



Corporate
Memory
Management
through
Agents

Presentation by the CoMMA consortium - Fabien GANDON

❖ CoMMA IST European project - February 2000

❖ **Objective** : Provide a corporate memory management framework

➤ **Corporate Memory**: An explicit, disembodied and persistent representation of knowledge and information in an organization, in order to facilitate their access and reuse by members of the organization, for their tasks.

➤ **Management Framework**: A supporting structure around which one can build a system insuring coherent integration and exploitation of the dispersed knowledge

❖ **Specificity**:

➤ Scenarios: New Employee & Technology Monitoring

➤ Integration of several emerging technologies

PLAN

Introduction

Plan

Multi-Agent
Systems

Knowledge
Engineering
XML Galaxy

Symbolic
Learning

Summary

Scenarios

Data
Collection

Designing
Architecture

Prototypes
Standards

Summary

Conclusion

❖ Technical choices and their motivations

↪ Multi-Agents Systems

↪ Knowledge Engineering & XML Galaxy

↪ Symbolic Learning

↪ Summary and Technical Overview

❖ Methodological approach

↪ Scenarios

↪ Data Collection

↪ Designing the Architecture

↪ Prototypes & Standards

↪ Summary and Methodology Overview

❖ Conclusion

Plan of the presentation

❖ Agent assets

- Flexible distribution through loosely-coupled software components
- Semantic-level message passing, natural in a KM environment

❖ Architecture / Configuration

- Architecture: Agent kinds and their relationships
Fixed at design time
- Configuration: Exact topography of a given MAS
Fixed at deployment time
- One functional architecture → Several possible configurations : adapt to corporate environment

❖ Deployment choices driven by: organizational layout, intranet topography, interest area

❖ Knowledge Engineering

- Knowledge acquisition techniques
- Ontology and Model: describe enterprises & users
- Inference and heuristic techniques

If OM is an annotated world ⇒ Agents use semantic of annotations ⇒ Inferences to help exploit the OM.

❖ XML: Extensible Markup Language

- Structured data and documents in text format
- Create & access via internet-based networks
- Standard: human & machine understandable
- DTD: one can formally define document structure
- Style sheets: document manipulation beyond styling

❖ RDF: Resource Description Framework

- Annotation internal/external to documents
- RDFS: RDF Schema (to formalize ontology)

❖ Adaptability to users

- ↪ User profiles (explicit, implicit, derived, additional)
- ↪ Group profiles (explicit, implicit, derived, additional)

❖ Adaptability to context

- ↪ From a temporal point of view
- ↪ From an interface point of view
- ↪ From an organizational point of view

❖ Techniques

- ↪ On the fly learning
- ↪ Remote learning
- ↪ Lazy learning

❖ Collaborative filtering (Communities of interest)

- ↪ Public explicit COINs
- ↪ Emergent implicit COINs

- ❖ Corporate memories are heterogeneous and distributed information landscapes
- ❖ Stakeholders are a heterogeneous and distributed population
- ❖ Exploitation of CM involves heterogeneous and distributed tasks

