A Process Engineering Method based on a Process Domain Model and Patterns

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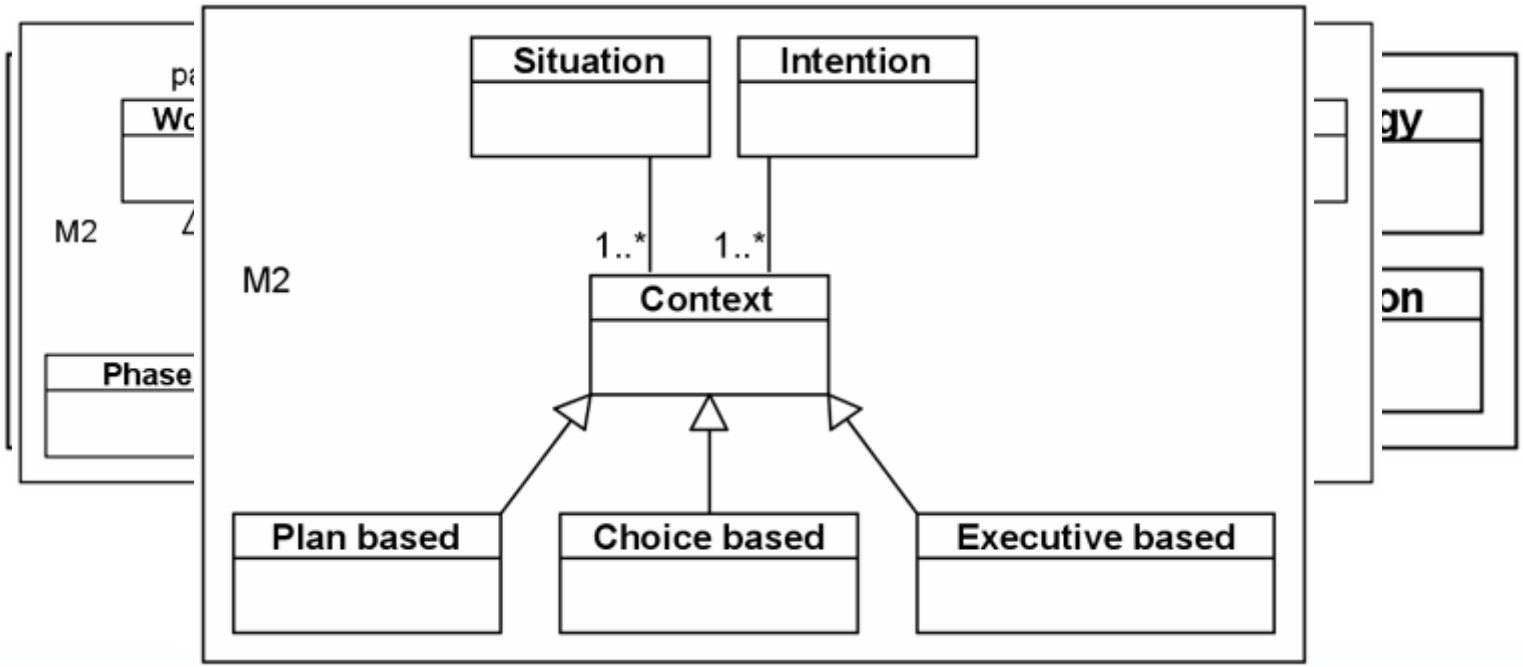
Introduction

- Process metamodels:
  - Activity oriented
  - Product oriented
  - Decision oriented
  - Context oriented
  - Strategy oriented



Introduction

- Process models and metamodels:
  - Mono-view
  - Numerous
  - Partial consensus
  - Too specific
  - Not adaptable

• Activity oriented — Activity, phase, role

IBIS (Kunz et al.,1970), Potts & Brun (1988), Potts (1989) DAIDA (Jarke et al., 1992)

• Context oriented — Situation, intention

NATURE (Rolland et al., 1995)

