Real Property Transactions:

Challenges of Modeling and Comparing

From Pharaohs to Geoinformatics, Cairo
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COST-Action G9: Modelling Real Property Transactions

- facilitated by COST-Office (ESF, earlier EC)
  - travel and subsistence of meetings
  - publications
- bringing together researcher in a field
- no compensation for invested time
- start 2001; 2003 'lost year'
- http://cost.cordis.lu/src/action_detail.cfm?action=g9

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COST-Action G9: Modelling Real Property Transactions

- participants: A, DK, SF, D, H, LV, NL, SLO, S, UK; E, GR
- MC-meetings (7 + 2)
- 3 Working Groups (4 + 2) since 2004
  - Law and Models
  - Cadastral Science
  - Economy
- Short Term Scientific Missions (± 10 + 4)
- http://costg9.plan.aau.dk

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Memorandum of Understanding

- Improve transparency of real property markets
- Provide a stronger basis for reduction of costs of real property transactions
  - by
- Preparing a set of models of real property transactions (correct, formalized and complete)
- *Assessing economic efficiency of these transactions*
  - models also for education and (re-)engineering

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Memorandum of Understanding

- Even neighboring pair of countries
- has remarkable differences,
- making it a *challenge* to elicit a common set of concepts and models (p. 4)

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Models (transaction)

- Verbal (semi formalized) descriptions
- Activity Diagrams
- Use Case Diagrams

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Activity	Subdivision recorded in Cadastre and Land Registry.
Context	Owner sells a part of his real estate property (parcel).
Special context	The transfer of ownership of a whole real estate property means only the recording of the relevant deed and a change of name in the **cadastral registration**. This is carried out between the notary and the Cadastral Agency directly.
Actors (legal competencies)	Buyer (new owner), Cadastral Agency ('registrar'), Cadastral Agency ('surveyor'), Notary, Seller (old owner).
Pre-conditions	1. The seller and the buyer come to an agreement. 2. Usually this will be followed by a written contract (soon mandatory between private citizens). 3. The chosen notary checks and verifies the contract and the status of the owner. 4. The notary draws up a notarial deed of transfer that includes a (verbal) description of the part of parcel (a sketch may be included as well). 5. The buyer (and often his mortgage bank) transfers all monies (price, taxes, fees) to the notary. 6. Seller, buyer and notary sign the deed. 7. Notary sends deed to Cadastral Agency ('registrar'). 8. Cadastral Agency ('registrar') records deed (after some formal checks). Ownership is transferred at this time. 9. Cadastral Agency ('registrar') introduces sub-parcels in **cadastral registration** and puts name of rightholders to the relevant sub-parcels. He also creates request for survey ("aktepost") based on the description in the deed. 10. Notary checks if deed has been processed in cadastral registration and then disperses monies to seller (and often his mortgage bank), tax authority and Cadastral Agency (fee) and often real estate agent (fee) and keeps his own fee. 11. The Cadastral Agency ('registrar') informs the seller (old owner) and the buyer (new owner) of the changes in the cadastral registration (including the sub-parcel numbers).

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Models (transaction)

- Verbal (semi formalized) descriptions
- Activity Diagrams
- Use Case Diagrams

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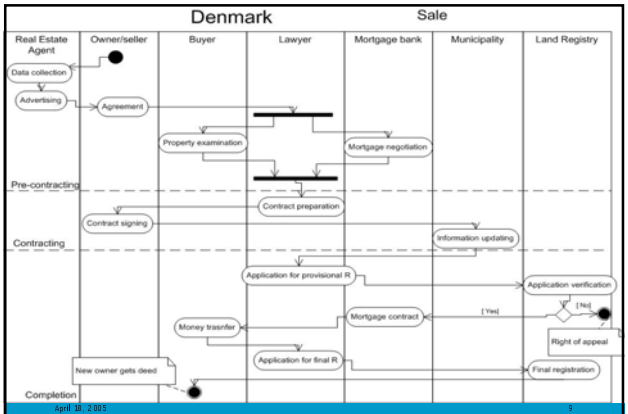

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Models (transaction)