CM Materialization

XML: Standard, Structure, Extend, Validation, Transform

RDF: Annotation, Schemata

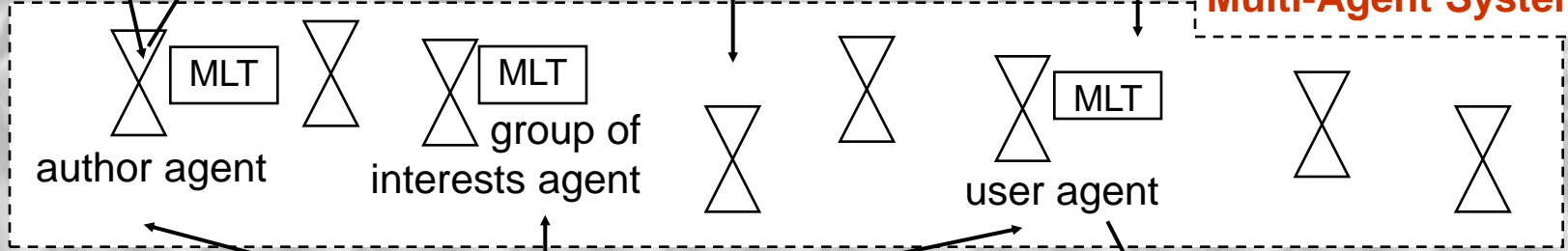
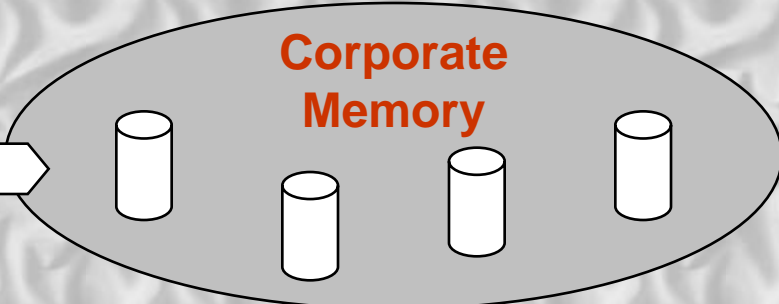
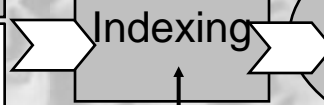
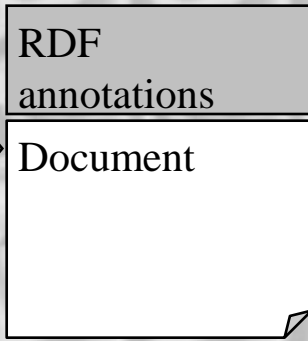
CM Exploitation

Multi-Agent System: Modularity, Distributed, Collaboration

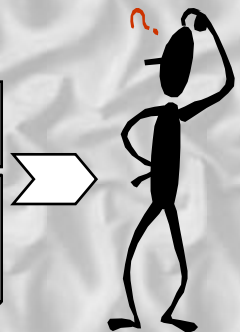
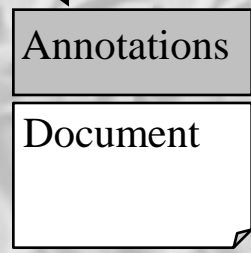
Machine Learning: Adaptability, Emergence

Corporate Memory Management through Agents

Document Author



Ontology Author



Employee

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❖ Which ones ?

- Scenario 1: Improve new employee integration
- Scenario 2: Support technology monitoring process

❖ What for ?

- Entrance point in the project
- Dialog catalyst & Very rich story-telling document
- To focus on specific aspects of KM
- Context of CoMMA as a component of a KM solution
- Concrete set of interaction sequences with CM
- Capture end-users' needs
- Something to check up on

❖ How ?

- Data collection guidelines
- Scenarios reports

❖ Semi-structured individual & group Interviews

- Open Discussion (Unstructured)
- Flashback & Clarification (More structured)
- Interviewees' Self-synthesis (Generalization)

❖ Documents (e.g. NE Route Card)

❖ Observations :

- Annotating
- Indexing
- Filing
- Codes
- Practices



❖ Ontology Building : Top-Down & Bottom-Up

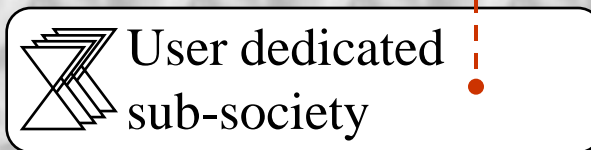
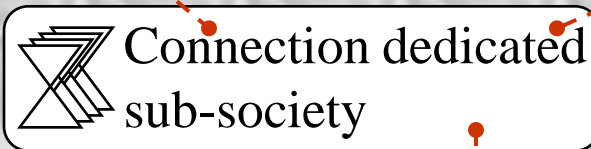
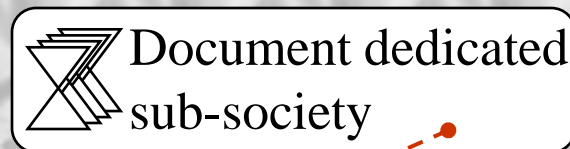
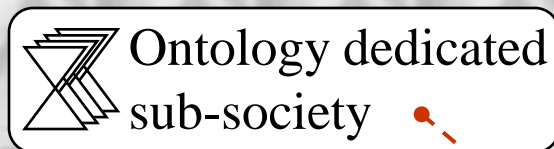
Methodological Approach: Data collection