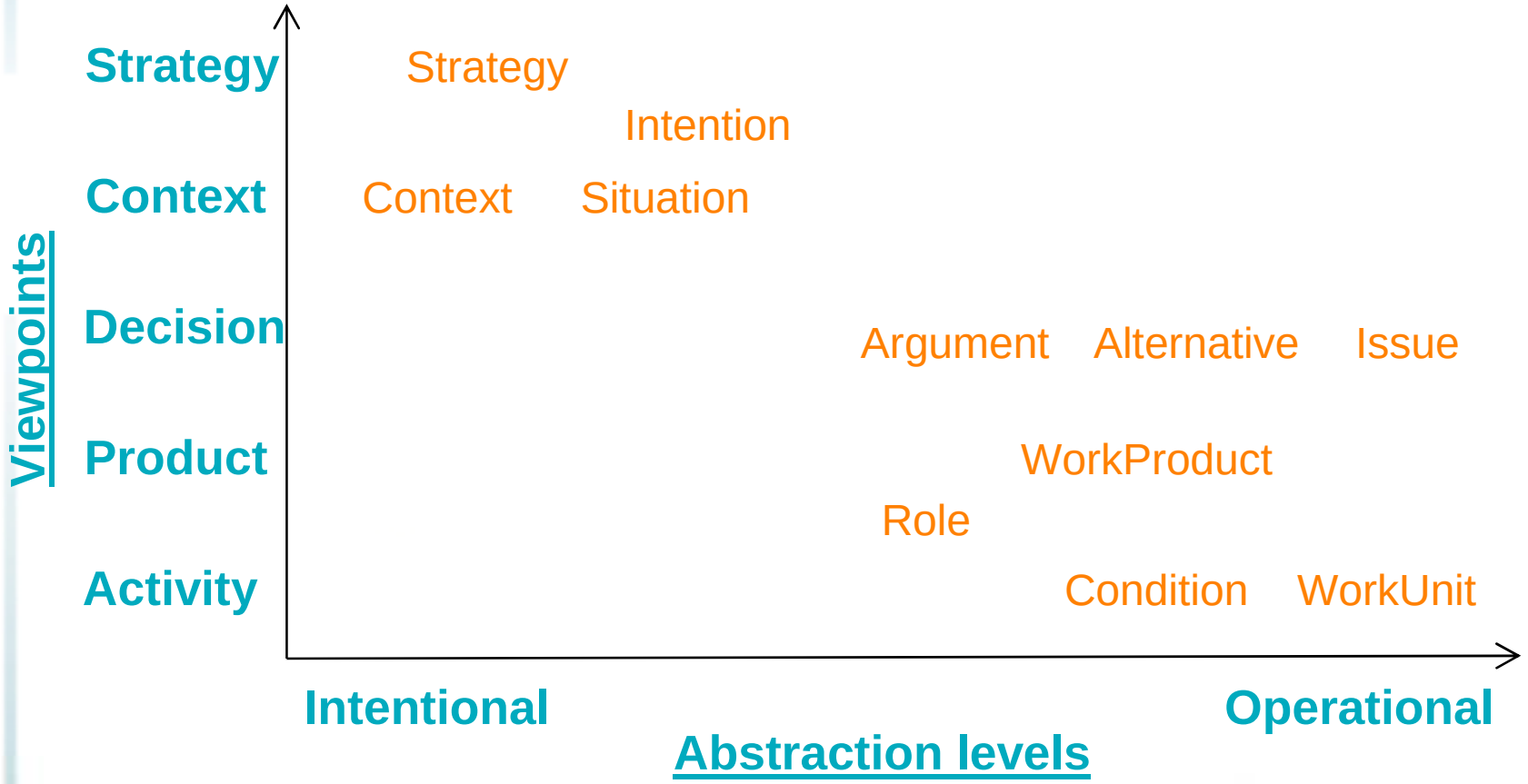
• Strategy oriented — Intention, strategy

MAP (Rolland et al., 1999)

