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Competences Assessment based on
Semantic Networks: the eCCO tool
Clementina Marinoni

The OOA workshop on Semantic challenges and opportunities in the Human Resources Domain.
Oxford –October 11, 2006
As part of the ePortfolio conference
http://www.jarrar.info/OOA/OOA-HR_workshop.htm

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Drivers

- Different ICT competences and ICT job profiles models from training and labour institutions
- Difficulties speaking a shared ICT language among companies, both vendors and users, as well as the other institutions
- Different points of views on ICT job profiles between companies and training or labour agencies (any company adopts its own sets of ICT job profiles that usually are fewer and richer than those ones suggested by official institutions....)
- Different training and learning objectives



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SIG A8: Engineer demand and offer in Europe Objectives, method, findings 2

Goals	The study	Guiding principles	Key features found
<p>Developing an ICT competence management system, able to analyse, represent, compare and integrate the different Italian and European approaches and to assess ICT competences</p> <p>- Participating in the work teams within the European and Italian eSkillsForum</p> 	<p>Models/ Metamodels</p> <p>From Italy: ISFOL (Istituto per lo Sviluppo Professionale dei Lavoratori, close to the Italian Ministries of Welfare and Education, University and Research), IFTS (Istruzione e Formazione Tecnica Superiore), SIL (Italian job market place), ANASIN and other ICT company associations</p> <p>- From Europe: SFIA (Skills Framework for the Information Age)- eSkills UK, APO/AITTS (German project mainly by Bitkom+IGMetal), Career Space, Eucip (by CEPIS)</p>	<p>Prevailing approaches;</p> <p>Most flexible approaches</p>	<p>* Definition of competence \equiv <i>knowledge (and skills) put into action in a specific context towards measurable objectives;</i></p> <p>* Identification of competences by Top Down (from business processes and job profiles)/ Bottom Up (from people's best practices) approaches;</p> <p>* Representation of competences through modular / holistic approaches;</p> <p>* Competence models aimed towards performances or learning</p>

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SIG A8: Engineer demand and offer in Europe The model 3

Knowledge \equiv know-how, know-what and know-why


Knowledge Object (KO) \equiv a "small enough", self consistent set of knowledge (with respect to specific areas of analysis, targets, objectives, etc.)

Skill \equiv KO put into action, KO + Action Verb (AV)

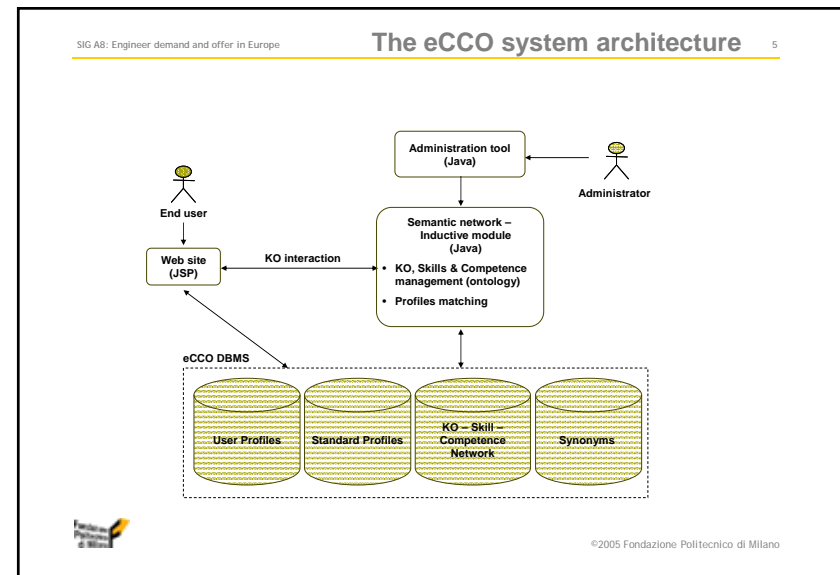
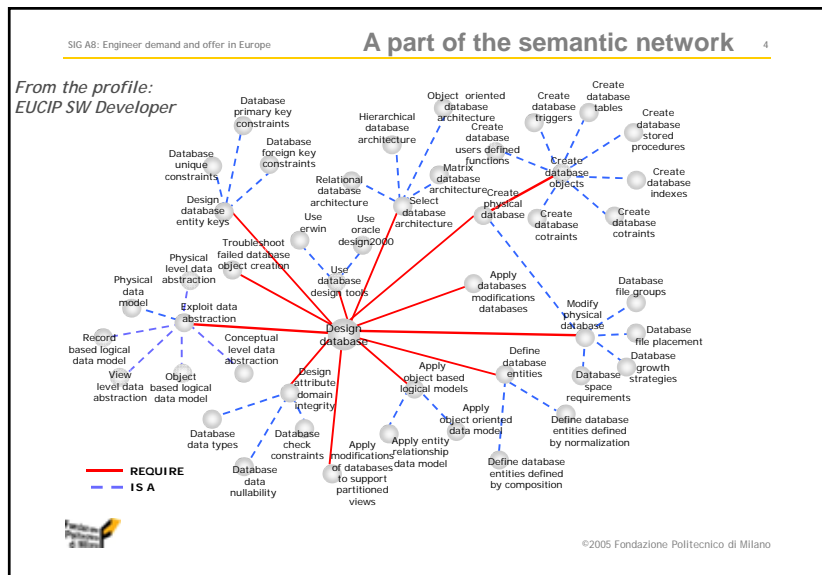
Competence \equiv KO put into action in specific contexts of activity (Cx), KO + AV + Cx, that is, *to be able to do something in a given context*

