

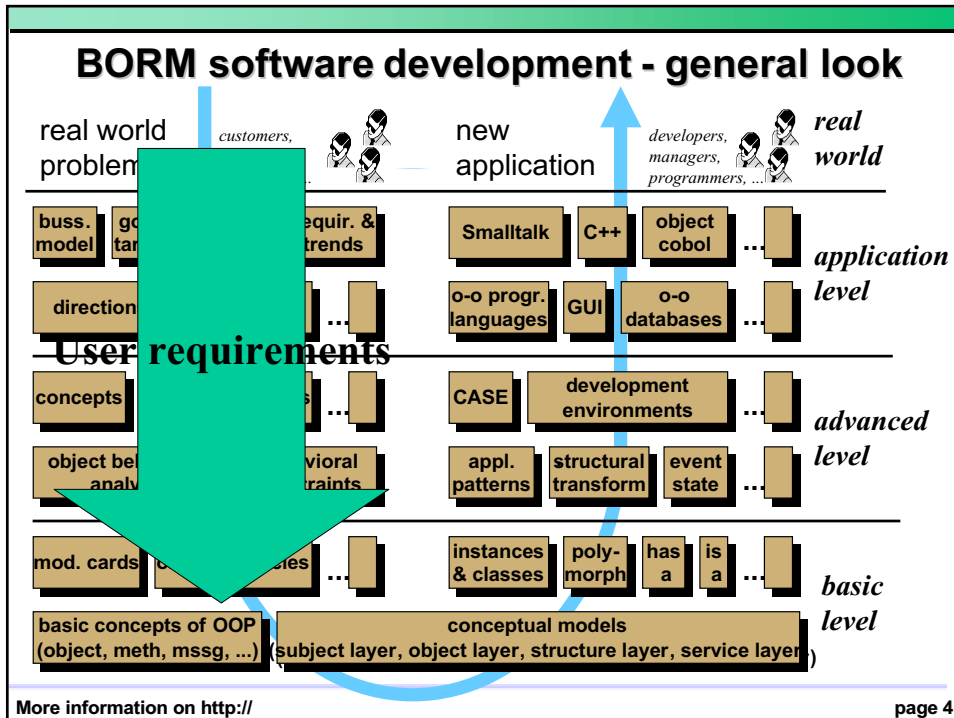
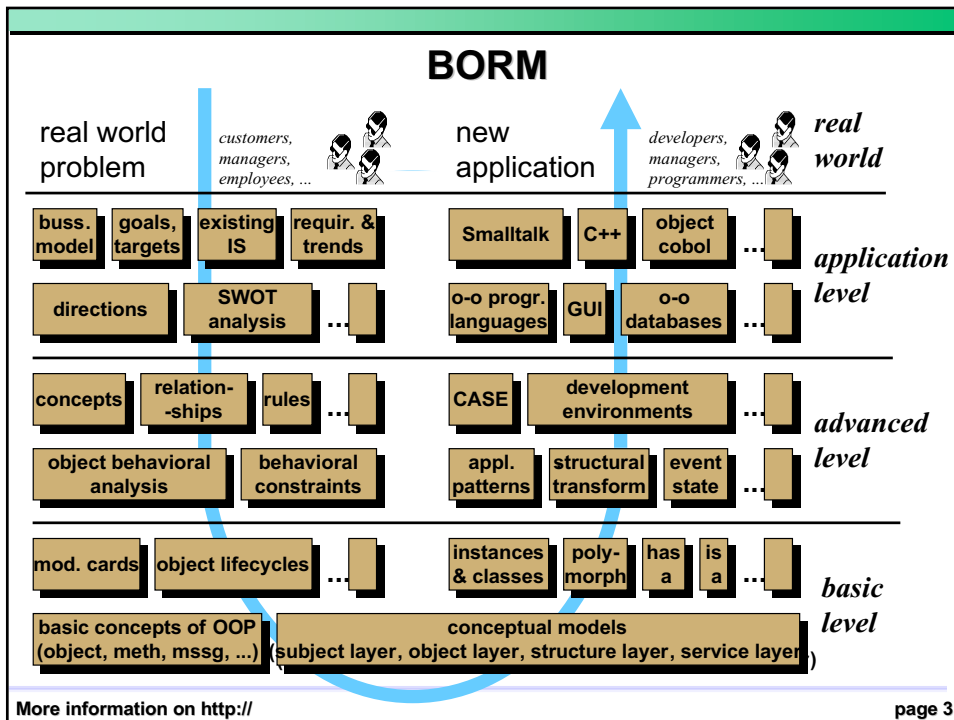
**Roger P. Knott  
Vojtěch Merunka  
Jiří Polák**