Selection Phase

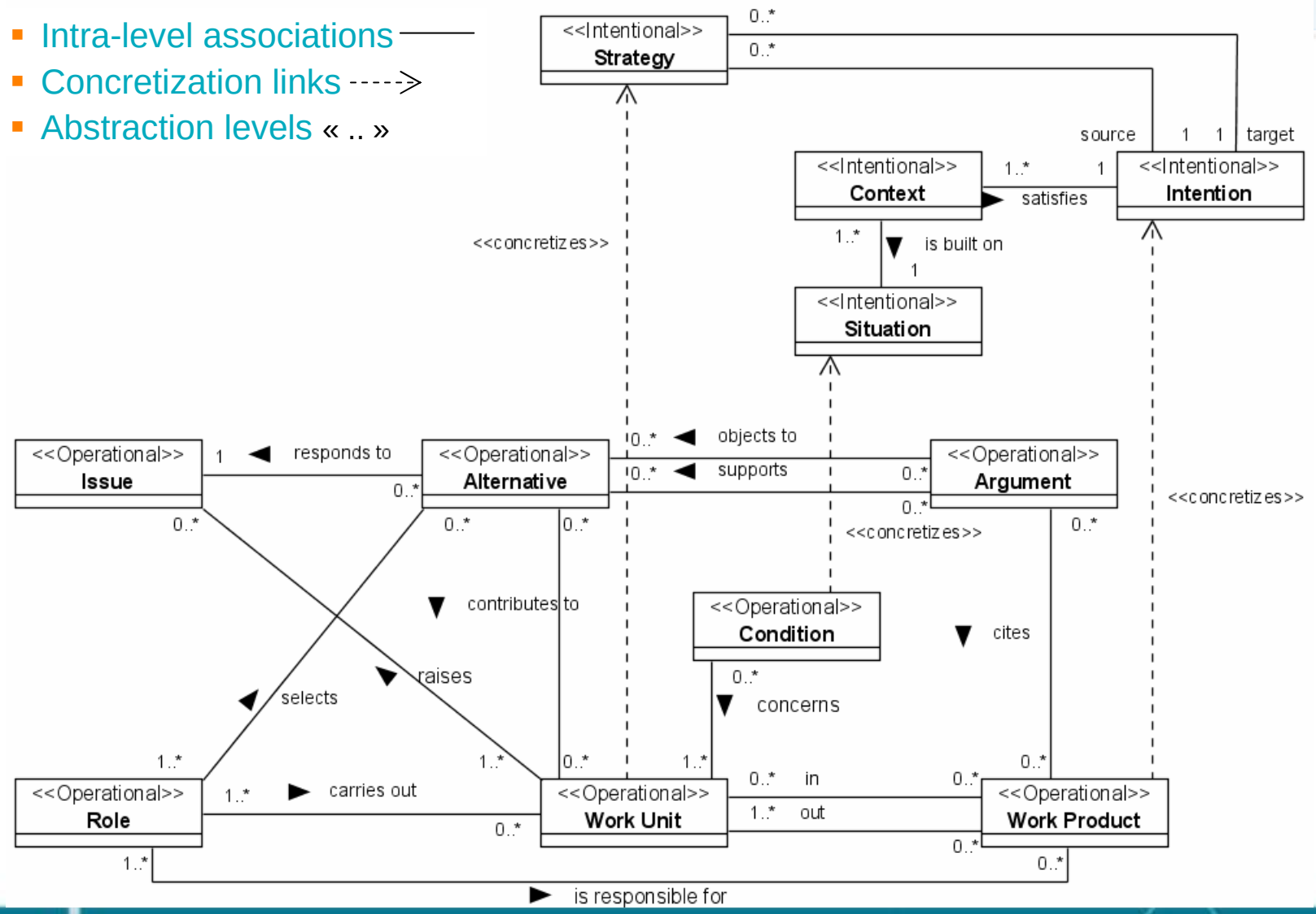
Hypothesis

- Different viewpoints of the same process
- Different abstraction levels



Process domain model

- Intra-level associations ——
- Concretization links ----->
- Abstraction levels « .. »



Selection phase

- In: the process domain model
- Selection of the concepts thanks to a questionary

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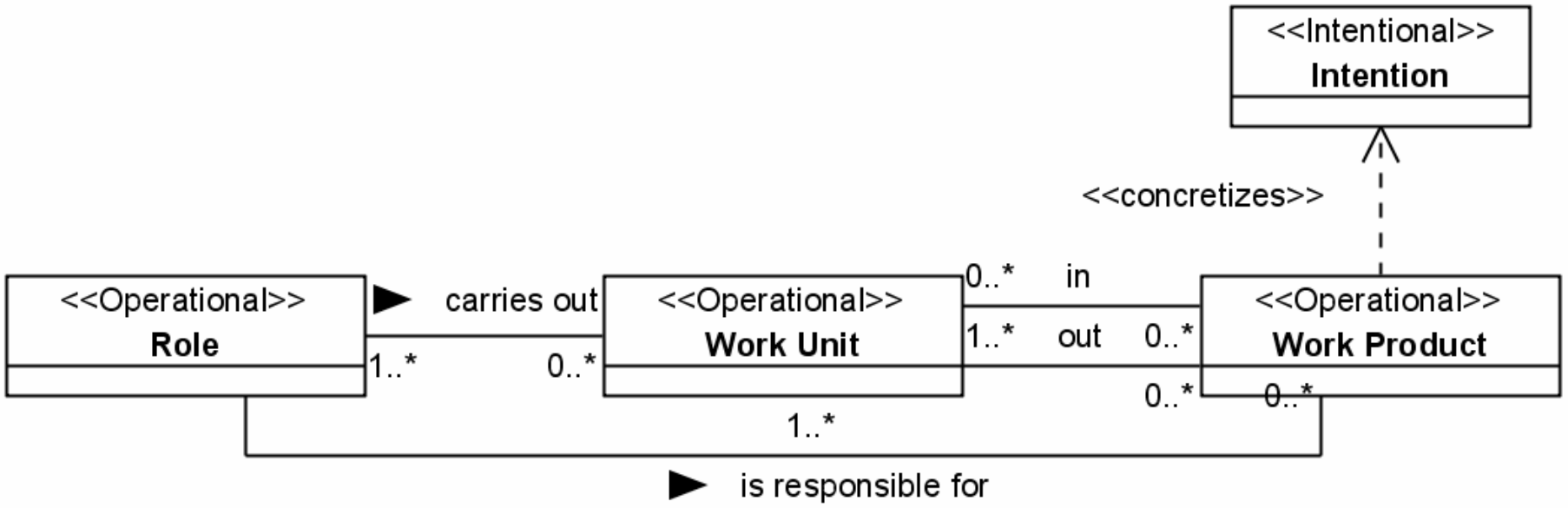
– Need to represent a ... of that ...

