

# edamok

enabling distributed and autonomous management of knowledge

## Analyzing the requirements for Knowledge Management using Intentional Analysis

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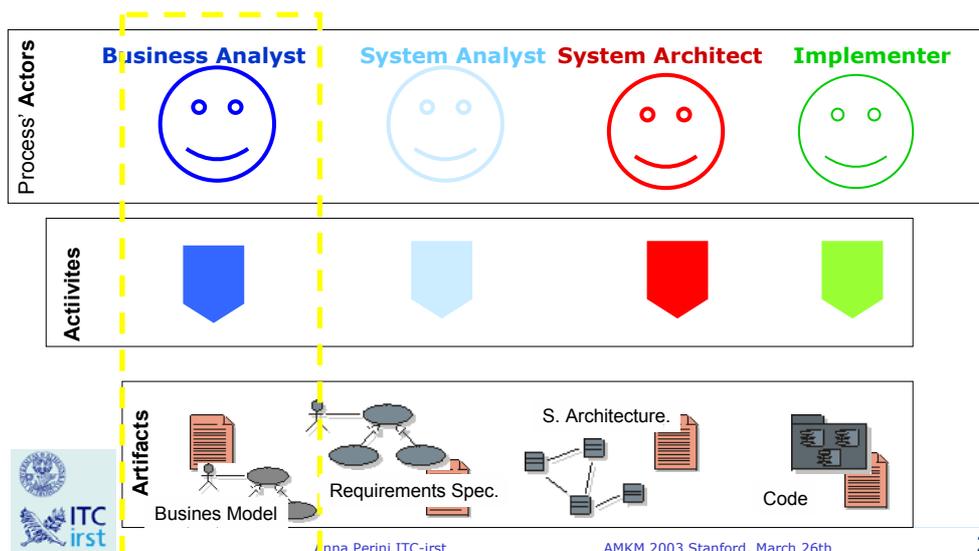
AMKM 2003

Stanford Univ.  
March 26<sup>th</sup>



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## The problem we focus on

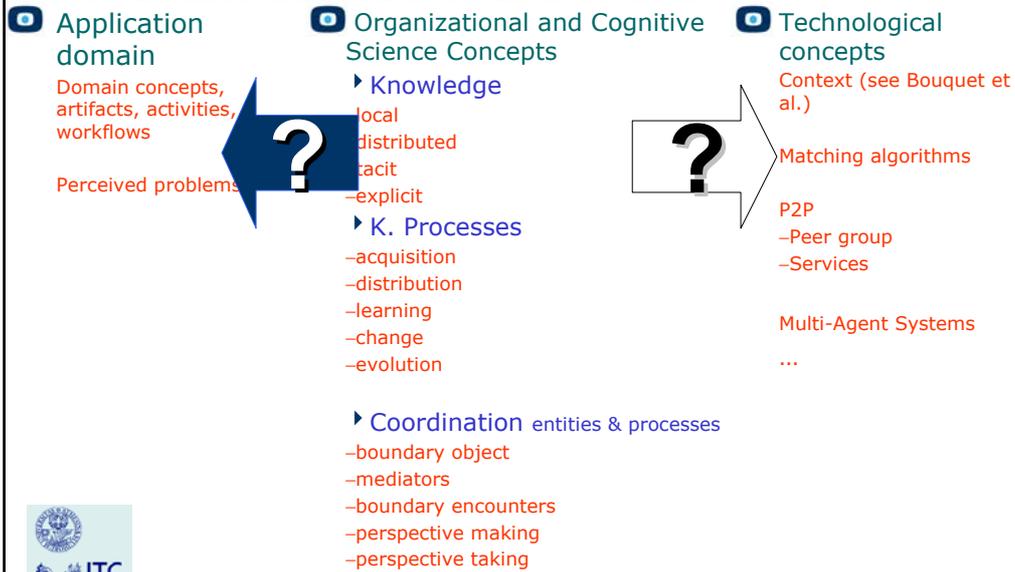


Anna Perini ITC-irst

AMKM 2003 Stanford, March 26th

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## Background: Knowledge management<sub>1/2</sub>



## Background: Intentional Analysis<sub>2/2</sub>

- ▶ Intentional analysis allows to model complex relationships among **social actors** in terms of their **interests** and **intents** and of the **strategic relationships among** them.
- ▶ IA focuses on **why** questions, e.g. What are the goals of the actors? Who share these goals? ... What alternatives are considered? What are the reasons for choosing one alternative over the others?
- ▶ The i\* framework [Yu 97] supports:
  - intentional analysis through **actor and goal modeling** and provides an intuitive diagrammatic representation of these models.
  - **Concepts:**
    - **actor:** a human stakeholders (single persons and organizations) and artificial agents (software and hardware systems and components); a role or a set of roles
    - **goal, softgoal, task, and resource.**
    - **dependency:** actors may depends each other in order to attain some goal, resource or having a plan executed. The object of the dependency is called dependum.



## Our approach

We need to analyze the intentional dimension of the organizational setting - the interests, intents, and strategic relationships among actors -in order to delivery effective KM solutions.

The intentional analysis can support reasoning about **perceived problems** and **potential solutions** of an organizational setting

We provide the analyst with a methodology to **elicit** and **model** them.



## the Healthcare domain case study (1)

- ▣ **Healthcare domain**
  - Hospital records DB
  - Clinical Report
  - Cartella Integrata
  - Legal requirements
  - Careflow
- ▣ **Organizational and Cognitive Science Concepts**
  - **Knowledge**
    - local
    - distributed
    - tacit
    - explicit
  - **K. Processes**
    - acquisition
    - distribution
    - learning
    - change
    - evolution
  - **Coordination entities & processes**
    - boundary object
    - mediators
    - boundary encounters
    - perspective making
    - perspective taking
- ▣ **Technological concepts**
  - Context (see Bouquet et al.)
  - Matching algorithms
  - P2P
    - Peer group
    - Services
  - Multi-Agent Systems
  - ...



