

COST C21

Urban Ontologies for an improved
communication in urban civil engineering
projects

TOWNTOLOGY Project
Madrid meeting - 14 & 15 May 2007

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Objectives of the COST C21 Action

The main objective of the Action is to **increase the knowledge** and **promote the use of ontologies** in the domain of Urban Civil Engineering projects, in the view of facilitating the communications between information systems, stakeholders and UCE specialists at a European level (Groupware).

Ontologies in the urban domain

Improve the communication between Urban Information Systems

How can we share information/knowledge between different UIS ? Raises issues of communication between **domains** (cadaster, population, planning, environment etc.), **scales** (nation, city, district), **purposes** and **qualities** (2D/2.5D/3D, topologically correct/incorrect, precision).

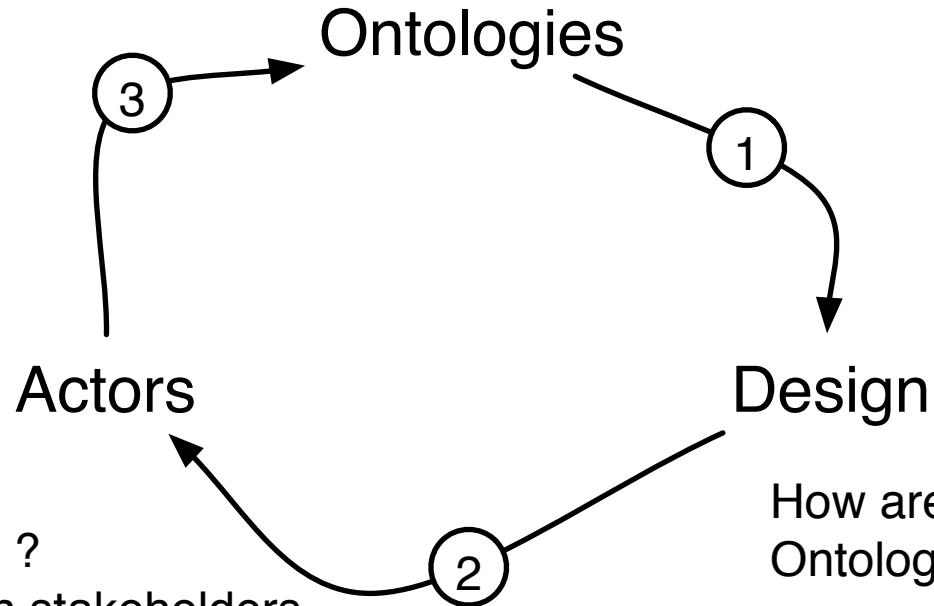
Improve the communication between experts and decision-makers

How can ontologies help us to build a **common culture** between experts, stakeholders and decision-makers ? Argumentation, negotiation and conflict resolution require a common vocabulary, shared by the different partners.

Improve the communication between domain experts

How can ontologies help us to identify and describe elements of convergence/divergence between **European urban planning systems** ? Neologisms and "planning revisions" have been flourishing throughout Europe to cope with the evolution of urban systems. Example of sprawl or planning gains.