Selection phase

- Example of a draft process metamodel:
  - Intention (requirement 1)
  - Work Unit (requirement 2)
  - Work Product (requirement 3)
  - Role (requirement 2)
  - Associations and concretization links



Selection phase

- Requirements incomplete:
  - Intention composition (requirement 1)
  - Work unit composition (requirement 2)
  - Distinguish phase from activity (requirement 2)

- Refinement phase to complete the draft process metamodel

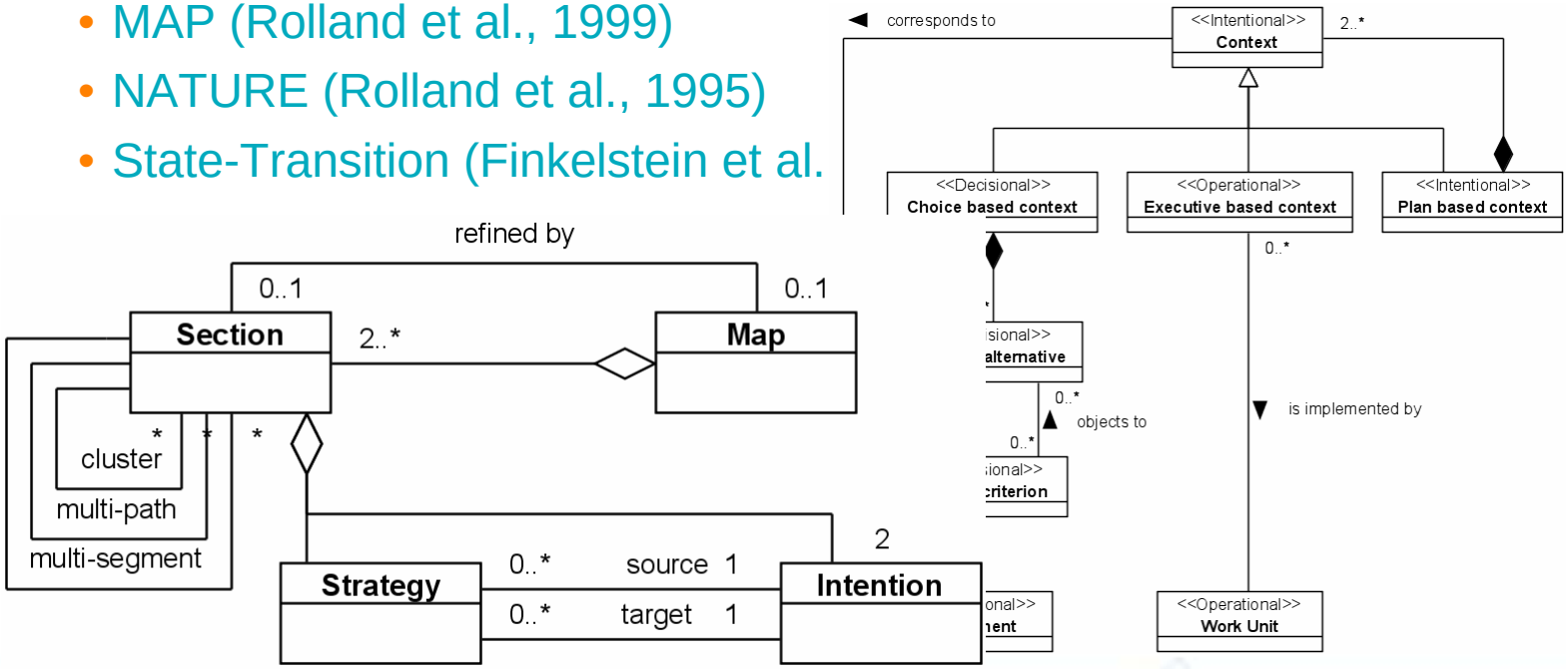
Refinement phase

