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Open  
COllaboration for  
POlICY MOdelling



# Policy Analysis and Modelling based on Stakeholder Evidence

tGov workshop with FP 7 projects, 9th May 2012

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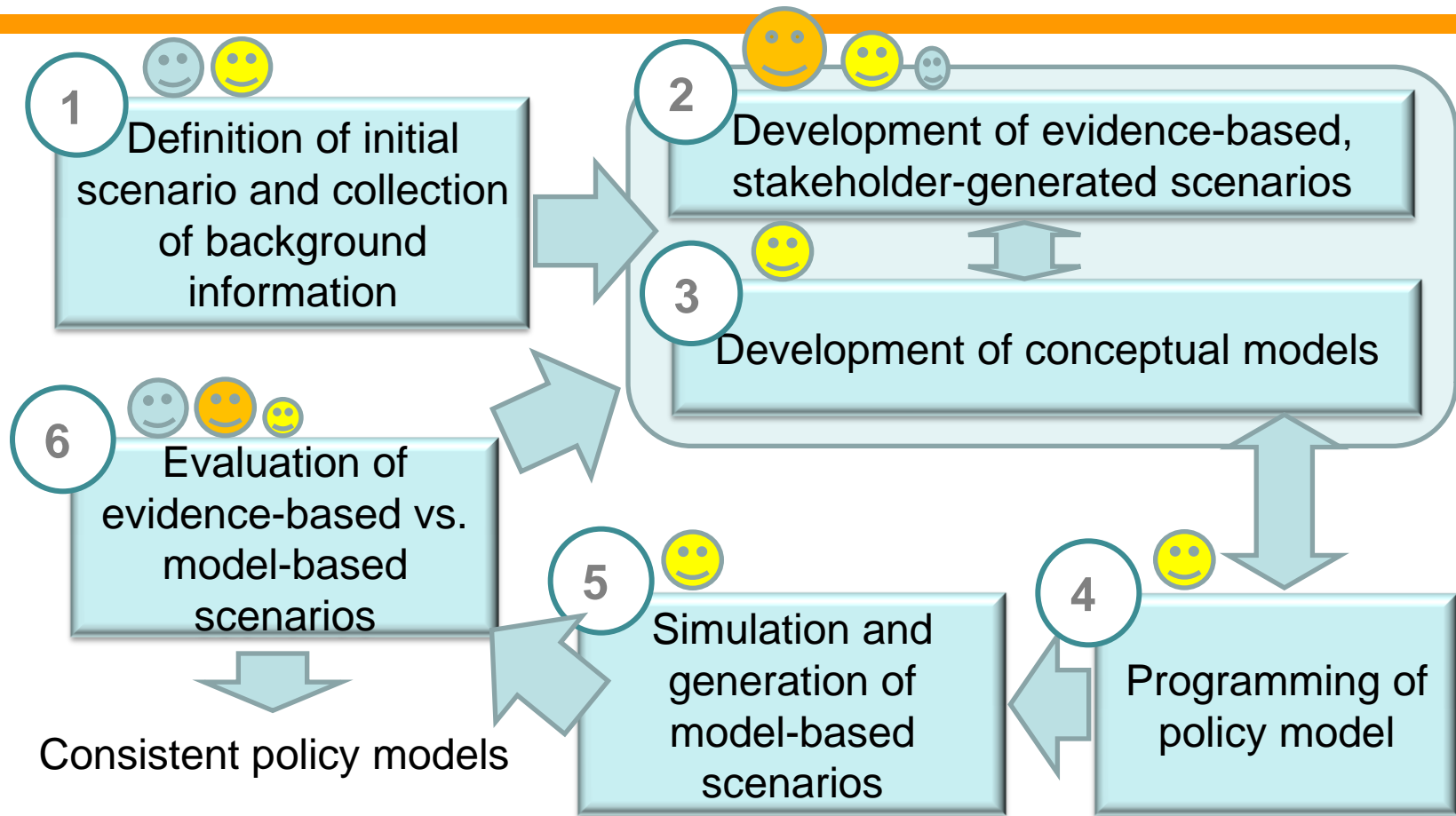