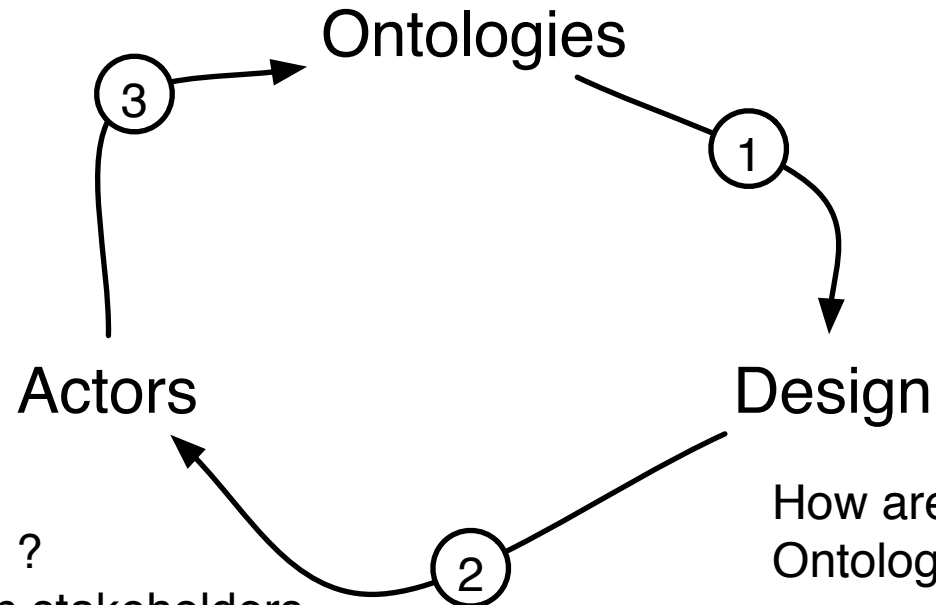
Identify existing urban ontologies through various sources
Language, format & alignment of ontologies



How are they designed ?
Ontology engineering methods

How could they be used ?
Communication between stakeholders
& multi-lingual issues

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How are they designed ?
Ontology engineering methods

There are no commonly accepted urban ontologies
Terminology is by nature unstable & contested, especially in this domain
The more urban - the less formal

Relevant experiences (not ontologies...)

Formalisation

Urban

	Construction sector classification	AEC Modelling	GIS Ontologies	Urban knowledge bases
Examples	ISO 12006 - 2 ISO 12006 - 3 ISO 18629 - Process Specification Language	IFC/IFG - Industry Foundation Classes	Open GIS initiative GML 3.0	EUKN - European Urban Knowledge Network COST C20 URBANET, HEREIN
Main Purpose	Standardisation Entire life cycle	Software Interoperability	Domain Interoperability	Exchange of experience Cataloguing
Leadership	Normalisation bodies	Internation Alliance for Interoperability: AEC & software industry, Public bodies	Research organisations Private agencies	European Networks Public/Private bodies
Scale	Focused on building entities (buildings, bridges) and construction complexes (motorways)	Buildings and Sites	Street networks to satellite img processing	From public spaces to urban regions
Formalism	EXPRESS bcXML taxonomy	EXPRESS ifcXML	XML, GML, OWL	Taxonomy ISO 5964 (multilingual thesauri)

What is an ontology and what are the goals of ontologies ?
Ontologies of space and processes ?
How do we capture the evolution of ontologies ?

Ontologies

Actors

Similar concepts different understandings ?

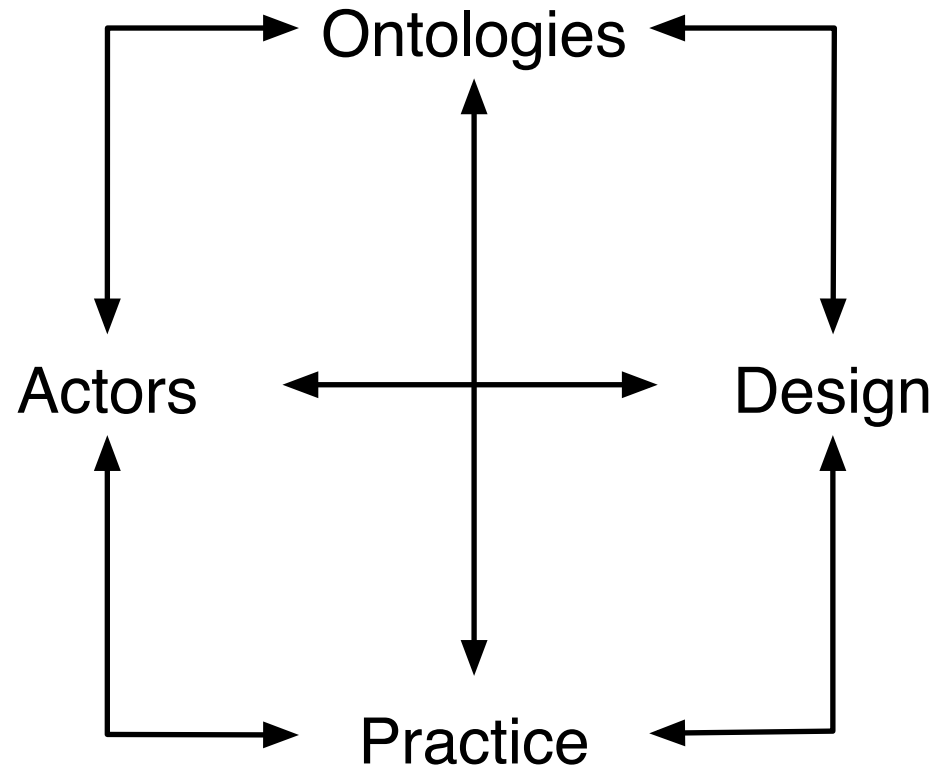
Criticism of building classification standards in terms of stakeholder communication.

