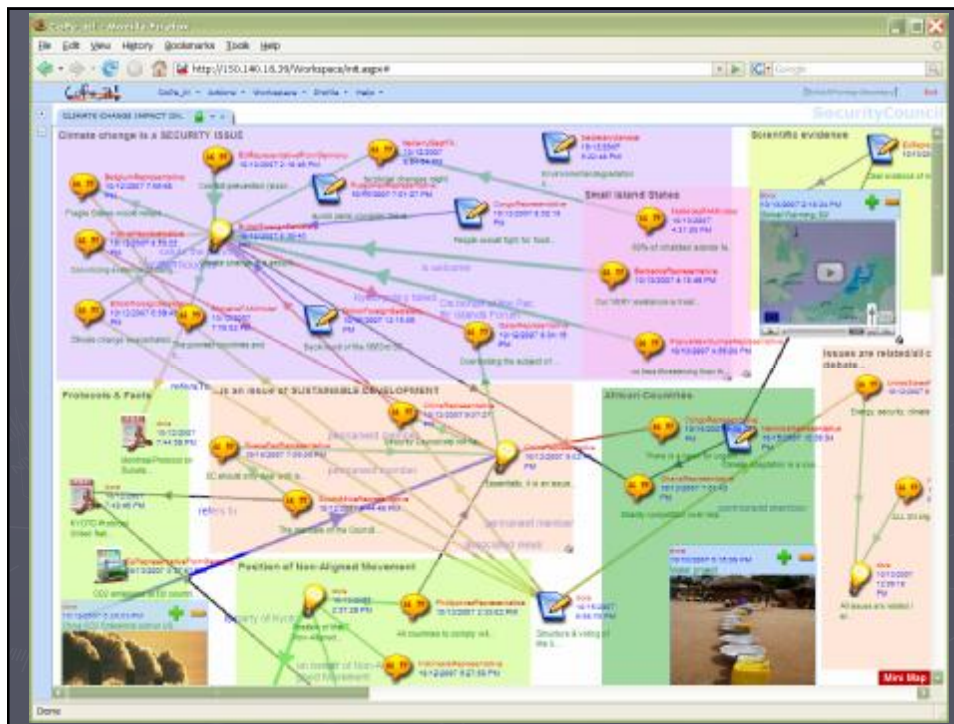
CoPe_it!

► A tool of the Web 2.0 era
► Easy expression and sharing of a community's knowledge
► Structured visualization of knowledge expressed during collaboration
► Augmentation of group reflection and leveraging of knowledge creation through alternative projections of a workspace
► Efficient building of organizational memory, which can be reused in future collaboration instances
► Integration of argumentation-based reasoning mechanisms for the evaluation of the proposed courses of action

► http://copeit.cti.gr

To cope better, solve it with a CoP

CoPe_it! - Conceptual approach

collaboration space

...

Informal ← - - - - - - - - - - - - → **Formal**

collection & sharing of collaboration items

interrelation & evolution of collaboration items

informal / semiformal aggregation of collaboration items

formal exploitation of collaboration items patterns

exploitation of legacy resources

informal / semiformal argumentation

semantic annotation of collaboration items

formal argumentation and reasoning mechanisms

formality

e-Logbook Social Software

► Flexible Web-based collaborative learning and distributed knowledge management environment
  ▪ Space managed by the members for the members
► Supporting discussions, activity management and asset management
  ▪ features that are typically not available simultaneously (with equal importance)
► Adapting itself with the practice of communities
  ▪ a network focusing on discussions may evolve towards a task-oriented community without relying on or migrating between different CSCW solutions

► http://eLogbook.epfl.ch

8

e-Logbook Social Software (cont.)

► Relies on 3 fundamental entities ("3A"), which are taggable, linkable, and handled similarly

- Actor: End user, tool and/or Service, …
- Asset: Resource of any type (e.g. documents)
- Activity: Formalization of a common objective

e-Logbook Contextual GUI

FP7 – Call 3

► ICT - Work Programme 2007-08

► Challenge 4: Digital Libraries and Content
  - Objective ICT-2007.4.1 (ICT-2007.4.3): Digital libraries and technology-enhanced learning
  - Objective ICT-2007.4.2 (ICT-2007.4.4): Intelligent Content and Semantics

Ideas … Objective ICT-2007.4.1

► Responsive environments for technology-enhanced learning that motivate, engage and inspire learners. Focus is on the mass individualisation of learning experiences with ICT, through pedagogically-inspired solutions for competency, skills and performance enhancement. Activities integrate pedagogical and organisational approaches and exploit, where relevant, interactivity, collaboration and context-awareness.

► Adaptive and intuitive learning systems, able to learn and configure themselves according to their understanding and experience of learners' behaviour. Cross-disciplinary research on the synergies between learning and cognition in humans and machines should lead to systems able to identify learner's requirements, intelligently monitoring progress, capable of exploiting learners' abilities in order to let them learn better, and able to give purposeful and meaningful advice to both learners and teachers either for self-learning or for learning in a collaborative environment.

Ideas ... Objective ICT-2007.4.2

► Advanced authoring environments for the creation of novel forms of interactive and expressive content enabling multimodal experimentation and non-linear story-telling

► Collaborative automated workflow environments to manage the lifecycle of novel and legacy media and enterprise content assets, from the acquisition of reference materials to the versioning, packaging and repurposing of complex products, including their linguistic and cultural adaptation to target markets and user groups

► Architectures and technologies for personalised distribution, presentation and consumption of self-aware, adaptive content (detecting and exploiting emergent ambient intelligence)

► Actions geared towards community building, intended to stimulate cross-disciplinary approaches and a more effective user/supplier dialogue, and other measures, including field validation and standards, aimed at a faster uptake of research results

Expertise needed / Collaboration interests

► CSCW → Social software
  - innovative user/group modeling
  - asset modeling
  - awareness & adaptability

► Artificial Intelligence
  - meaningful Data Mining
  - meaningful Visualization
  - meaningful Reasoning

► Applied educational & pedagogical expertise
  - motivation, engagement & inspiration of learners
  - real, wide-scale applications in diverse domains (e.g. sustainable energy education programs)

Research Academic Computer Technology Institute (CTI), Greece

► CTI (http://www.cti.gr) is an academic, non-profit R&D organization, supervised by the Greek Ministry of Education. Established in 1985, CTI has a staff of about 250 people (which includes senior researchers, University faculty members, computer and software engineers, postgraduate students) and conducts research targeting diverse areas of computer science and technology.

► CTI has gone from strength to strength by coordinating and participating in hundreds of R&D, technology related, European projects, emphasizing equally on basic and applied research.

► The eLearning & Social Software Sector of CTI has a large experience in developing innovative software for interdisciplinary subjects, including web applications for communities and collaborative work, educational games, and educational software. During the last 5 years, it has been involved in eight R&D projects (funded by the EC and the private sector). Its most recent product is CoPe_it! (http://copeit.cti.gr).

Thanks for your attention!

Please contact:

Nikos Karacapilidis
Research Academic Computer Technology Institute, Greece
&
University of Patras, Greece
karacap@cti.gr, nikos@mech.upatras.gr