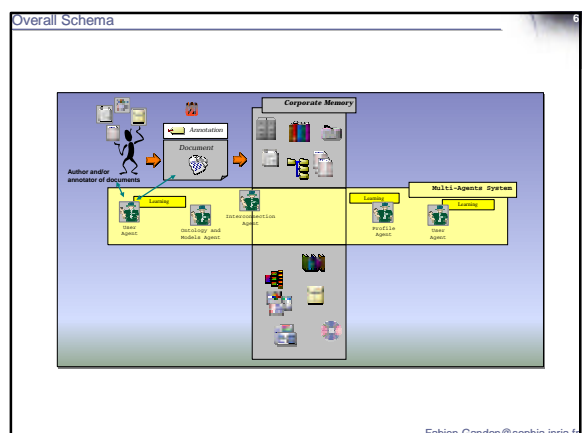
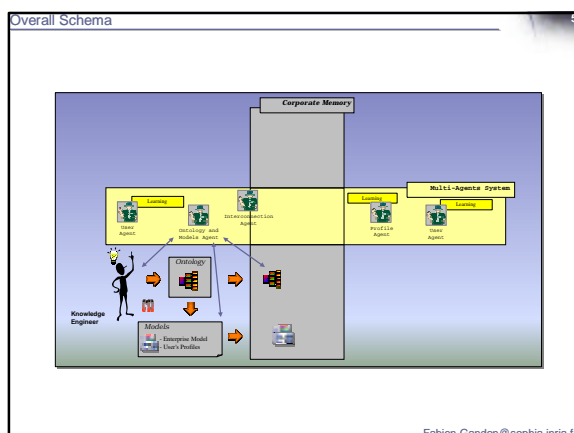


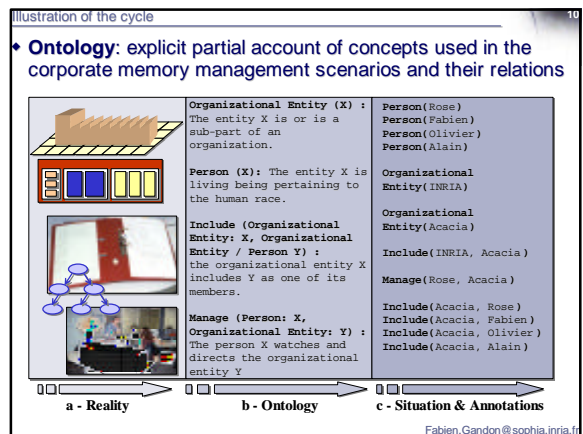
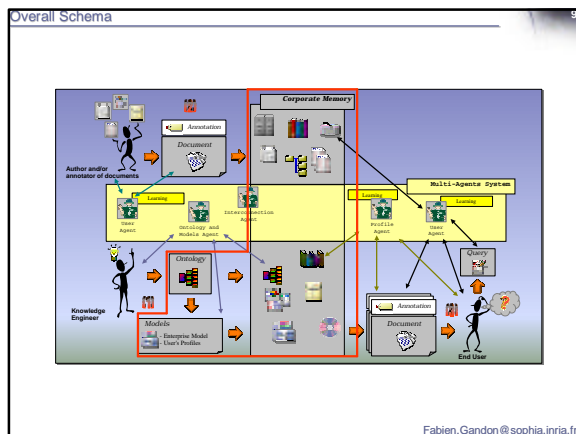
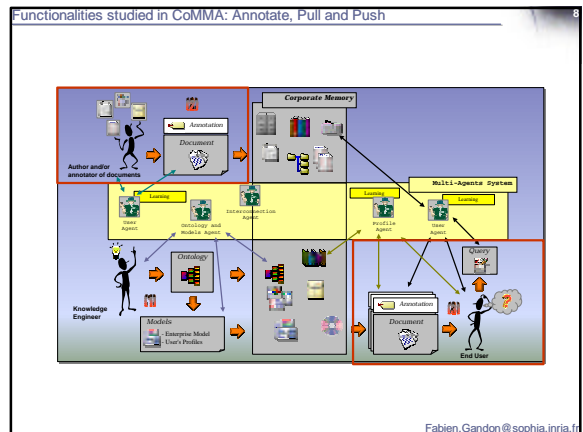
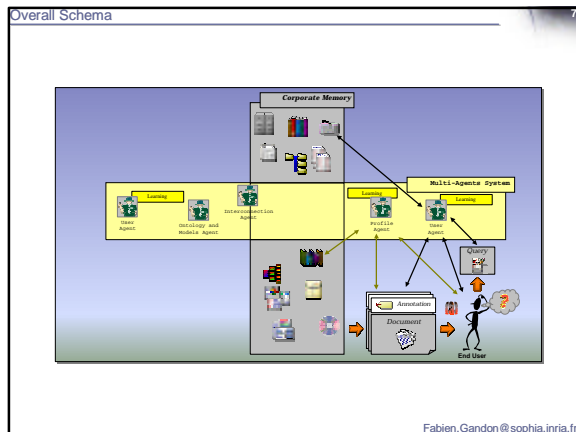
- Introduction: issues and motivations
- ♦ **Knowledge and information management:**
 - **Needs:** improve reaction time & address turnover
 - Persistent memory: store and/or index knowledge
 - Nervous system: capture and diffuse knowledge
 - **O.M.:** an explicit and persistent representation and/or indexing of knowledge in an organization, in order to facilitate its access and reuse by members of the organization, for their individual and collective tasks.
 - **Current trend:** reuse internet and web technologies to build intranets and intrawebs
 - Same advantages: standardised technology, browser unique access means, distributed architecture, etc.
 - Same drawbacks: human-understandable but only machine readable; problem of retrieval, automation,...
 - ♦ **Corporate Memory Management through Agents:**
 - Assist new employee integration
 - Support technology monitoring activities
- Fabien.Gandon@sophia.inria.fr

