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Workflows for ensuring consistency of cadastral data

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Presentation overview

- Introduction
- Databases and transaction models
- Business processes and workflow management
- Requirements for maintenance of cadastral data
- Conclusion

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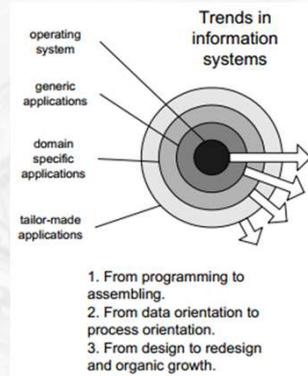


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Introduction

- **Cadastre – basis for land administration system**
- **Data model differences**
- **ISO 19152**
- **From data-driven to process-driven approach**



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Database and basic transaction model

- **Basic transaction model (BTM)**
 - Atomicity
 - Consistency
 - Isolation
 - Durability
- **Concurrent transactions**
- **BTM not suitable for cadastral transactions**



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Advanced transaction models

- **Advanced transaction models**
 - Nested transactions
 - Long lived transactions (SAGA)
 - Split/Join transactions
 - Flexible transactions
 - Polytransactions
- **Developed with purpose to mitigate deficiencies of basic transaction model**
- **ATM are too heavily dependent to a DBMS**



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Workflow management system (WFMS)

- **Workflow definition**
- **WFMS purpose**
- **WFMS disadvantages**
 - Poor support for ensuring consistency and data integrity
- **Modelling business processes**
 - UML AD
 - BPMN



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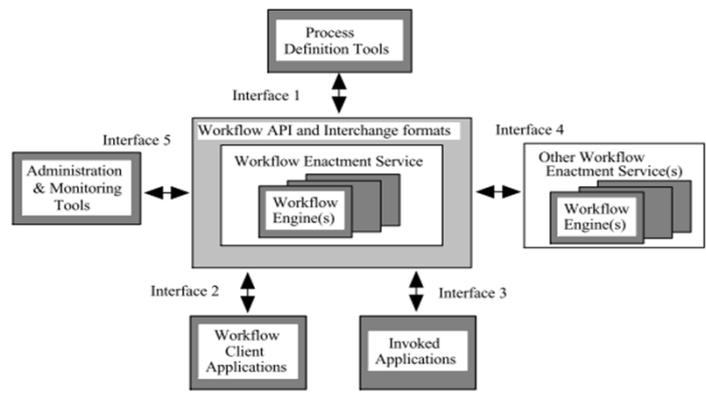




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WFMS reference model



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Requirements for maintenance of cadastral data

- Cadastral data – represent spatial extent of legal facts
- Correctness of data
- Concurrent processes
- Legal/formal rules
- Visibility of data upon successful transaction execution
- External stakeholders



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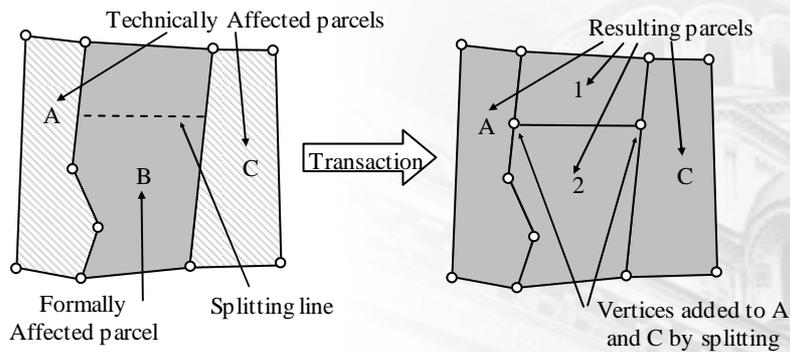




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Simple use case



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Conclusion

- **Seamless process of maintenance of cadastral data**
 - Many involved stakeholders
- **Advanced transaction models cannot fulfill this purpose**
- **WFMS lack support for ensuring consistency of cadastral data (and data in general)**
- **Combination of WFMS and transaction models**
- **Further research**
 - Formalization of correctness criteria in a cadastral WFMS
 - Definition of a model for management of concurrent processes on cadastral data



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**Thank you for your attention !
Questions ?**



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