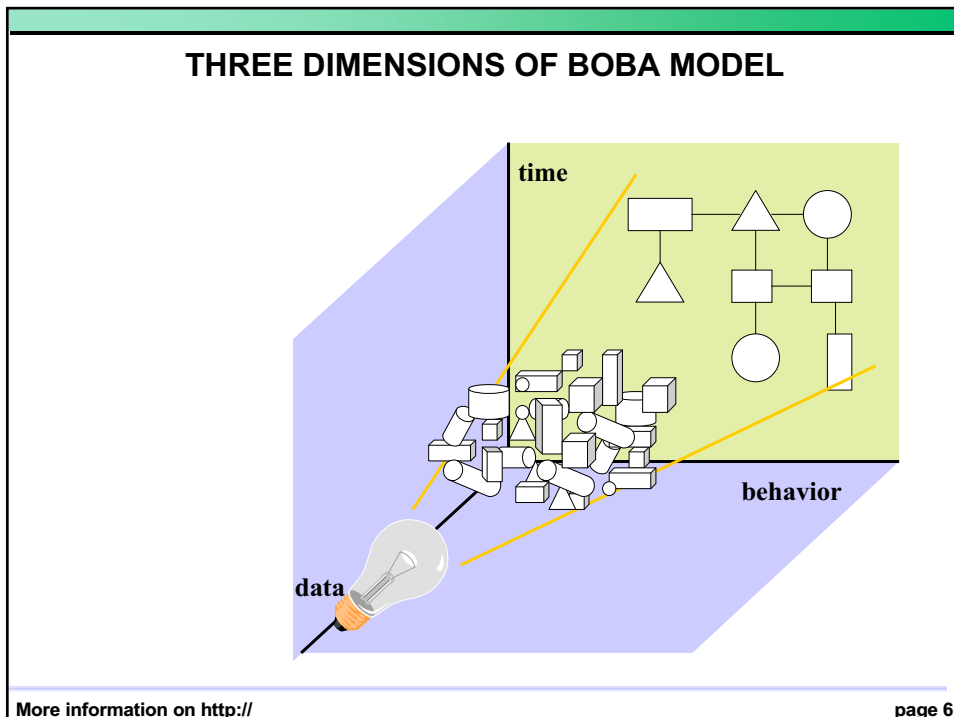
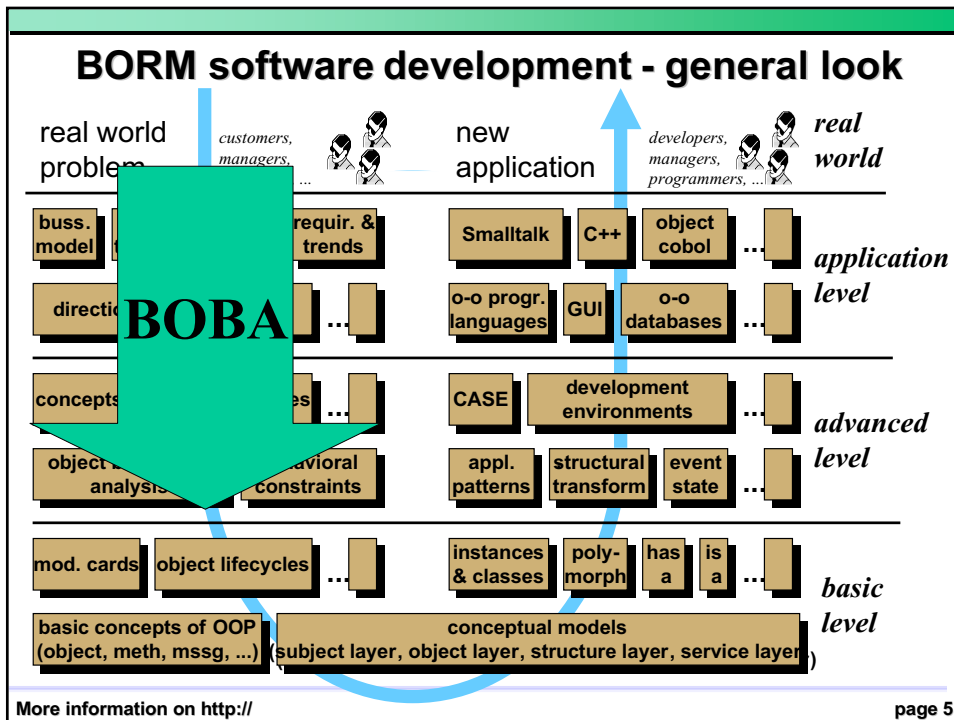
**Process Modeling  
for Object Oriented Analysis  
using  
BORM Object Behavioral Analysis**