❖ Software Agent Role analysis

↪ Societies

↪ Roles

↪ Relationships

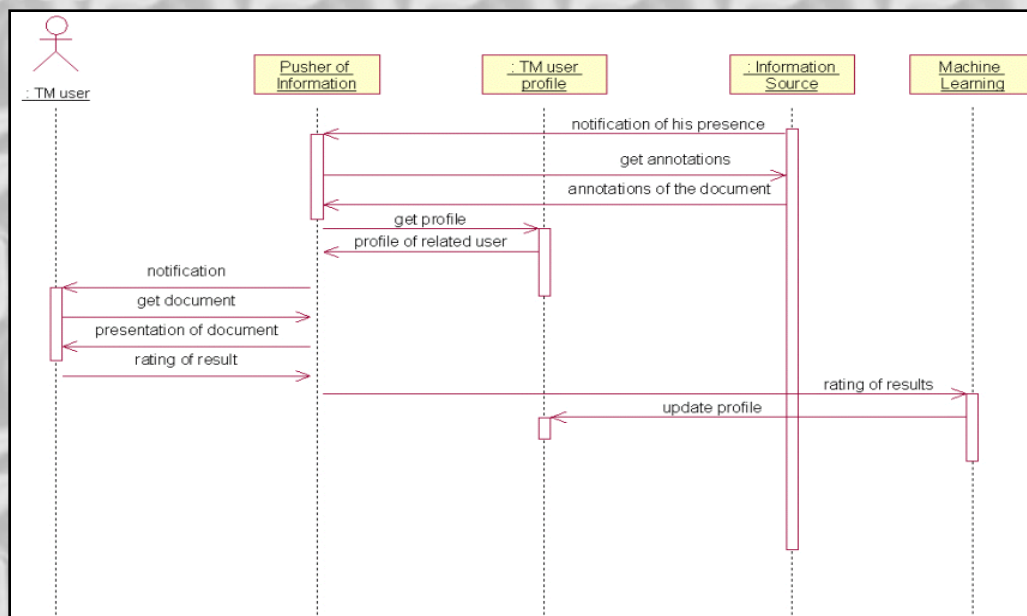


❖ Use Cases

↪ Linked to Scenarios

↪ Internal Insight

↪ UML (adapted)



❖ Agent Technology

- ↪ JADE framework for developing MAS
- ↪ Compliant with FIPA specifications
- ↪ New versions to include new specifications