## the Healthcare domain case study (2)

### Healthcare domain

Ward coordination  
Nurse rotation

Perceived problems:  
"I'm the hardest worker in the ward"



### Organizational and Cognitive Science Concepts

#### Knowledge

- local
- distributed
- tacit
- explicit

#### K. Processes

- acquisition
- distribution
- learning
- change
- evolution

#### Coordination entities & processes

- boundary object
- mediators
- boundary encounters
- perspective making
- perspective taking

### Technological concepts

Context (see Bouquet et al.)

Matching algorithms

P2P

- Peer group
- Services

Multi-Agent Systems

...

## The Healthcare domain (example 1) the *Cartella Integrata*

### The situation:

- ▶ The careflow process involves several competencies which are not all included within a single ward. It means that wards have to cooperate because each of them produces information relevant also for the others.

### The problem:

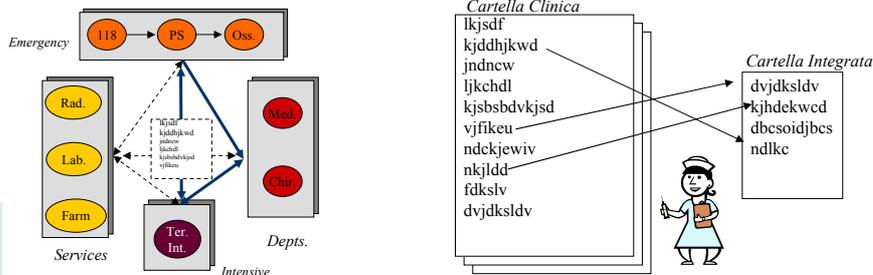
- ▶ How to share these individuals' products?

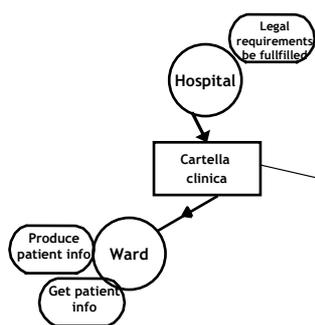
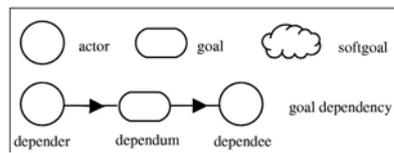
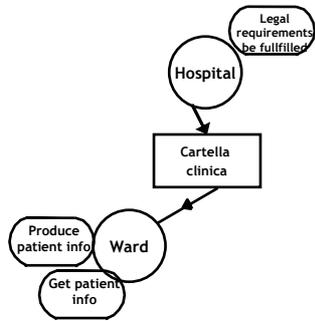
### First solution:

- ▶ In order to have all the information about a patient accessible by the different wards involved in a care-flow the *Cartella Clinica* has to be created and maintained → FAILURE: too many information without a relevant order, too different the goals that drive info production and info accessing.

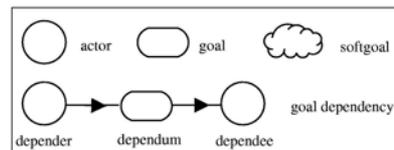
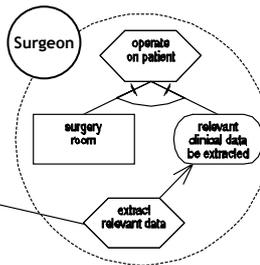
### Second solution (single initiative):

- ▶ *Cartella Integrata*: a real mapping process, done by an expert who belongs to a community (so she shares this community's perspective) but who has been developing a perspective also of another community's work and thanks to that, she can match one in another.



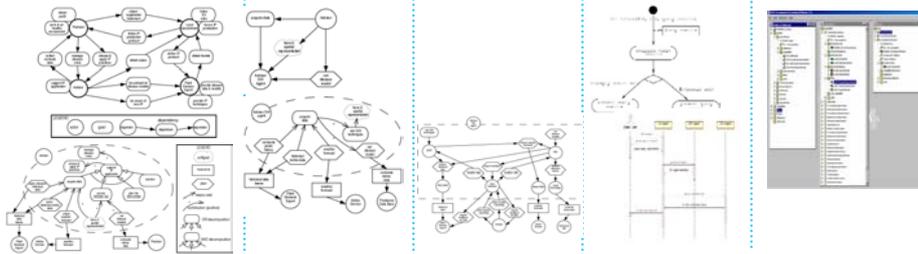


SURGERY WARD





Software development activities



Actors in the organizational setting

System Actor

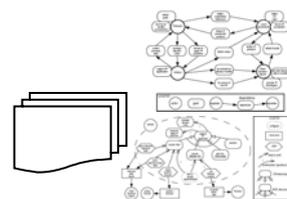
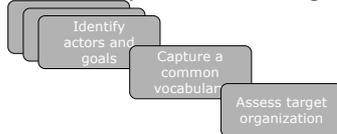
Sub-system Actors

Agents

Sw Agents



Set of analysis and modeling activities



Early requirement specification for a DKM application, based on an Intentional Model of the organizational Setting where the DKM will be introduced



A set of best practices, repository of models, tools



- Beyond i\*?
- From early requirements to late requirements: a set of use-cases or late req. Tropos model
- Continue feeding set of *Theoretical concepts* and set *Technological concepts* (slide#2)