ICRE 2000

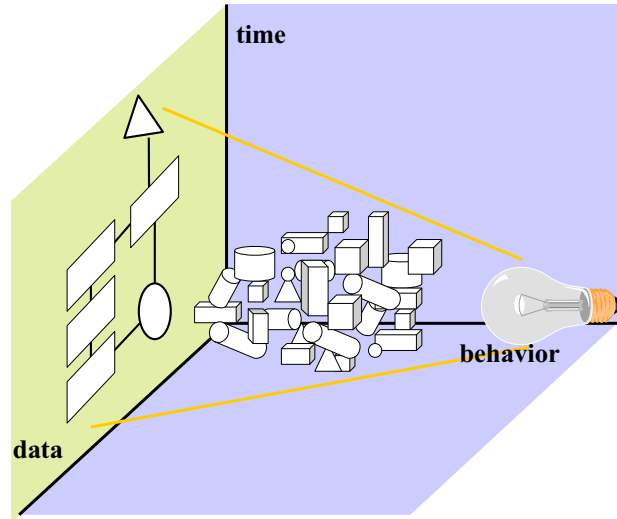
*Agenda*

- **What is BORM, BOBA?**
- **BORM compared with other methods**
- **How the method was used**
- **Conclusions**





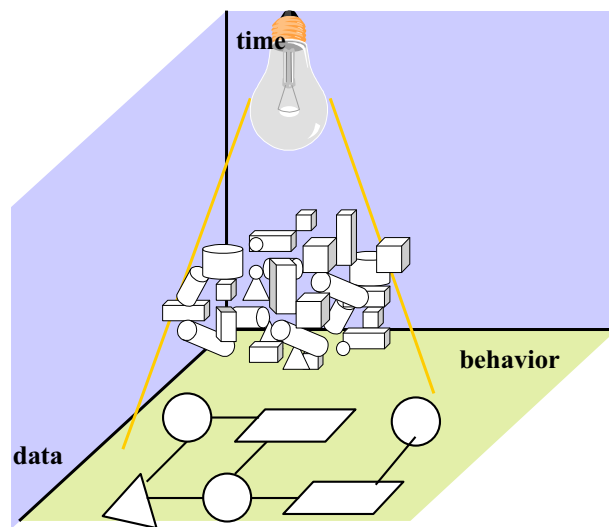
### THREE DIMENSIONS OF BOBA MODEL



More information on <http://>

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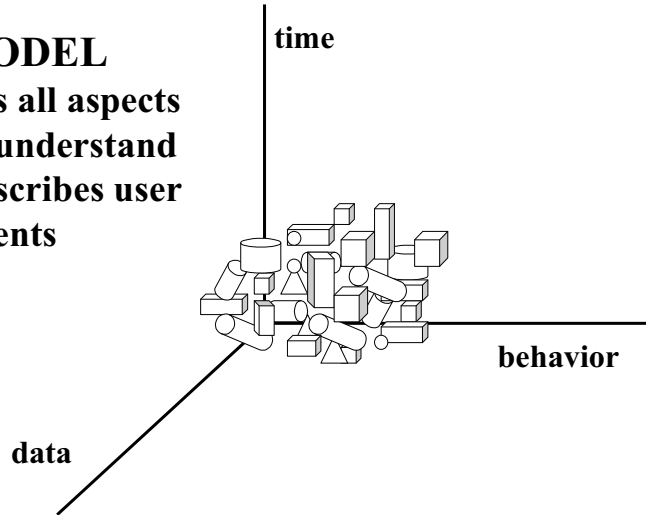
More information on <http://>