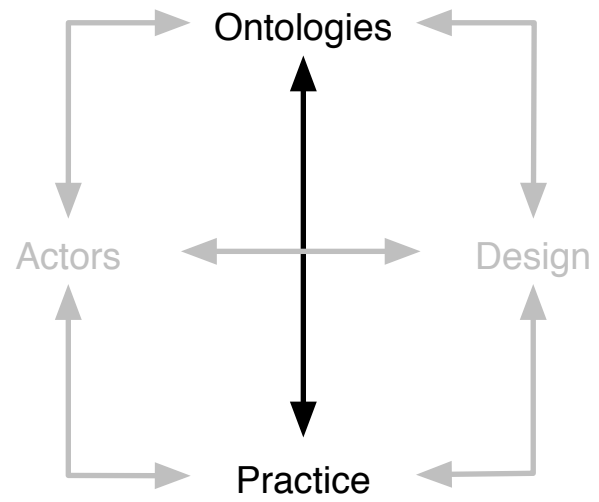
Design

Role of the end users in the design process.

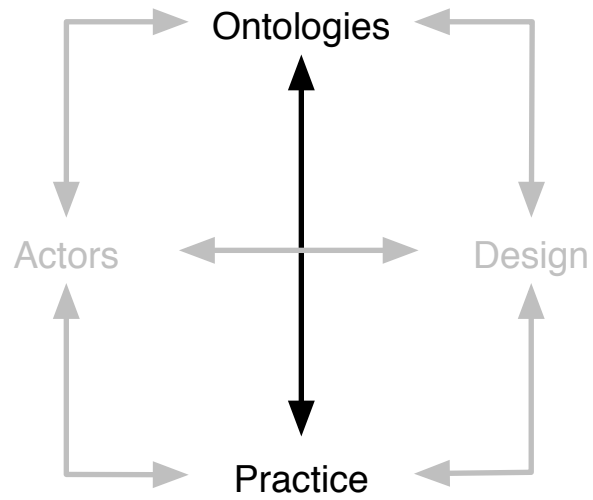
Are ontologies the solution ?
Status of existing data ?

- 1) Assume the existence of ontologies, even though they may be implicit
- 2) Integrate "Practices" in the conceptual framework