# Aims of OCOPOMO Project



- ❖ Support key stakeholders to participate in the processes of policy formulation
  - Policy analysts, policy operators, wider stakeholder groups of specific policy domains
- ❖ Integrate methods and tools of scenario-based policy formation with formal policy modelling
- ❖ Develop an integrated ICT platform for efficient policy making
  - Mechanisms of open collaboration along the policy process
  - Supporting engagement of wide stakeholder groups

# OCOPOMO's Integrated Policy Process and Involved Actors



Legend:



Process phase

Actors:



Domain Experts (Policy Planner / Strategic Decision Maker)



Stakeholders involved



Experts for Policy Analysis / Policy Modelling



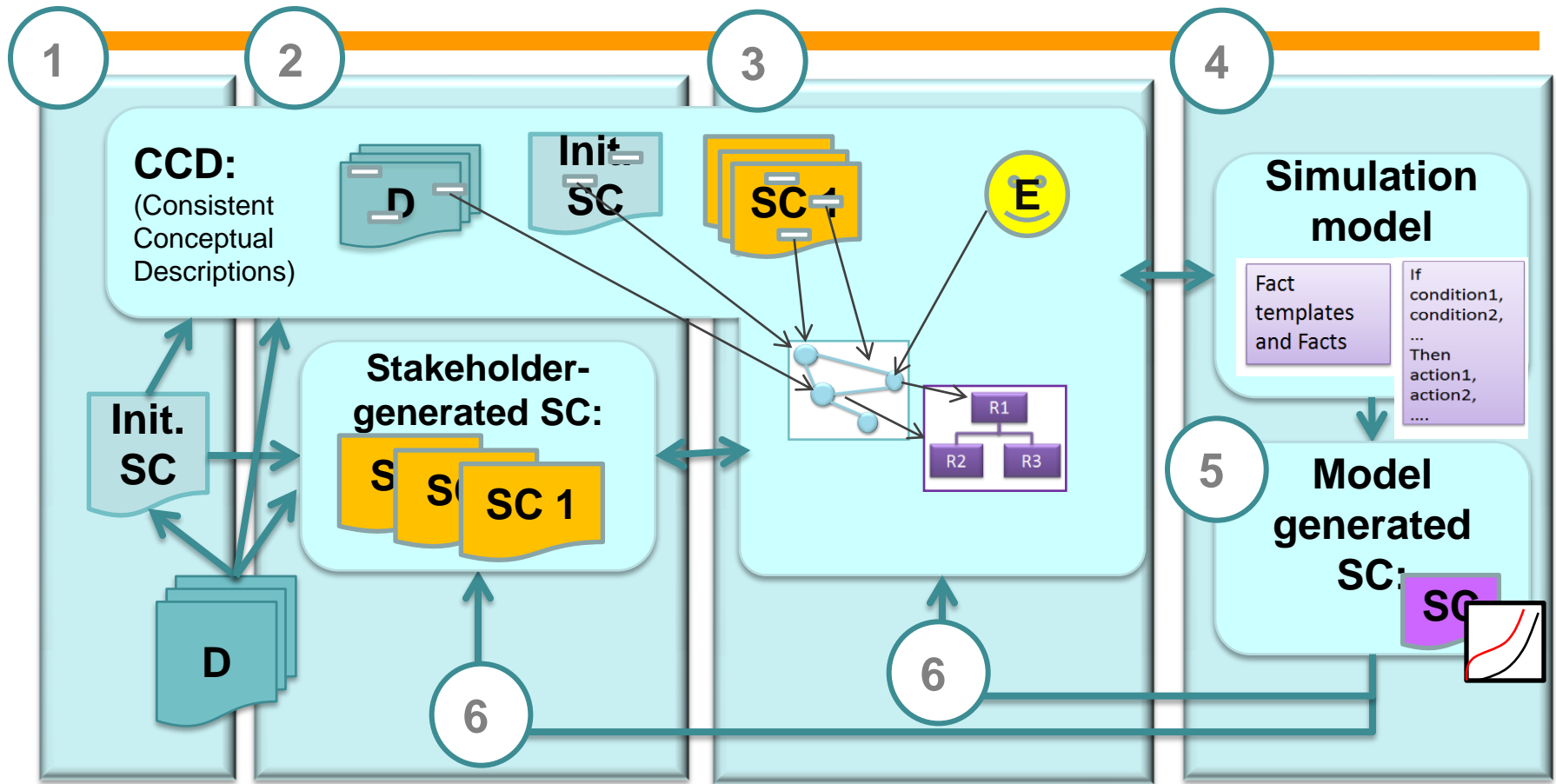
Transition to next phase

# Integrating Scenarios and Formal Policy Models



- ❖ Goals, scope and social processes specified by participating stakeholders
- ❖ Stakeholder-generated scenarios inform formal policy model design
- ❖ Models produce simulations, which result in model-based scenarios
- ❖ Participating stakeholders evaluate model generated scenarios
  - Surprises involve further investigation of model & scenarios
  - Iterations in developing formal policy models

# Artefacts along the Process Phases



Legend:



Process phase



Information flow



Information flow detailed steps



Expert knowledge



Documents



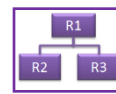
Scenarios



Relevant aspect



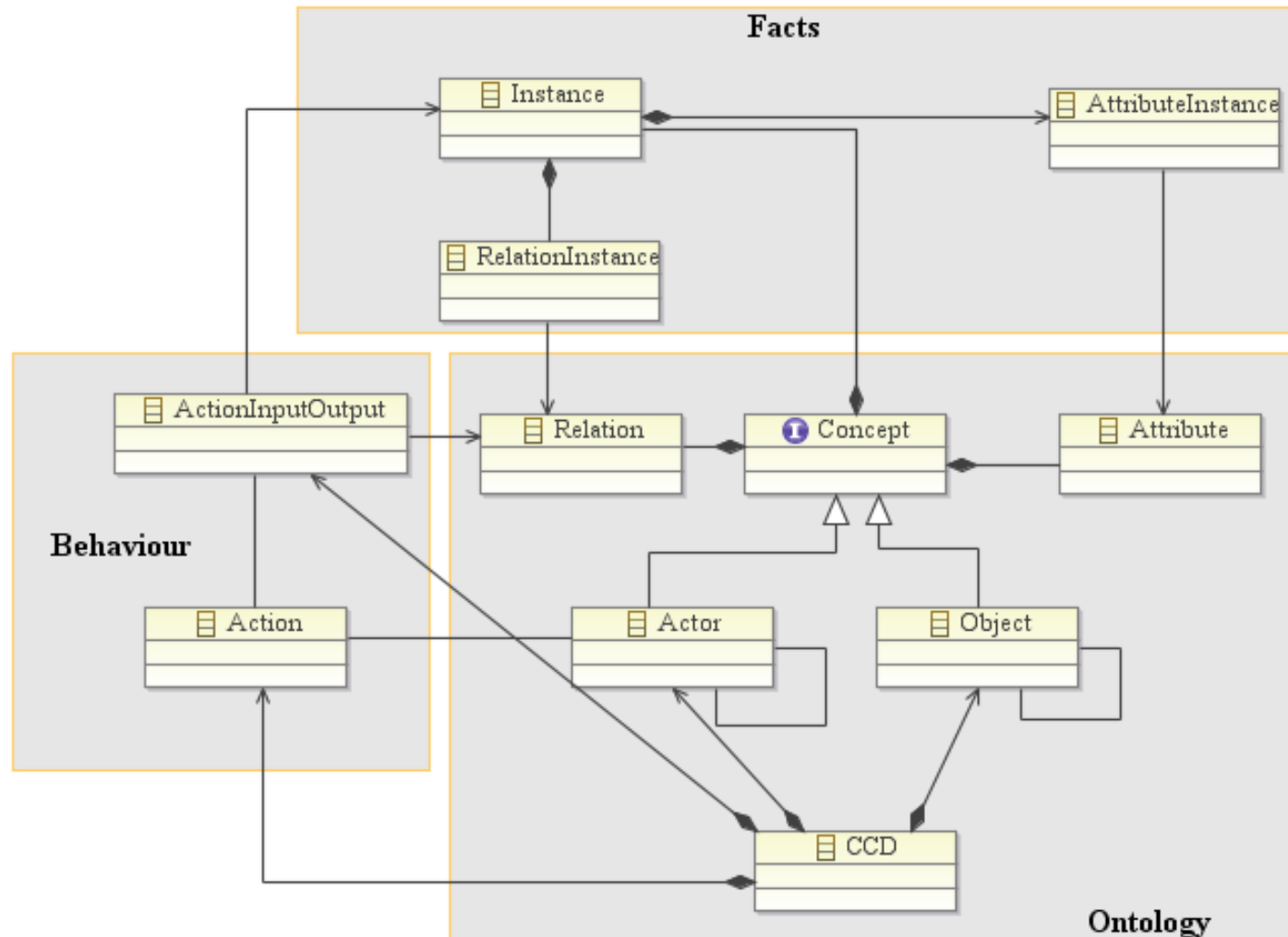
Network of social relationships



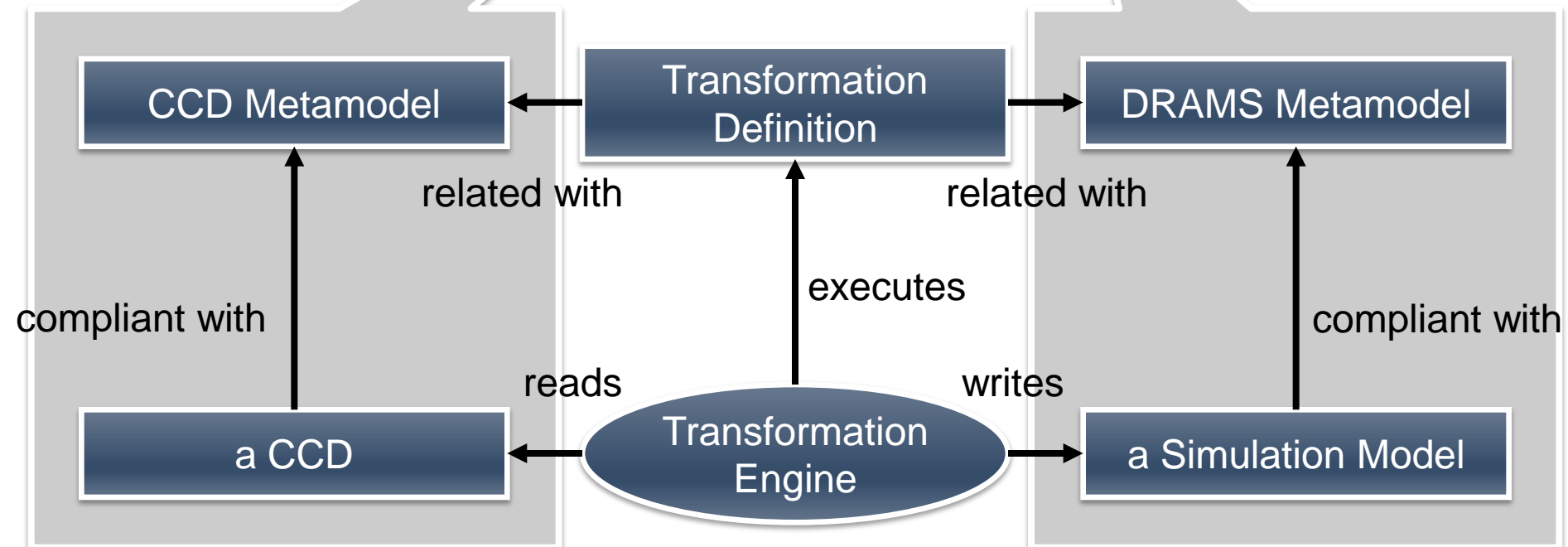
Rule-Dependency-Graph

- ❖ Traceability along the transformation steps
  - To increase trust and understanding of stakeholders in policy models
  - To support policy modellers in the conceptualisation of a policy domain
- ❖ CCD an important intermediary between scenarios and simulation models
  - Annotation of text and pdf / html documents (set of scenarios and background documents)
  - Storing the links to annotation
  - Conceptualisation of policy domain in iterative steps