Refinement phase

- In: draft process metamodel
- Reuse of patterns
- Add/delete associations
- Out: process metamodel

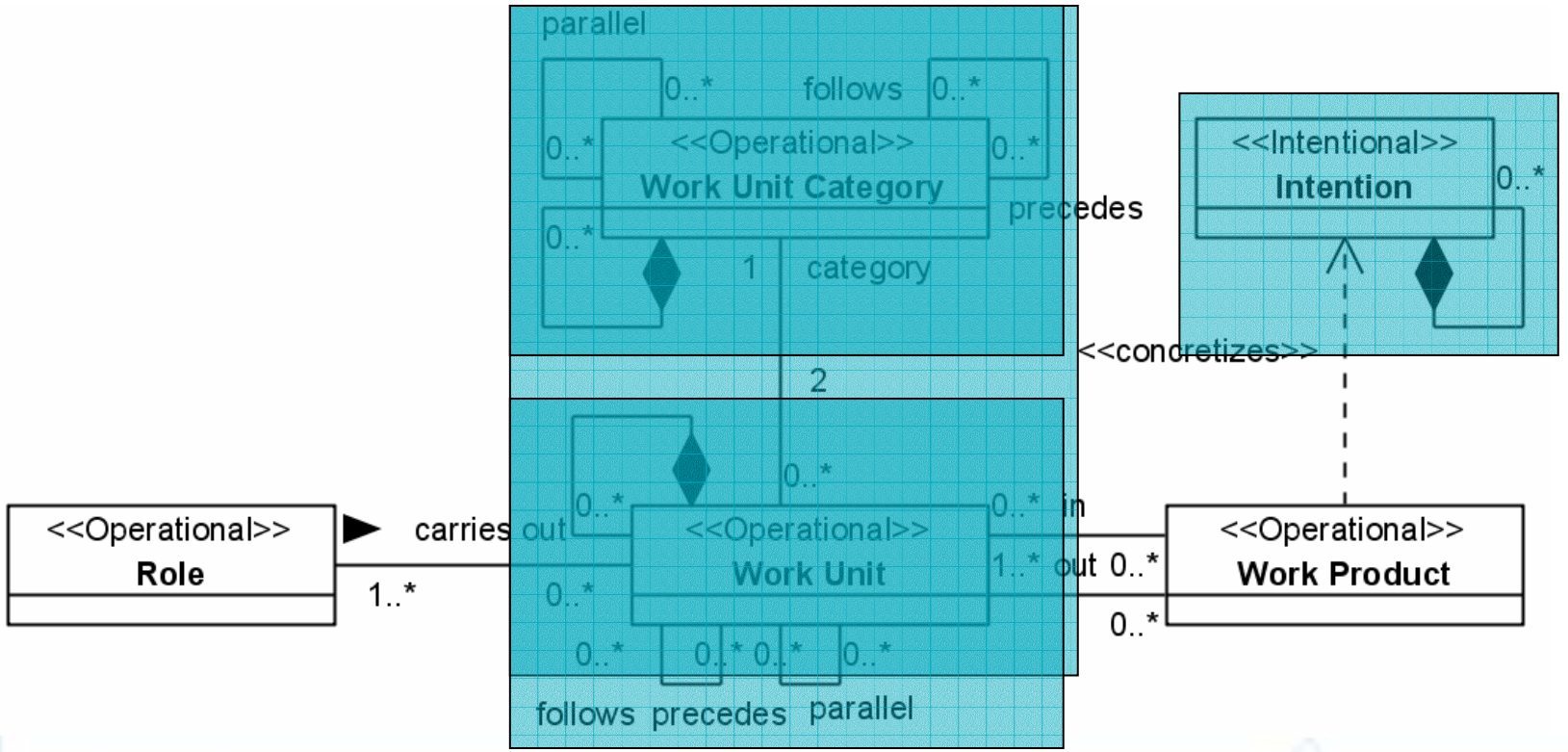
Patterns

- Patterns are used to enrich the draft process metamodel
- Patterns can be:
  - Design patterns:
    - Composite (Gamma et al., 1995)
    - Concept - Concept Category (Hug et al., 2007)
  - Business patterns= process metamodel fragments:
    - MAP (Rolland et al., 1999)
    - NATURE (Rolland et al., 1995)
    - State-Transition (Finkelstein et al.