- Positioning and pointers
- ♦ **Dynamically integrating heterogeneous sources of information:** Manifold [Kirk *et al.*, 1995] ; InfoSleuth [Nodine *et al.*, 1999] ; InfoMaster [Genesereth *et al.*, 1997] ; Carnot [Collet *et al.*, 1991] ; RETSINA [Decker and Sycara, 1997] ; SIMS [Arens *et al.*, 1996] ; OBSERVER [Mena *et al.*, 1996]
 - ♦ **Digital libraries:** SAIRE [Odubiyi *et al.*, 1997] UMDL [Weinstein *et al.*, 1999]
 - ♦ **Knowledge management:**
 - Collaborative gathering, filtering and profiling: CASMIR [Berney and Ferneley, 1999]; Ricochet [Bothorel and Thomas, 1999]
 - Mobile access to memory and domain model for classification: KnowWeb [Dzbor *et al.*, 2000]
 - Taxonomy, profiling and push: RICA [Aguirre *et al.*, 2000]
 - Ontology and corporate memory: FRODO [Van Elst and Abecker, 2001]
- Fabien.Gandon@sophia.inria.fr

- How ?
- ♦ **In CoMMA:**
 - Corporate memories are *heterogeneous and distributed information landscapes*
 - Stakeholders are an *heterogeneous and distributed population*
 - Exploitation of CM involves *heterogeneous and distributed tasks*
 - ♦ **Choices:**

Materialization CM	Exploitation CM
XML: Standard, Structure, Extensible, Validate, Transform RDF: Annotation, Schemas <div style="text-align: center; color: red;">Corporate Memory</div>	Multi-Agent System: Modularity, Distributed, Collaboration Machine Learning: Adaptation, Emergence <div style="text-align: center; color: red;">Management through Agents</div>
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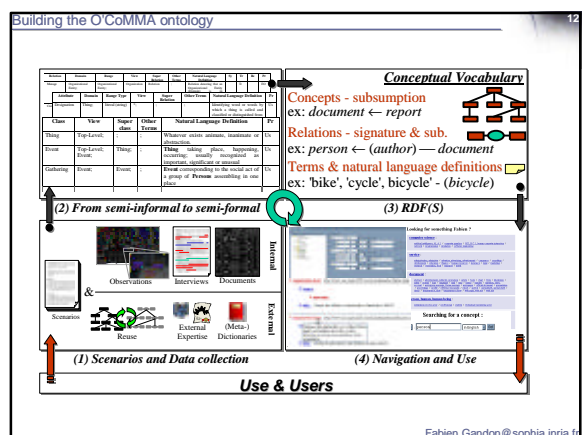


interesting aspects of XML & RDF(S)

- ♦ **XML leitmotiv:** Bring structure to the memory to improve search and manipulation of documents using an emerging standard in industry.
- ♦ **RDF leitmotiv:** If the corporate memory becomes an annotated world, software can use the semantics of these annotations an through inferences help the users exploit the corporate memory.
- ♦ **Corporate semantic web: (annotated info world)**
 - **Ontology in RDFS (O'CoMMA)**
 - Description the **Situation** in RDF:
 - User Profiles (annotate person)
 - Organization model (annotate groups)
 - **Annotations in RDF describing Documents** (manipulation at semantic level)
- ♦ **Annotated persons & organizational entities**