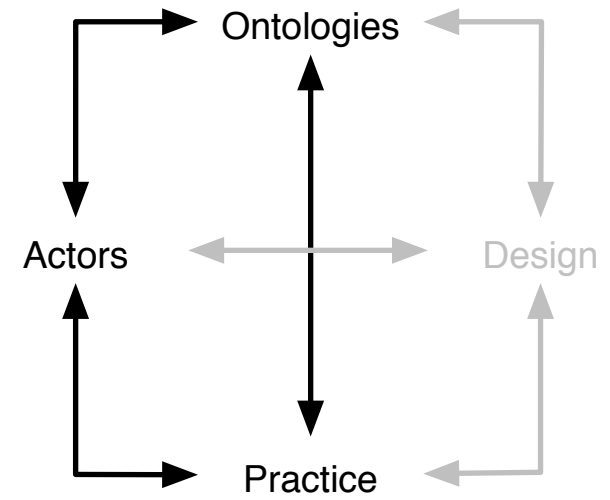




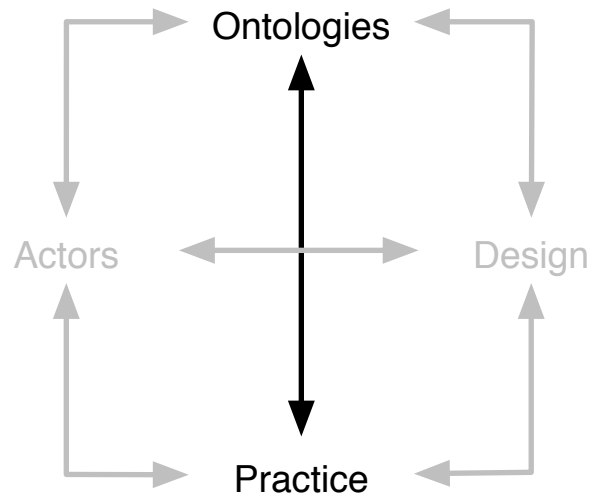
Identify existing and potential use cases of ontologies
From urban practices to ontologies



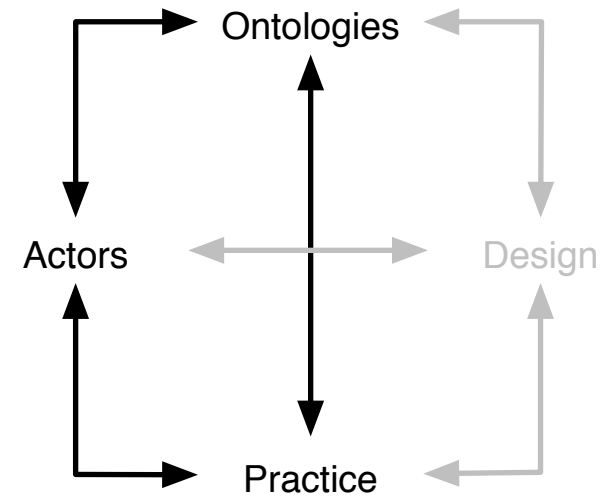
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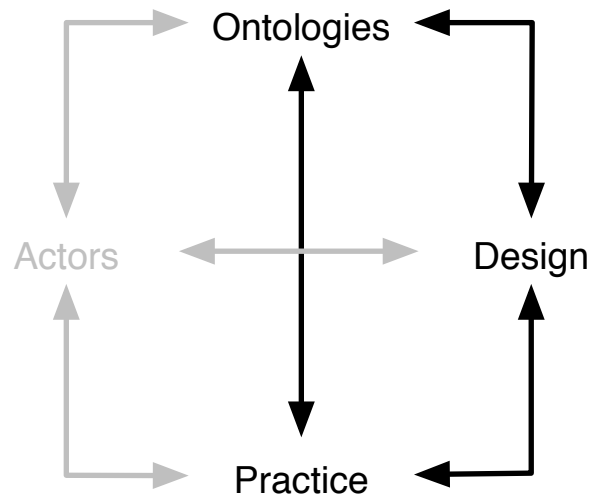
Share best or innovative practices
From practice to urban knowledge