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## THREE DIMENSIONS OF BOBA MODEL

### ONE MODEL

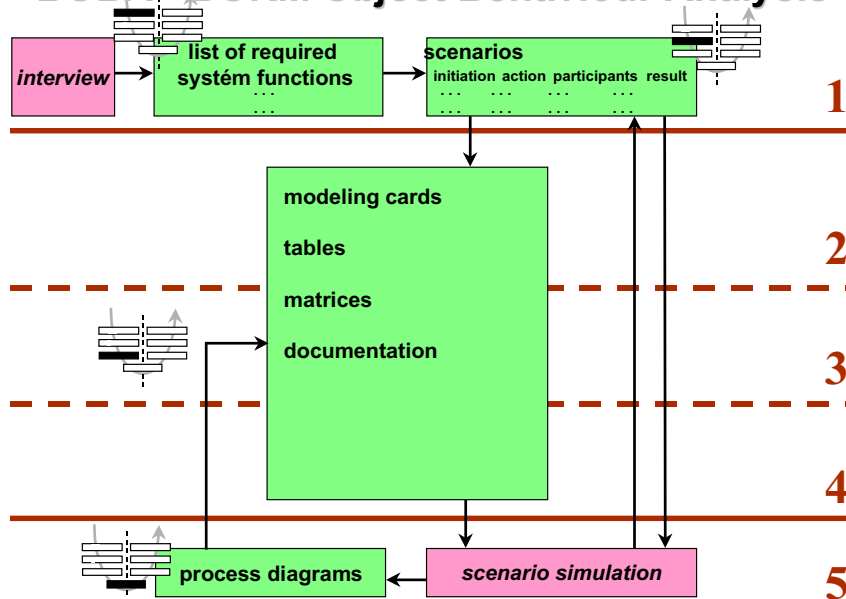
- contains all aspects
- easy to understand
- fully describes user requirements



More information on <http://>

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## BOBA - BORM Object Behaviour Analysis



More information on <http://>

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## 5 steps of BOBA method

1. step

- a) interview
- b) create list of required system functions
- c) create list of system scenarios

lists

2. step

- a) ask for participating objects in scenarios
- b) create object modeling cards

forms

3. step

- a) classify objects by their properties
- b) look for other (second-order) objects