Performance \equiv a set of observable behaviours producing an objective result

Job profile \equiv a set of competences related to key performances and expected results



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The eCCO system architecture

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- The eCCO structure is not hierarchical but based on a semantic network
- The nodes are KOs or KOs + AVs (skills); the relationships between them are is-a, requirements linkages
- A profile is a subset of the network and it is made of nodes and linkages. It can be formalised as a list of KOs and KOs + AVs
- Any institution has an administrator (local administrator) who can insert their own KOs, AVs and profiles
- A super administrator manages the whole semantic network
- Local administrators can see the whole semantic network but they can only manage the subset referred to their institution
- In this way, any institution shares the same grammar and can cooperate to make the semantic network grow



Ongoing activities and next steps

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- Testing the eCCO tool
- Going on populating it
- Developing an ontology
- Connecting KOs to learning modules
- Developing learning paths
- Developing a learning model consistent with the cognitive and constructivist approaches and based on non-formal and informal learning principles
- Mapping and linking business and work processes



- Administrators:
 - A super administrator (who can see and change the whole semantic network)
 - Local administrators (who can see the whole semantic network but who can only change the subset referred to their institution)

- Users who assess their ICT competences:
 - inside a company / organisation
 - as individuals

- Local Project managers (from each company / organisation)



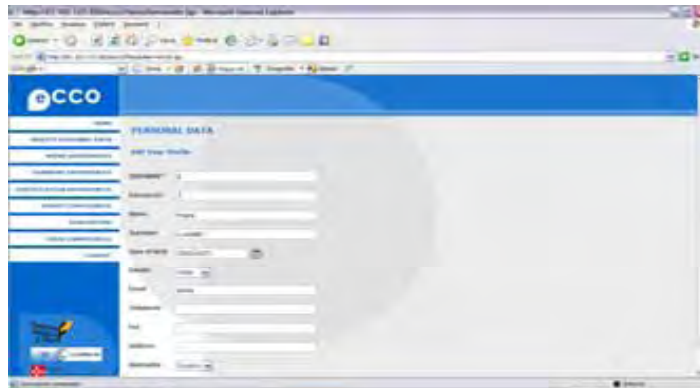
*The application for End Users: a
tool for assessment*



Personal data management

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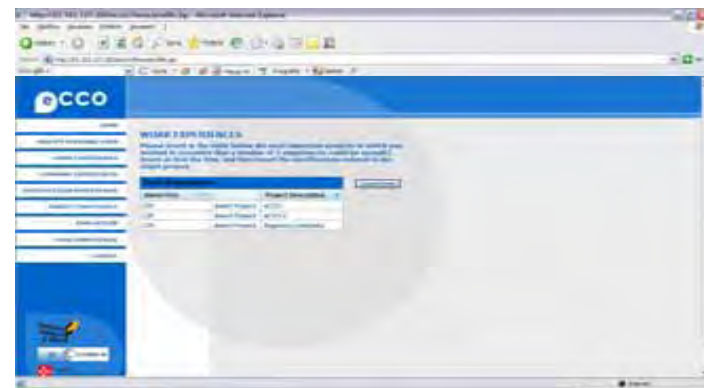


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Work experiences

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Learning experiences

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Year	Country	Company	Position	Duration
2004	Italy	ENEL	Project Engineer	12 months
2003	Italy	ENEL	Project Engineer	12 months
2002	Italy	ENEL	Project Engineer	12 months