® **context awareness**

Fabien.Gandon@sophia.inria.fr



Scenarios : Summary table

♦ Define some guidelines (influences ex: KADS)

Characteristics	Representation	Actors	Facets
Goal	Textual	Actors	Profile
Scenario Before	Graphical		Role
Scenario After	Informal		Individual goal
Scope	Formal (UML)		Task
Scenario / Sub-Scenario		Resources	Action
Generic / Specific		Processes	Interaction
Example, Illustration		Logical & Chronological	
Relevance life-time		Decomposition	
Exceptions		Sequential / Parallel / Non deterministic	
Counter examples		Loops & Stop conditions	
		Alternatives & Switches	
		Compulsory / Optional	
		Flows	Inputs
			Outputs
			Paths
		Functionalities & Rationale	Functionalities description
			Motivation, necessity
			Advantages & Disadvantages
		Environment	Internal
			Organisation
			Acquaintance
			External

Fabien.Gandon@sophia.inria.fr

Scenario Report : From industrial partners

♦ Scenario Report : Rich story-telling document:

Document type

Event type

Role type

Function

Very rich document...

Fabien.Gandon@sophia.inria.fr

Semi-structured Interview

♦ Semi-structured (individual / group) guide for end-users:

Definition of role (≠ tasks)

Position :
Personal definition
≠ Official definition

Fabien.Gandon@sophia.inria.fr

Example of Observation

Fabien.Gandon@sophia.inria.fr

New Employee Route Card

♦ What to do
♦ Where to go
♦ Who to contact
♦ How to contact
♦ In what order

► Multi-lingual
► NLP and Graphics

Fabien.Gandon@sophia.inria.fr

Quick reminder of the steps

♦ State of the art & Reuse:

- Enterprise Ontology,
- TOVE Ontology,
- Cyc Ontology,
- PME Ontology,
- CGKAT & WebKB top ontology

♦ Other sources e.g.:

- "Using Language" Herbert H. Clark,
- MIME, Dublin Core,
- Meta-dictionary, etc.

♦ Terminological study: term to notions

♦ Continuum Informal® Formal:

Informal (textual) → Lexicons (semi-informal) → Structured tables (semi-formal) → RDF(S) (formal)

♦ Structuring: Bottom-Up // Top-Down // Middle-Out

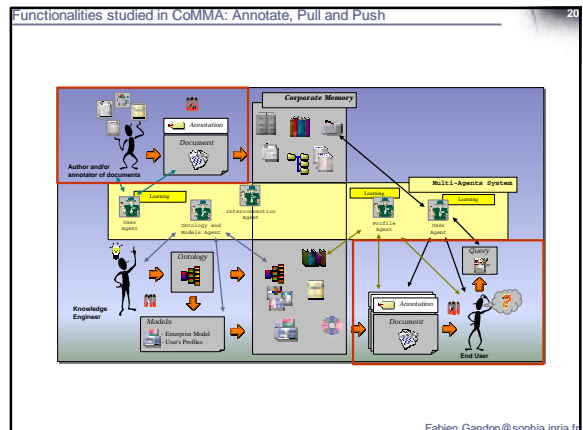
Fabien.Gandon@sophia.inria.fr

CoMMA 19

♦ **Content:**

- 470 concepts (taxonomy depth = 13 subsumption links).
- 79 relations (taxonomy depth = 2 subsumption links).
- 715 terms in English and 699 in French.
- 547 definitions in French and 550 in English.

Fabien.Gandon@sophia.inria.fr



Interfacing Users 21

♦ **User Interfaces**

- Annotating documents
- Querying the memory
- Present the results
- Hide complexity (ontology, agents,...)

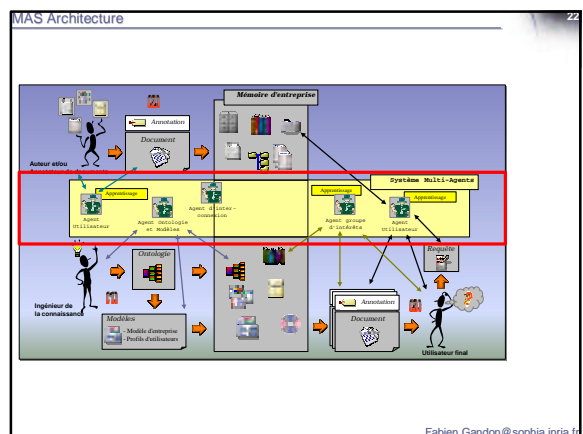
♦ **Push technology**

- Improve information flowing
- Proactive diffusion of annotations
- Communities of interest

♦ **Machine learning leitmotiv:** Represent, learn and compare current use profiles to improve future use.