tables

4. step

- a) describe object relations and interactions

5. step

- a) simulate and check scenarios
- b) make process diagrams

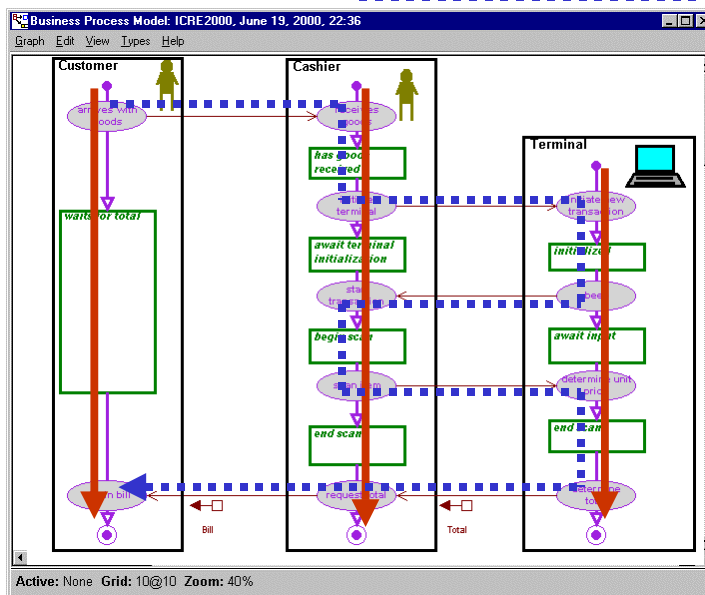
process diagrams

simulation

More information on <http://>

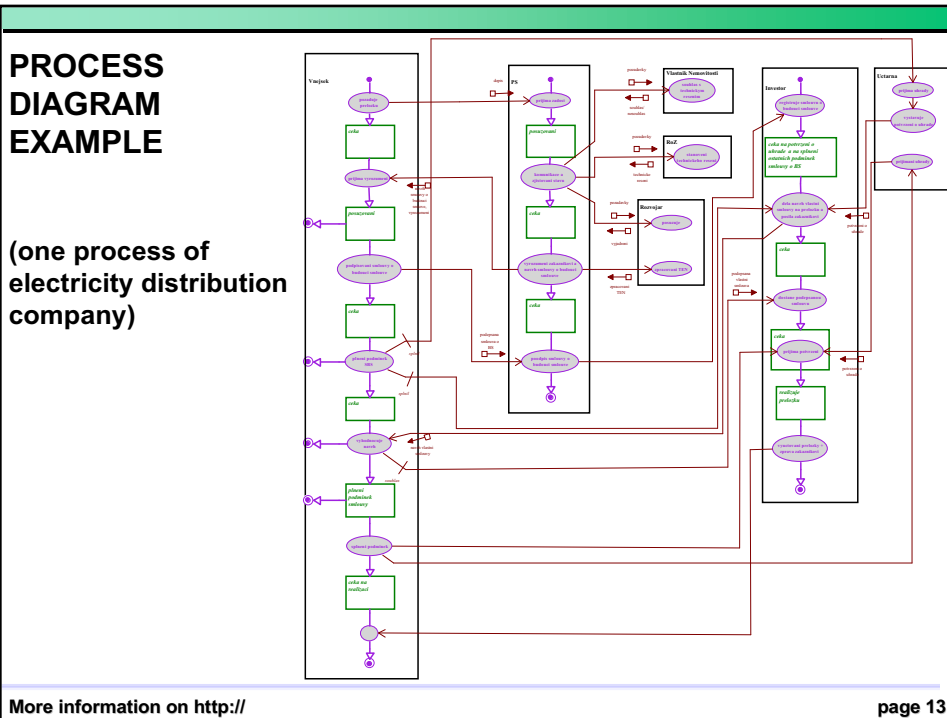
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### Example: roles of objects makes a process