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Certifications

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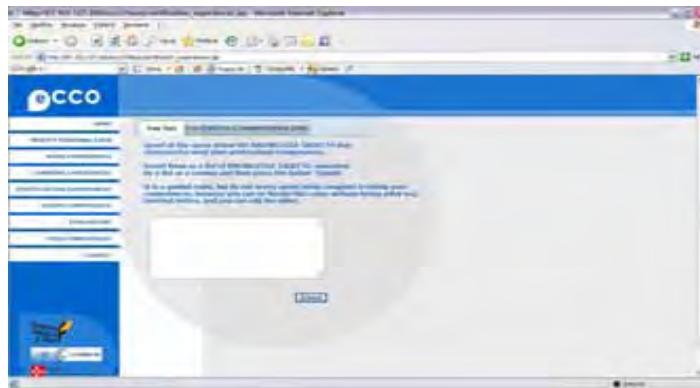
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2004	Italy	ENEL	Project Engineer	12 months
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The input of competencies (1/5)

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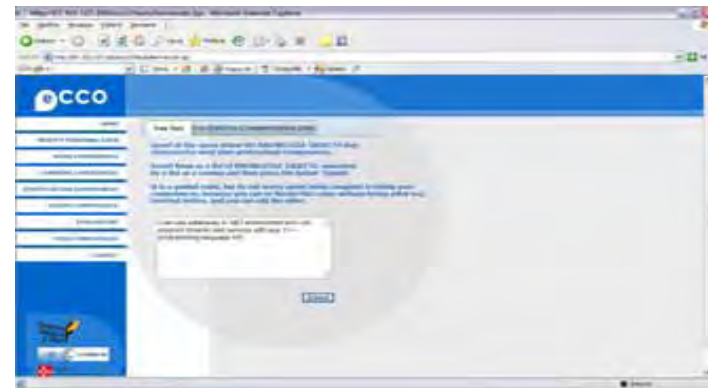


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The input of competencies (2/5)

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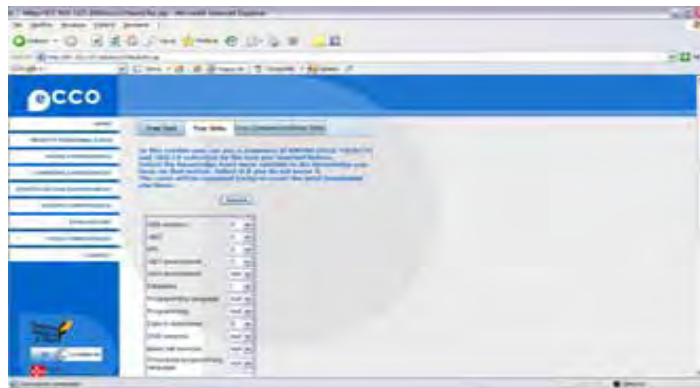


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The input of competencies (3/5)

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The input of competencies (4/5)

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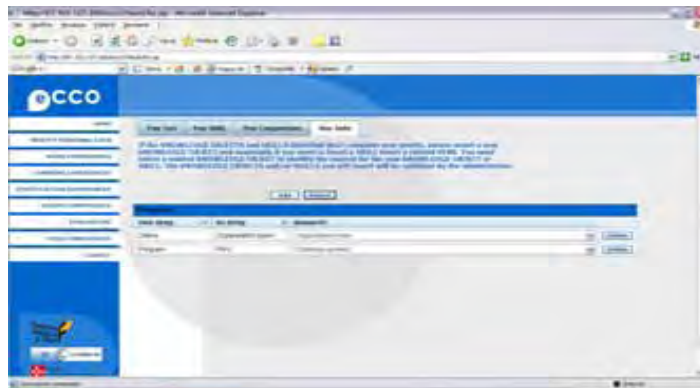


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The input of competencies (5/5)

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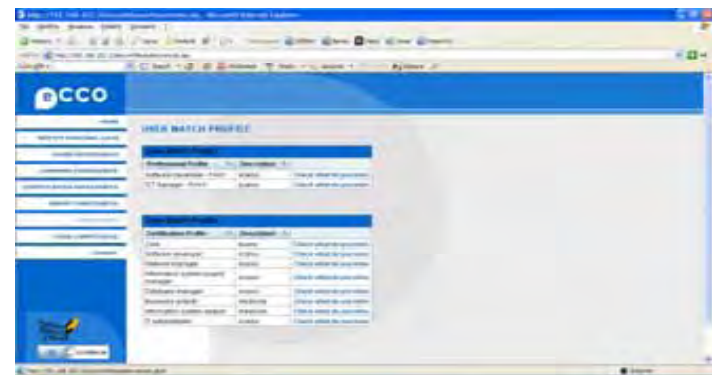