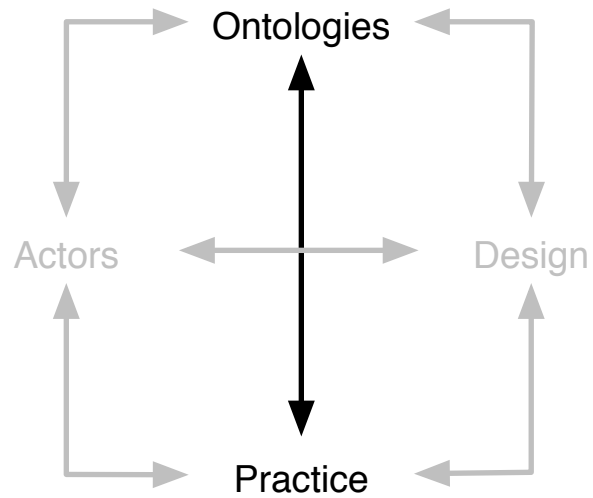
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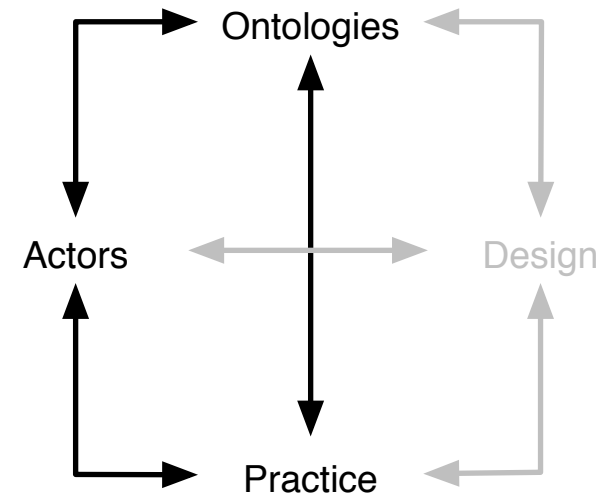
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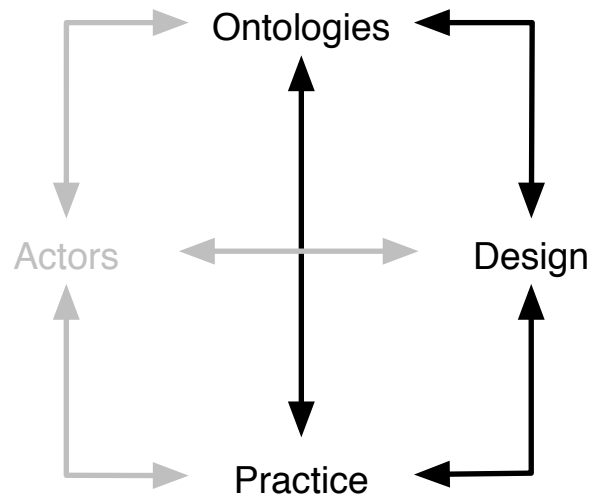
Review existing urban ontologies/taxonomies
Implicate end-users in the design of ontologies



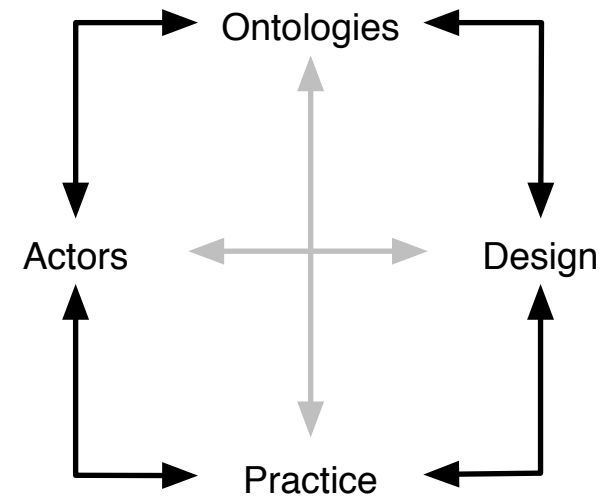
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Development of a repository of ontologies
Towards "adaptable" ontologies

Next Steps in the COST C21 Action

1- Advance the work in the different Working Groups

Ask WG Leaders to prepare a short report at the end of the meeting. Prepare General Assembly meeting.

2- Workshop in Torino (17&18/10/2007)

Focused on Ontologies in Practice. Should follow the format of Geneva conference. Meeting in Milano to prepare its organisation.

3- Development of urban ontology repository + case studies

Develop links with on-going initiatives (CYTED, EUKN, ...). Experience of URBISOC. Progress to date by Catherine Roussey & Jacques Teller.

4- Prepare a proposal for the 7th FP

Topics to be discussed tomorrow afternoon. Information techniques and/or Environmental technologies. Coordinated Action.