# CCD Metamodel

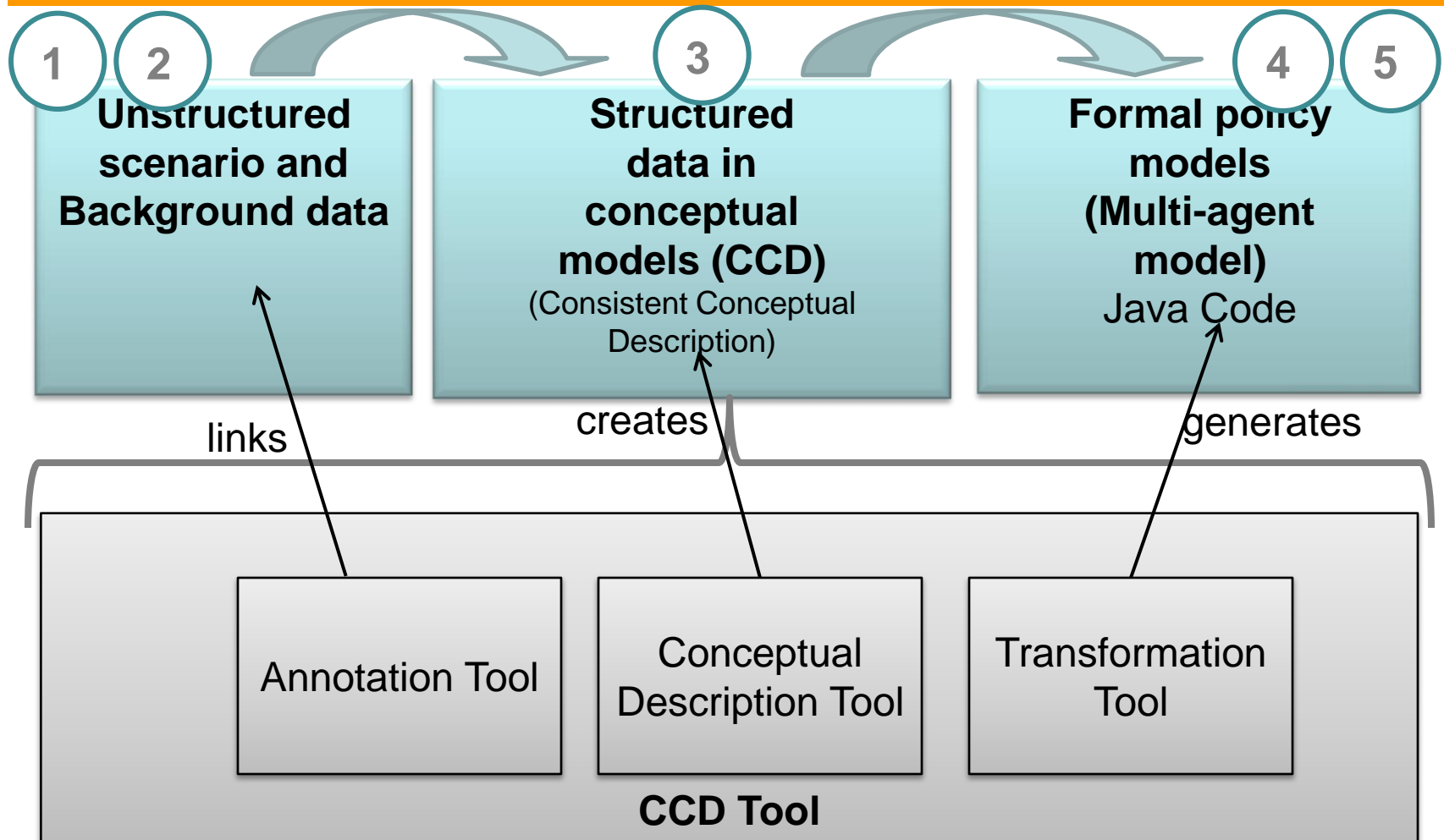


**Transformation** from the conceptual policy model (a ccd) into a formal agent based simulation model (a simulation





# Technical tool to support the process



# CCD Tool – Annotation of Scenarios



LondonHousing.ccd\_ac Atomausstieg.ccd\_dia Atomausstieg.ccd\_act Atomausstieg.ccd\_ins Kosice.ccd\_actions Kosice.ccd\_diagram Kosice.ccd

