



# University of Twente

## Goal-Oriented RE for e-services

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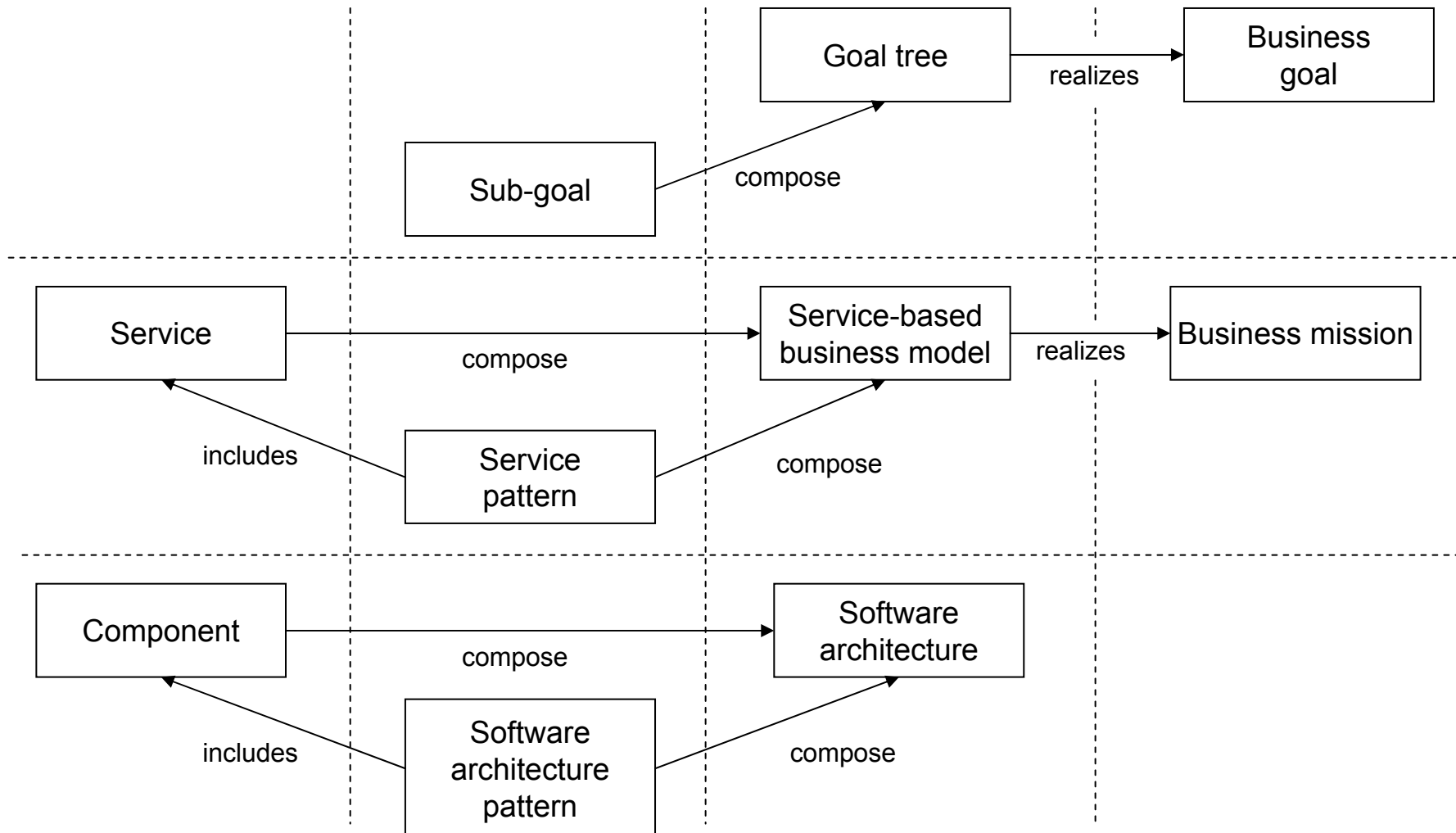
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# Research goal

- Find software architecture patterns for e-intermediaries
  - Identify e-intermediation service patterns
  - Link these to business goals
  - Identify architecture patterns to support service composition