- Learning during a login session
- Ranking results

Fabien.Gandon@sophia.inria.fr



Principal interest of MAS in CoMMA 23

♦ **Leitmotiv:** One functional architecture leading to several possible configurations in order to adapt to the broad range of environments that can be found in a company

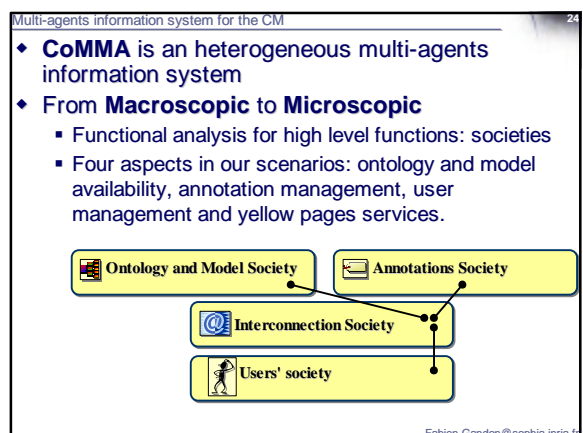
- Architecture:** Agent kinds and their relationships *Fixed at design time*
- Configuration:** Exact topography of a given MAS *Fixed at deployment time*
- One architecture → Several configurations** *Adapt to context*

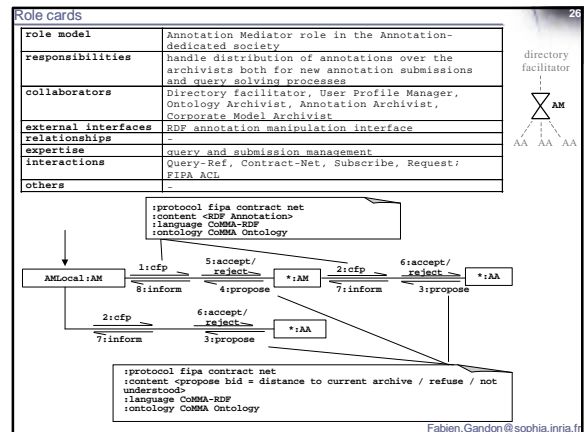
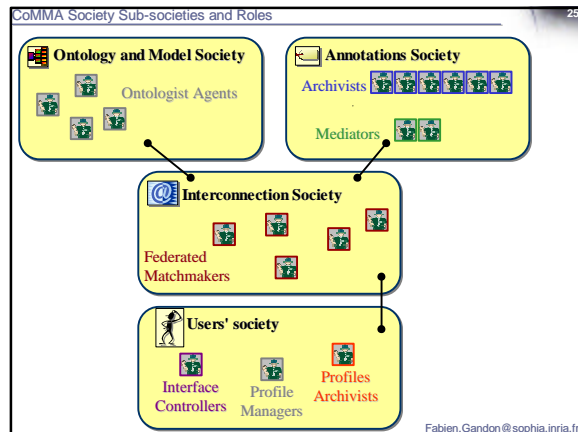
♦ **Agent paradigm adequacy:**

- Agent collaboration → Global capitalization
- Agent autonomy & individuality → Local adaptation

♦ **Integration of different technologies → interesting for a domain that requires multidisciplinary solutions**

Fabien.Gandon@sophia.inria.fr





- Conclusion
- ♦ **What you did not hear me say:**
 - "ontology, DAI, etc. are a silver bullets for KM"
 - "an information system is the solution to KM problems"
 - "an ontology is easy to build, use, etc."
 - ♦ **What you did hear me say:**
 - "Knowledge-based system are not the old expert systems"
 - "Ontology is a new concept of knowledge representation that can be used in the supporting infrastructure of a complete solution"
 - "Distributed A.I. offers paradigms that can be used to build software architectures adapted to KM distributed"
- Just an example of the fact that the use of formal knowledge and (distributed) artificial intelligence can go a long way in K.M. support**
- Fabien.Gandon@sophia.inria.fr