Refinement phase

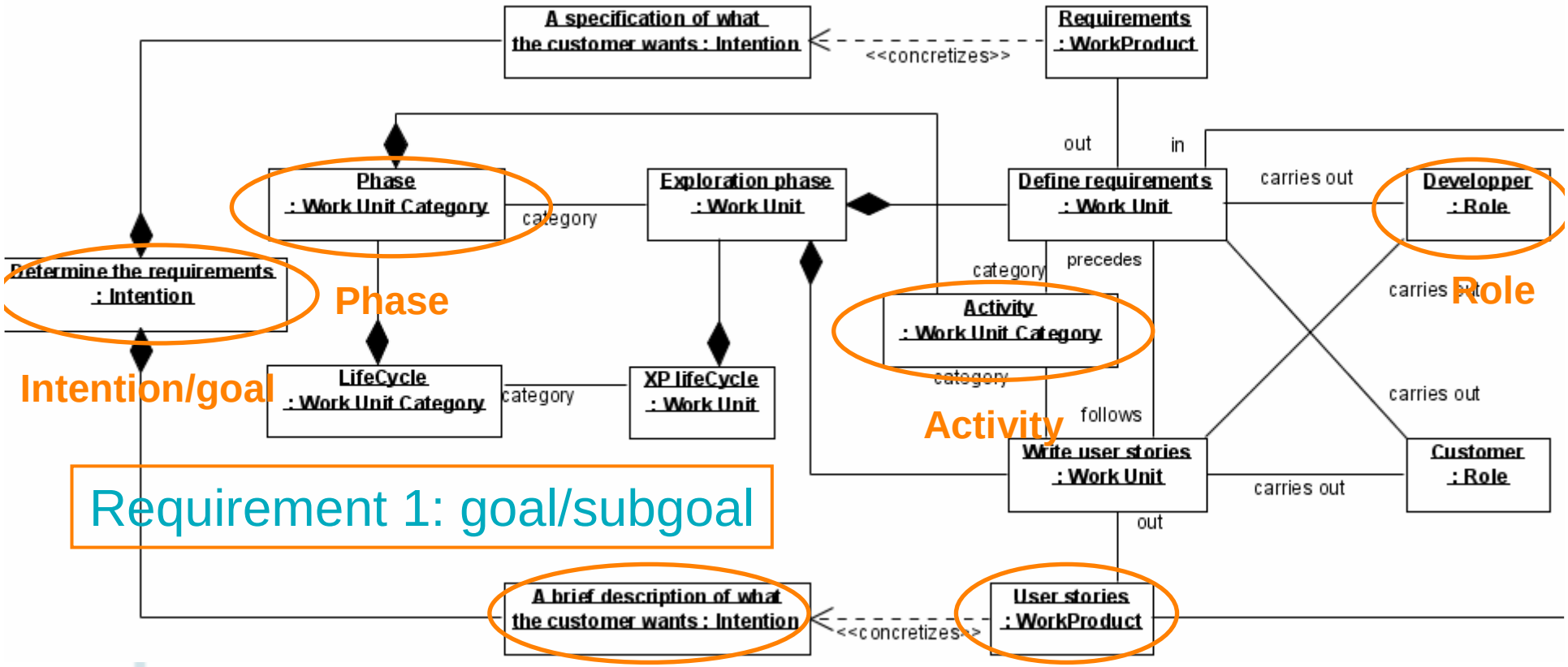
- The final process metamodel:
  - "Concept – Concept category" pattern (requirement 2)
  - Add compositions (requirements 1 and 2)
  - Add new associations (parallel, follows-precedes)