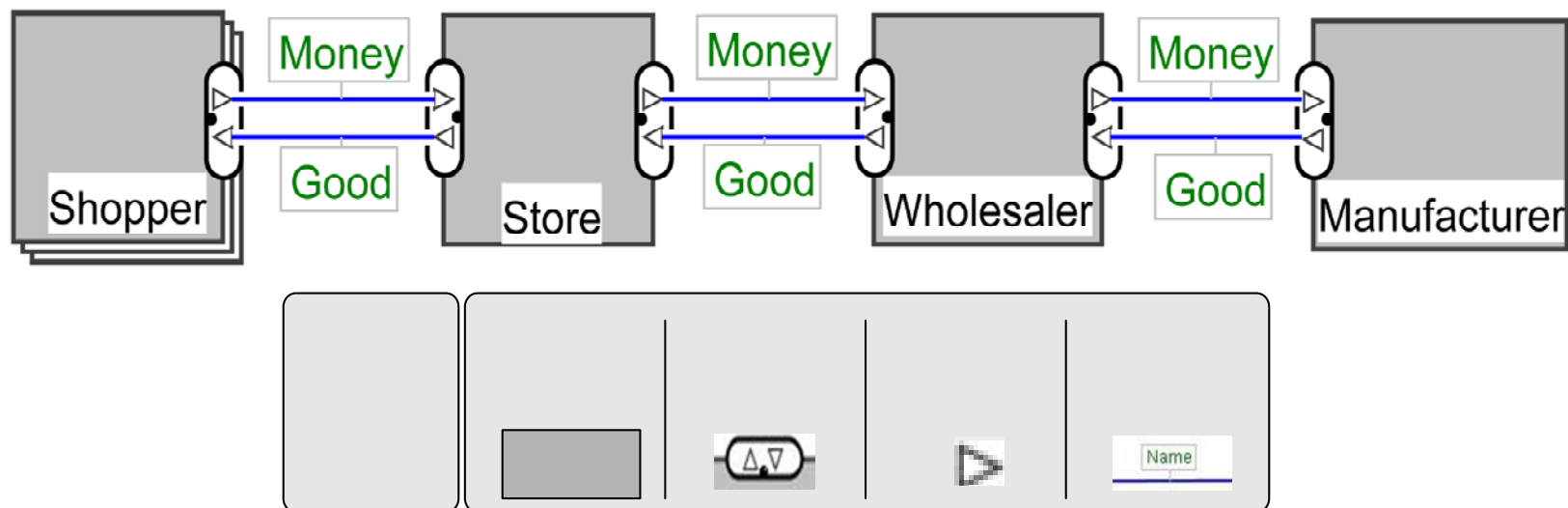
# Research Framework



# Goal of this paper

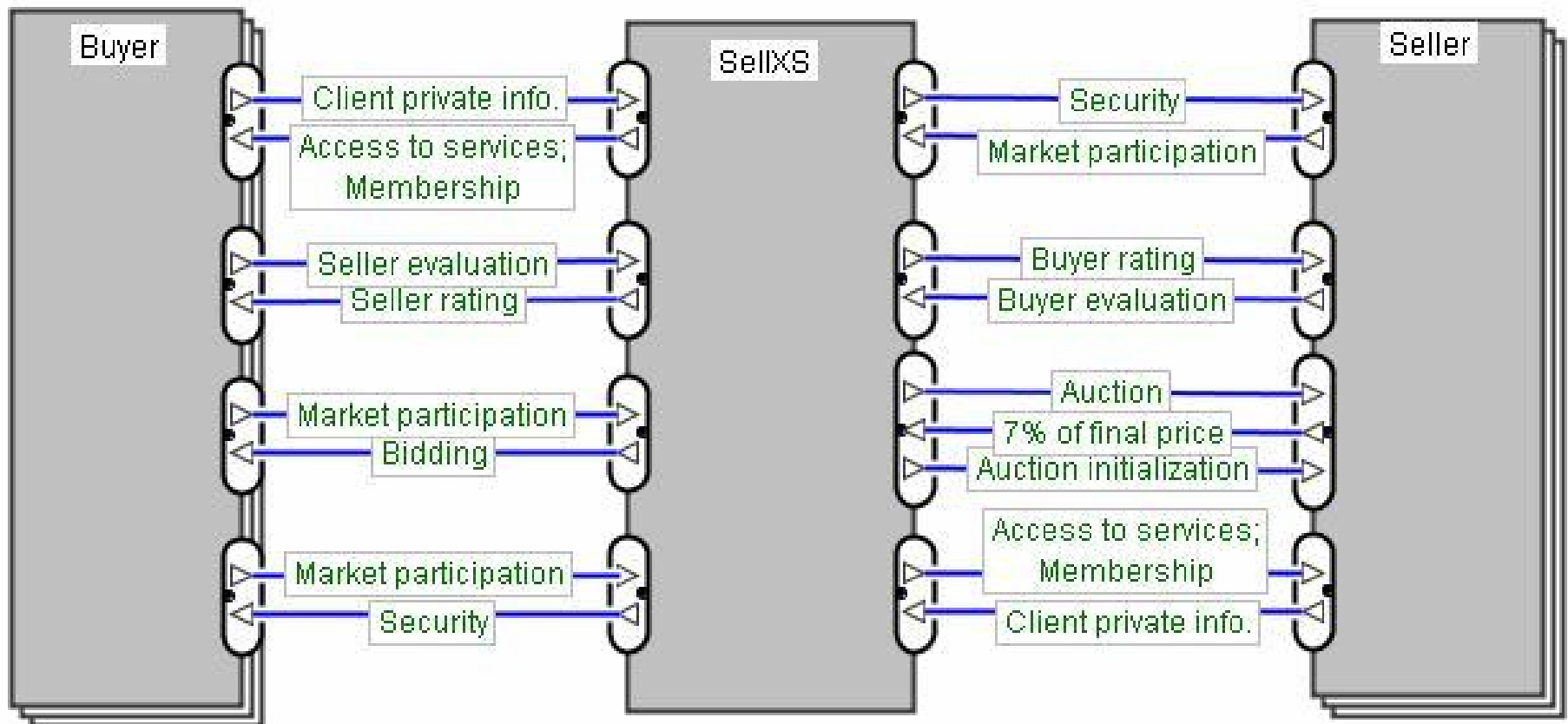
- To compose e-intermediation business models from patterns
- Research method:
  - Surveyed types of businesses to identify patterns
    - Conflict resolution (9 cases)
    - Negotiation decision support (2 cases)
    - Auctioneer (6 cases)
    - Price discoverer (1 case)
    - Price comparator (1 case)
  - Compose business models with these patterns using goal-oriented RE

# Representing a service-based business model by a value model ( $e^3$ -value method)





# Intermediary example



# Pattern template

We specify a pattern with the following fields:

- Name
- Headline
- Context
- Goal/Problem
- Solution
- Value exchanges
- Intermediation service
- Value-based model
- Variations
- Occurred in



# Pattern example

Name	Registration
xxx	
xxx	
Goal/Problem	An intermediary wants to know its clients in order to identify them, to keep track of their transactions and to offer them better-targeted services.
xxx	
xxx	
xxx	
Value-based model	<pre> graph LR     Client[Client] -- Client information --&gt; Intermediary[Intermediary]     Intermediary -- Access to services --&gt; Client         </pre>
xxx	