- Verbal (semi formalized) descriptions
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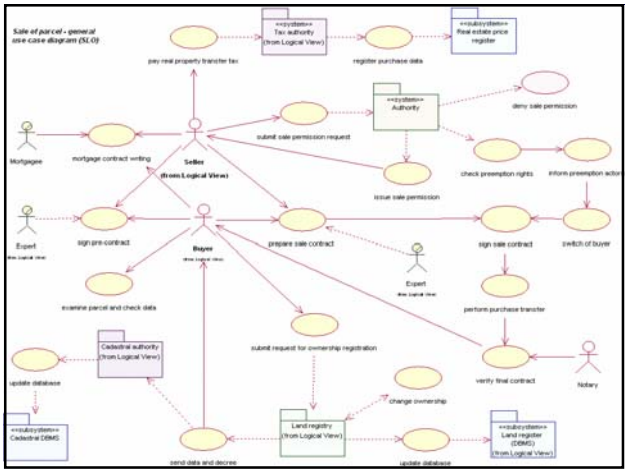

Models (transaction)

- Parallel/jointly the development Class Diagrams of cadastral core domain model (see paper TS11.1)
- Static and dynamic depiction both are too limited on their own
- Perhaps a true "domain model" needs to be more abstract and holistic:
  - combining different types of elements:

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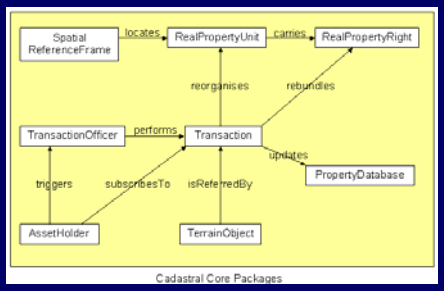

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Comparison

- In modeling diagrams were discussed with expert(s) from at least one other country (mainly during STSM's) to challenge and deepen the diagrams
- Comparisons between sets of countries
  - e.g. SLO and SE: different role of surveyor became clear
  - level of detail vs. abstraction in comparison
  - perhaps more a functional analysis (cf. EULIS)

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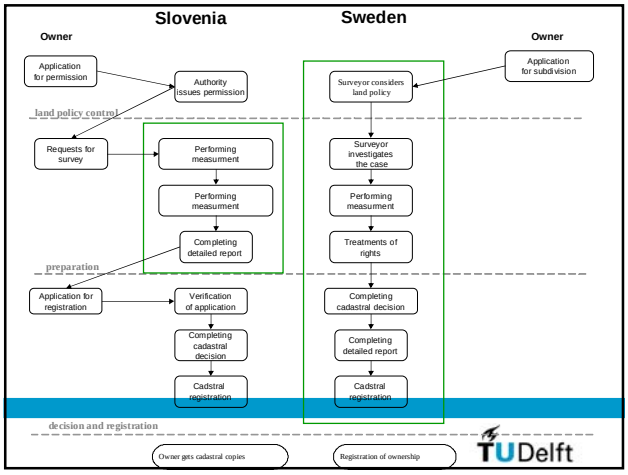

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Transparency

- Describing the process in an understandable way
- Assigning authority and responsibility for certain activities to certain actors
- Dealing with less prescriptive countries (describe a 'normal' case), esp. UK (NL, ..)

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Transparency

- Going behind the 'cadastral system':
- What objective(s) are meant to be met ?
  - reorganize rights in plot for parties
  - without compromising rights of others
  - complying spatial, environmental, agricultural laws
  - maintaining clarity in registration system
- Partly explicit and party implied, differences between countries, esp. regarding 3rd one

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Ontology

- Ontology focus of Bremen Workshop
  - provide common base for modeling
  - strong start at Bremen Workshop
- Too large difference between 'ontologists' and 'cadastralists'
- Towards a Cadastral Domain Model/Ontology
  - not as the base, but after a learning curve
  - from "UseCases to Classes and back"
  - bottom up

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Progress of Action

- Modeling completed to a large extent:
  - further formalization in some cases (eg. UML)
  - bottom up emerging ontology
  - modeling should not be the goal
    - don't keep refining
    - use the richness of the data gathered to answer research questions
      - from the Action MoU
      - new ones (e.g. risk attribution)

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Progress of Action

- UML (or other) only a tool for modeling
- Need to describe methods used → methodology (is this domain specific ?)
- Participants had very different pre-knowledge of modeling; influenced progress, esp. in comparing and underlying terminology → domain ontology

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Further Work

- every country will complete the national report
- use example cases for comparison
  - also for economic side
  - make comparison in comparable groups
- undertake iterative process to get to 'bottom up' ontology
- Action G9 will end December 2005
  - book and closing event are planned
  - ideas on continuation discussed

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References of figures (all on http://costg9.plan.aau.dk)

- slide 7: Zevenbergen, WGLawModel, 2003
- slide 9: Vaskovich, STSM-report, 2004
- slide 11: Sumrada, WG2, 2004
- slide 13: Stubkjaer, WG2, 2004 (originally ScanGIS'03)
- slide 15: Mattsson, WG2, 2004

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