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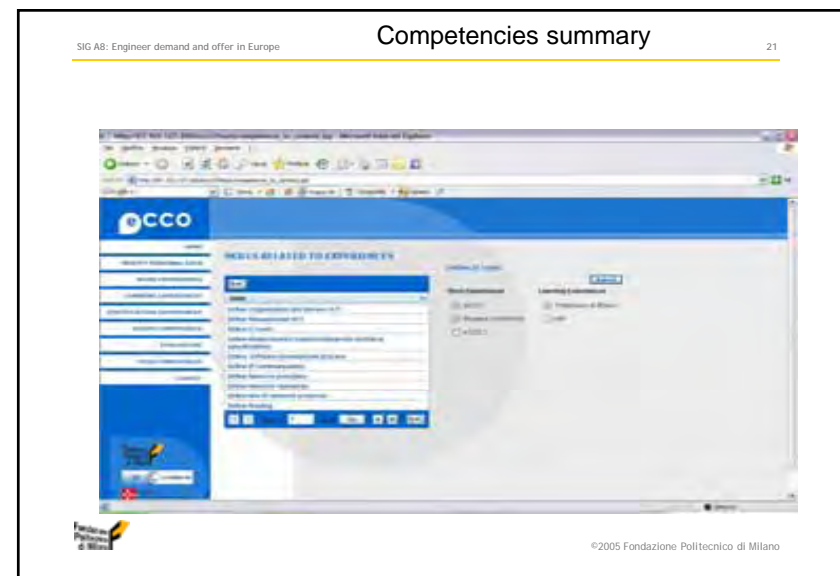
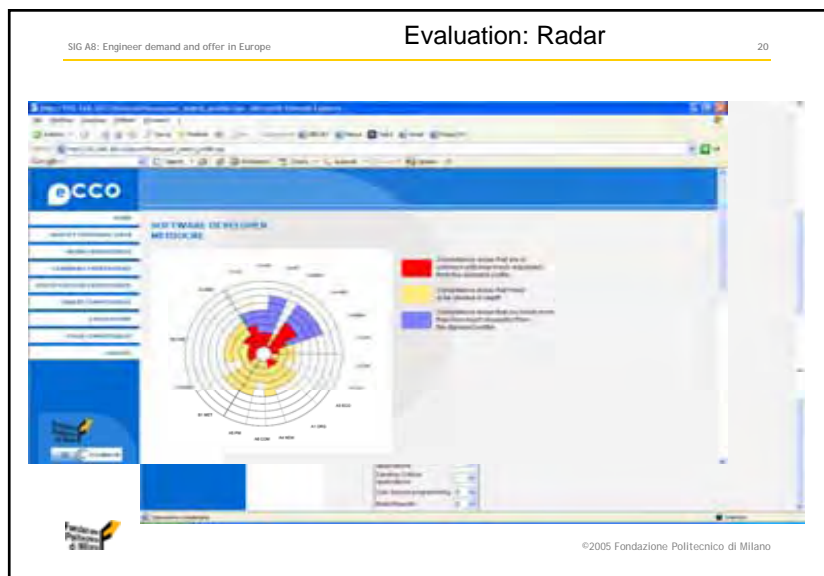
Evaluation

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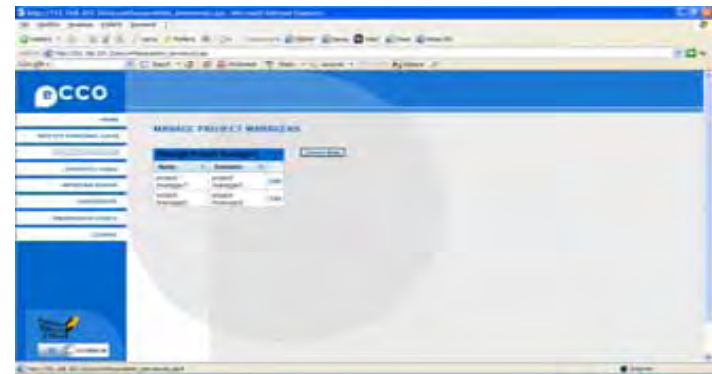
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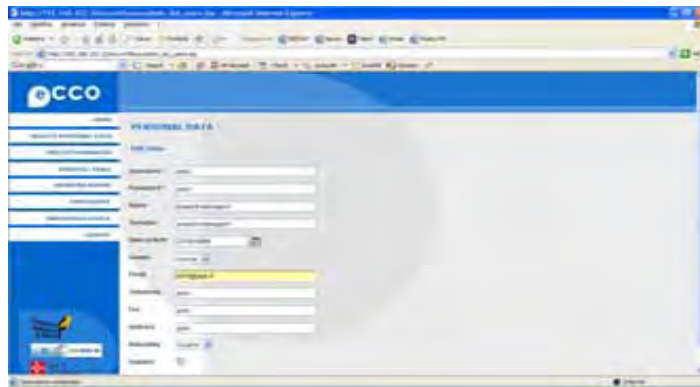
The application for Administrators: an example from a local administrator (AICA with Eucip profiles)