Instantiation

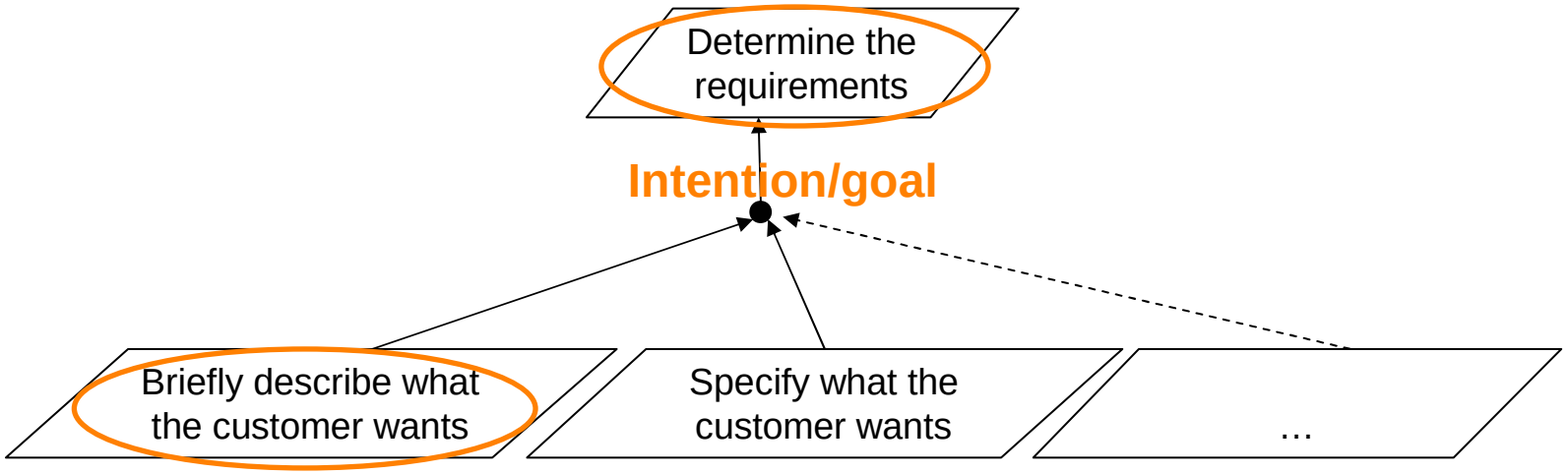
Instantiation

- Extract of the process model containing the XP model with intentional level, represented as an object diagram



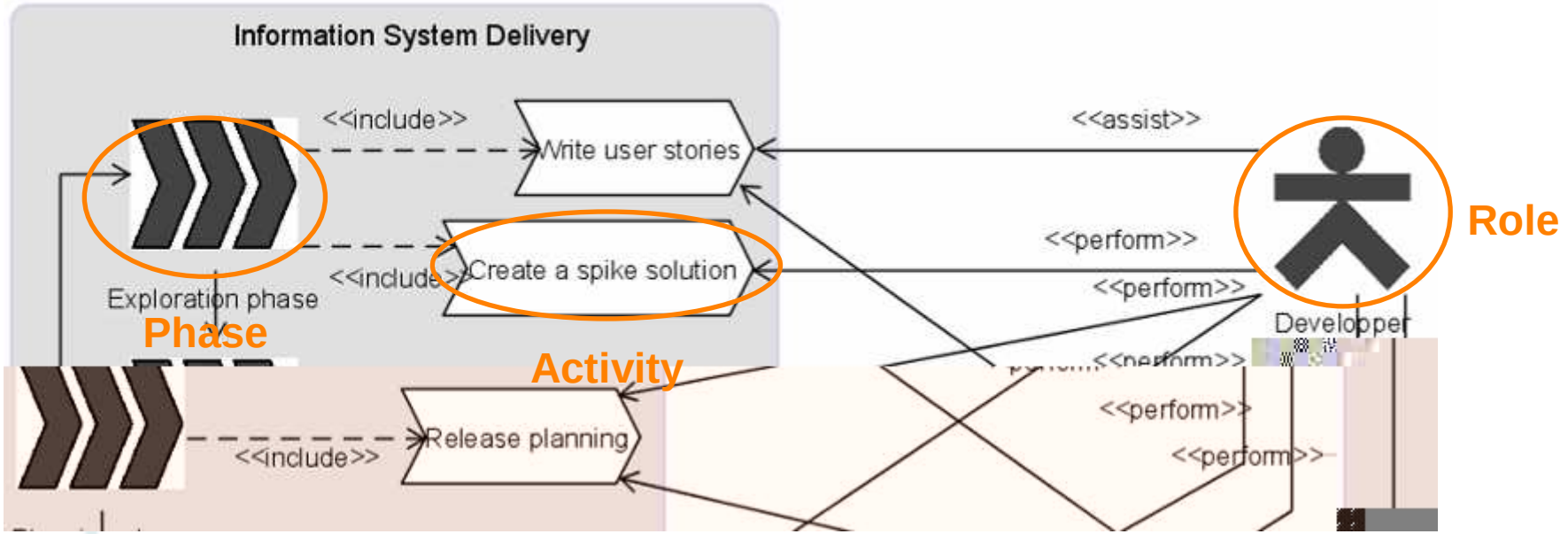
Instantiation

- Extract of the intentional abstraction level process model represented using the KAOS formalism (Cediti, 2003)