# Goal-oriented business model composition: Example

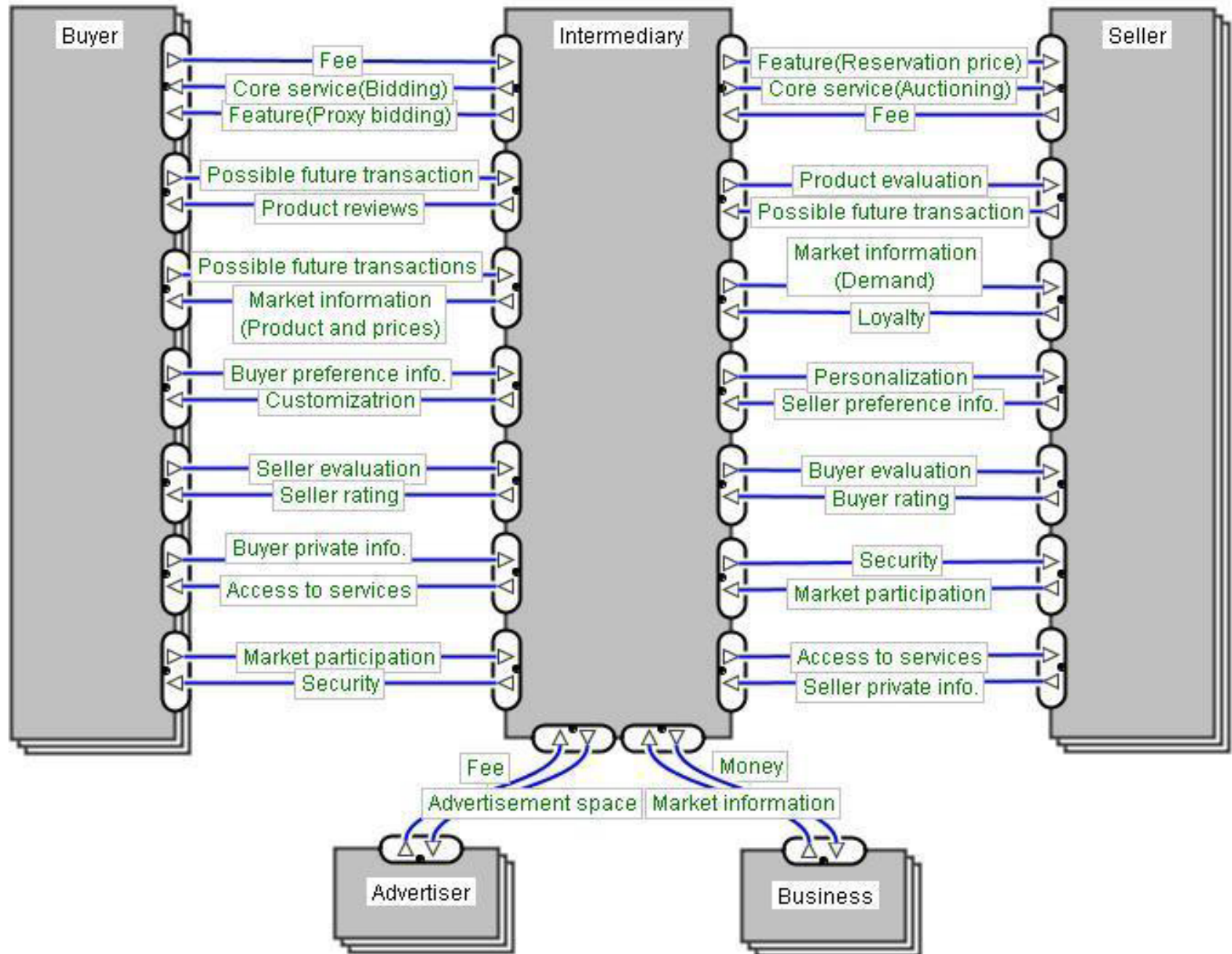
There is a new market for products P, Q and R. In this market, it is economically viable to execute transactions through an intermediary. The goal is to mediate at least  $A\%$  of the transactions in the market. The intermediary is required to use an auction mechanism for price determination.



# From goal tree to business model

- Match subgoals with pattern goals
  - Done by a person
  - Many-many matching
- Copy matching patterns to leafs
- Remove duplicates
- Unify actors

# Composed business model



# Consolidate the value exchanges

- Specialize abstract value objects to the concrete business case
- Remove superfluous exchanges
- Remove conflicting exchanges
- Add missing exchanges



# Summary

- Identified e-intermediation services by surveying web & literature
- Extracted e-intermediation service patterns
- Showed how they can be composed into e-intermediation business models in a goal-oriented way

# Further work

- Improvement
  - Find guidelines for matching
  - $e^3$ -value profitability computations to guide choices
- Validation
  - More examples (“simulations”)
- Extension
  - Design & validate software components for services
  - Component composition mechanisms
  - Identify component architecture patterns

# Research Framework