Project manager data change

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Table of reports

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Profiles levels

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Semantic network administration 1/5

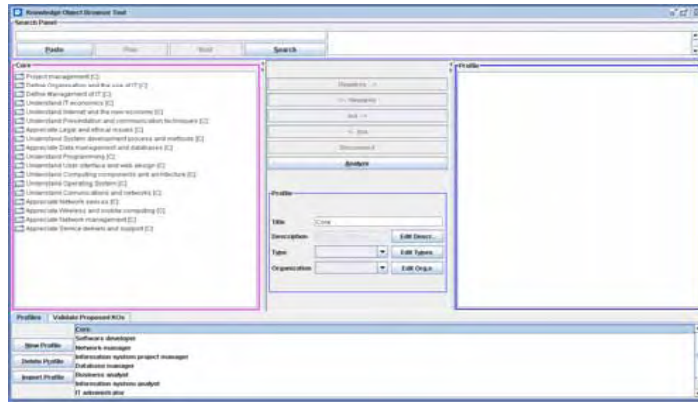
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Semantic network administration 2/5

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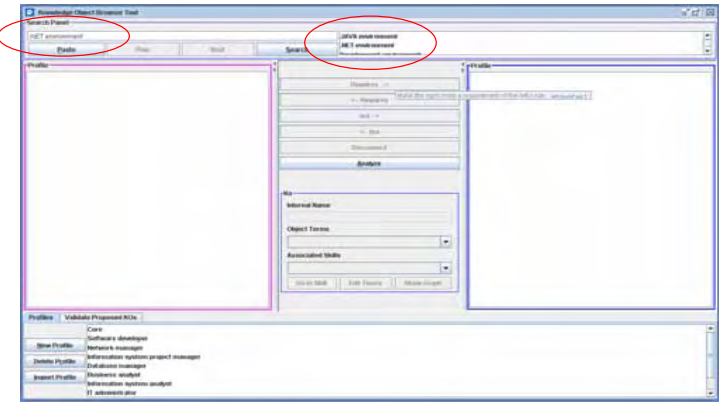


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Semantic network administration 3/5

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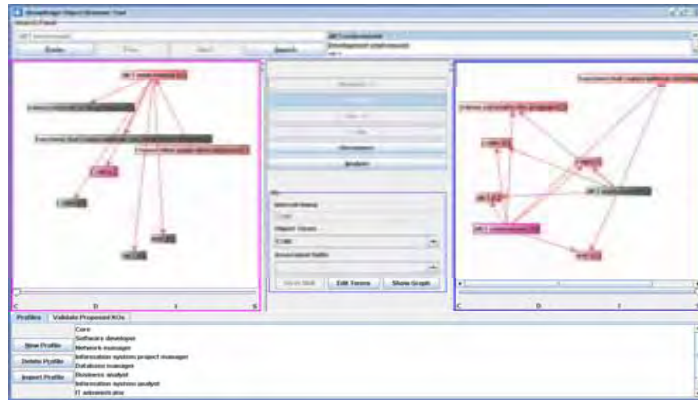


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Semantic network administration 4/5

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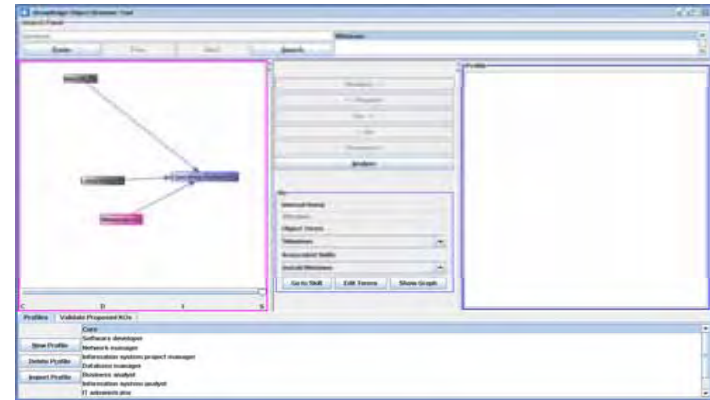


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Semantic network administration 5/5

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