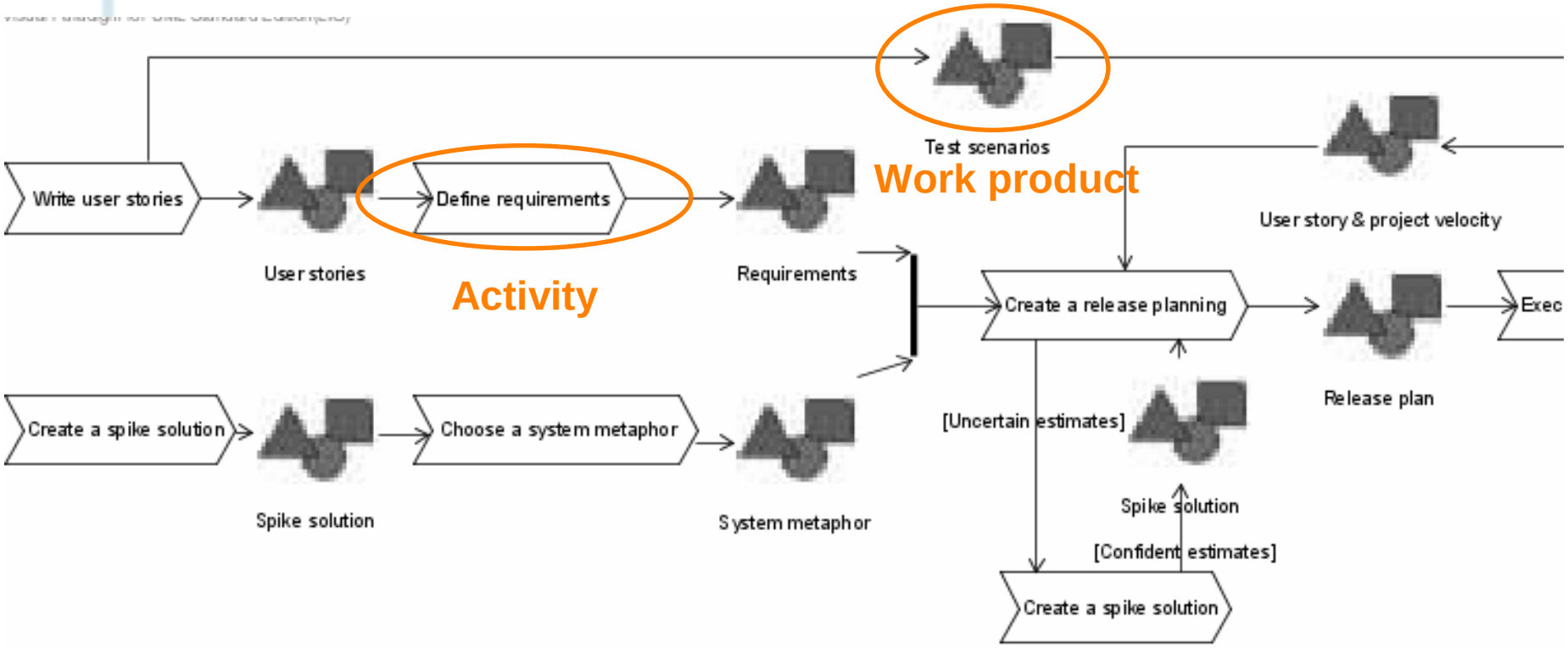
Instantiation

- Extract of the operational level process model represented as a use case diagram using the SPEM formalism (OMG, 2007)



Instantiation

- Extract of the operational abstraction level process model represented as an activity diagram using the SPEM formalism (OMG, 2007)



Conclusion and further works

Further works

- Validation of the process metamodels obtained.
- Find other metamodelling patterns for information systems process engineering
- Implement a process engineering tool based on:
  - Our process engineering method,

using:

  - Workflows
  - AGAP

Any question?