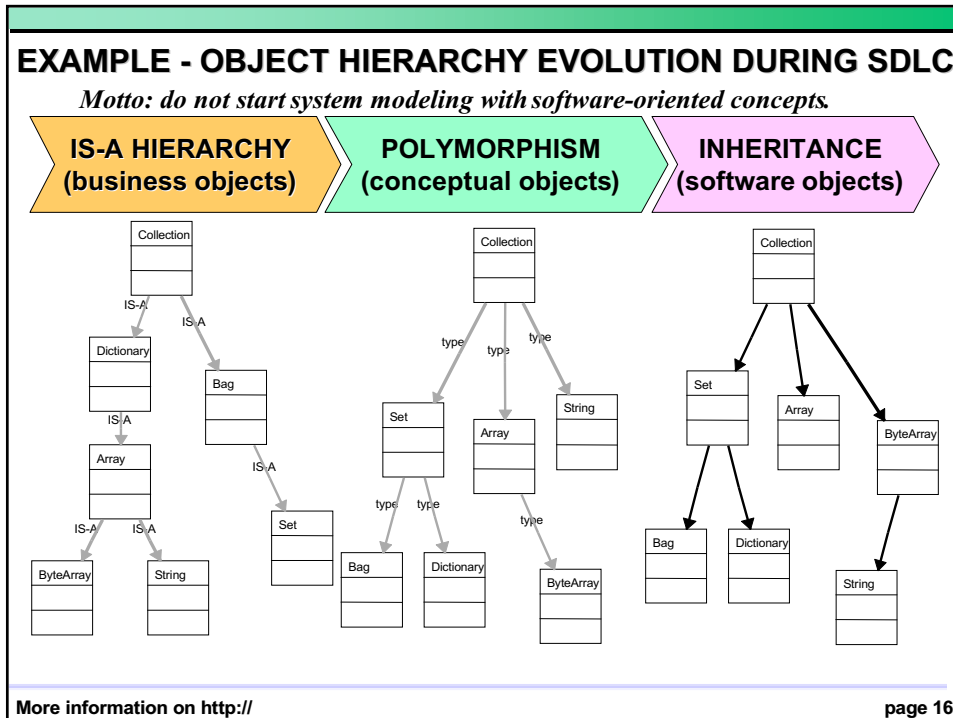
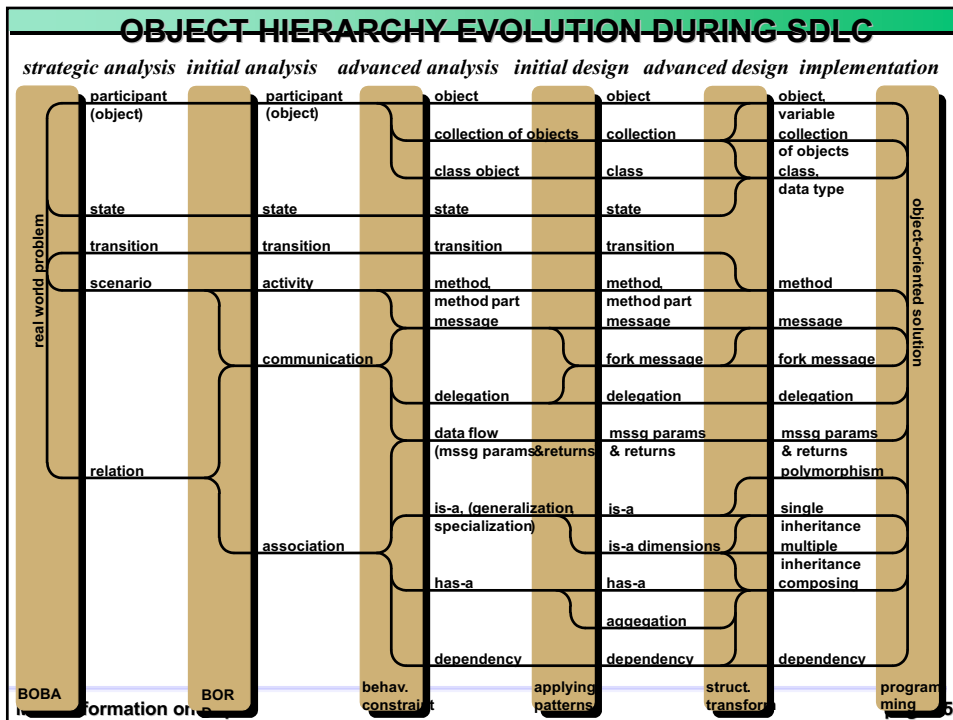
More information on <http://>

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## BOBA compared with other methods

- One diagram containing several views (this diagram incorporates several UML diagrams)
- Just-in-time concept usage (eg. late inheritance)
- Solid theoretical base on Theory of Automata
- Well defined and proven transformation techniques from business to software object
- The method contain Self correcting rules



## HOW IS BOBA USED

Project	Number of system functions	Number of scenarios	Number of process diagrams	Number of objects* (participants)	Average number of states per object	Average number of activities* per object
National agrarian chamber (analysis and design of software for fruit market public information system)	4	7	7	6	4	4
Hospital complex (BPR of organization structure)	6	12	12	8	10	12
TV and radio broadcasting company (BPR and company transformation for open market)	4	9	9	14	8	8
Regional electricity distribution company (customer information system analysis)	12	19	19	23	12	12
Regional electricity distribution company (failure handling information system analysis and prototype implementation)	19	31	34	27	13	14
Regional gas distribution company (BPR of all company)	28	81	97	210	11	12
Regional gas distribution company (BPR of all company)	23	60	63	120	12	12

\* exclusive objects in communications data flows

\*\* in BPR projects, each object activity contains approx. 6-10 additional attributes like business goal applicability, required job positions, time requirement etc

More information on <http://>

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## Conclusion

- user requirements description easily understood by domain experts
- quick (two weeks for a complex task)
- proven up to software prototype, user satisfaction
- book describing the full method, 50% done

More information on <http://>

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## **Related topics at ICRE 2000**

- Coherence of modelling tiers
- Process Framework
- Abstract State Machines
- Consistency of Scenarios and Class Models
- Prioritising Scenario Evolution
- Scenarion Evolution
- Lightweight Formal Methods