❖ Annotation-based Search

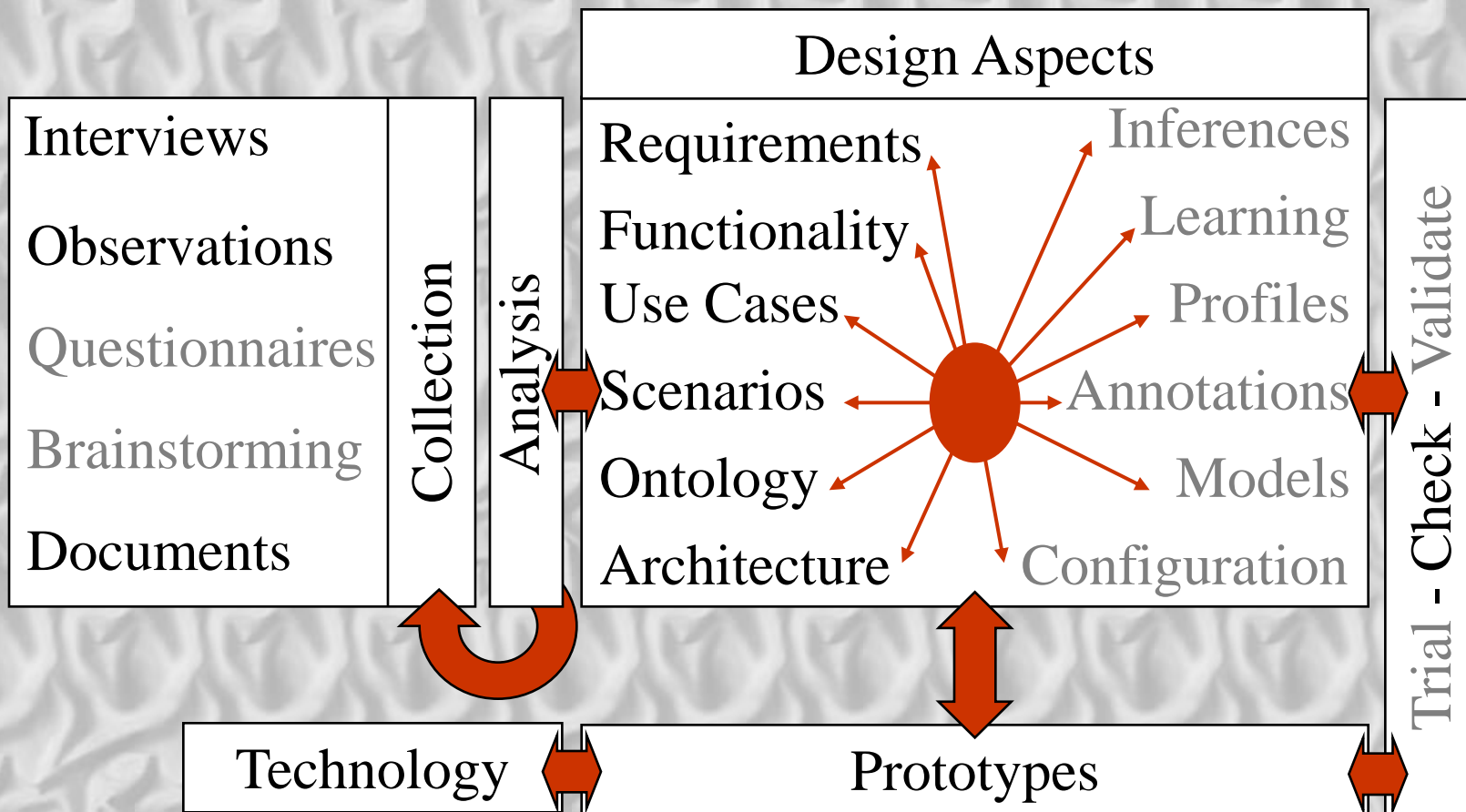
- ↪ CORESE: COncceptual REsource Search Engine
- ↪ VRP parser + NOTIO Conceptual Graphs platform
- ↪ First tests for the integration in agents

❖ RDF Editor

- ↪ Annotation in RDF
- ↪ Ontology in RDFS

❖ Machine Learning

- ↪ WEKA package under consideration



❖ So far after the first project quarter

↪ Some elements were not used

↪ Some elements remain to be used

Current & Further work

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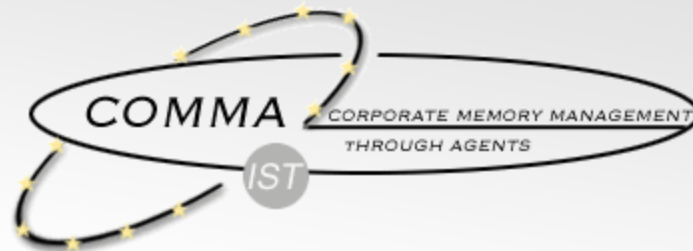
❖ Current work

- ↪ Finishing first version of RDF editor
- ↪ Formalizing first version of ontology
- ↪ Developing a first enterprise model
- ↪ 'Agentizing' search engine
- ↪ Investigating interesting learning functionality
- ↪ Designing first user interfaces

❖ Further work

- ↪ Integration of the first versions of agents
- ↪ Preparation of the first trial with end-users

Conclusion



¡Gracias!

CoMMA consortium - Fabien.Gandon@sophia.inria.fr
<http://www-sop.inria.fr/acacia/personnel/Fabien.Gandon/>