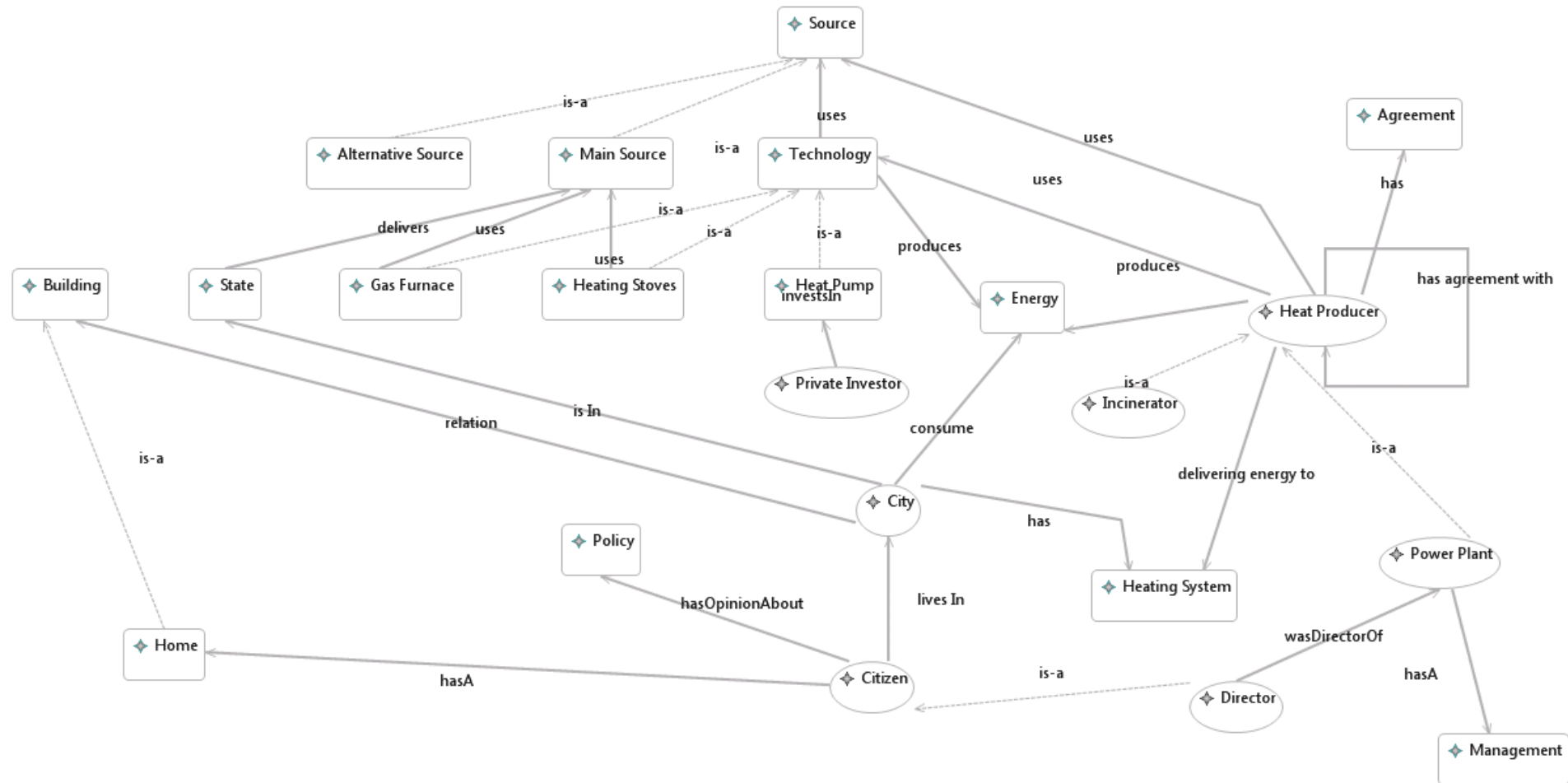
I am a Kosice citizen and I am retired director of a power plant in Kosice. I am not a decision maker any more, so I can express only my opinions how good energy policy could look like. The heat consumption in Kosice city in recent years decreased substantially. In 1987 the demand per year was about 7E000E000 GJ[maw1], in 2006 it was 4E400E000 GJ[m2]. We can say that this is thanks to new technologies and better insulation of buildings. Currently, we have in Kosice one very strong and dominant heat producer, TEKO, which uses gas from Russia and coal from Ukraine. The proportion of sources is ca. 1:1 coal and gas. This power plant is the management of the main power plant would be open for cooperation with other heat producers in Kosice city. But in fact they cover the Kosice energy (heating) demand by 95%, leaving only 5% for the competition. The main competitor in Kosice is the garbage incinerator (KOSIT, belonging to the Italian company) which also produces heat (and is able to produce electricity). The incinerator utilizes communal waste. They byproduct of the utilization is heat. But it cannot fully exploit its capabilities due to an agreement with TEKO. In consequence, 2/3 of its power is wasted. The capacity of KOSIT is 500E000 GJ per year. Due to the agreement, it is allowed to sell the city only 180E000 GJ. If KOSIT could deliver 500E000 GJ energy from incinerator to the pipe system, a CO2 coefficient of 350 kg/MWh would be reached. This is a high coefficient, but it is produced as the waste has to be burned anyway. For comparison, CO2 coefficient for burning Coal is 360 kg/MWh, and for Gas it accounts for 230 kg/MWh. Nowadays, weighted CO2 coefficient for TEKO that uses combination of Gas and Coal accounts for 322 kg/MWh[VAC3]. As stated above, the cooperation between heat producers is based on an agreement between TEKO and its competitors, which does not allow competitors to deliver energy and heat beyond the 5 % of the total needs. This situation does not represent a free market competition. Because of its interest, the main heat producer does not let the incinerator to use the system to a greater extent. Especially when looking at the heating prices, this is not a good situation: the price for energy from power plant is 18 eur/GJ, while from incinerator it is 8 eur/GJ. If the incinerator was allowed to provide more energy, the energy price would decrease to 15 eur/GJ. As a citizen I have to pay 24 eur/GJ only because the main power plant (owner of the heating exchanger) doesn't allow the competitor to sell more. If people are not happy about the energy costs, they start thinking about alternative solutions like heat pumps. For example, low geothermal resources exist around Kosice, which may provide 1E200E000 GJ per year without CO2. Private investors already introduce this technology although on a small scale. Also on the individual level people invest in individual gas furnaces at homes or flats. A concern I have is that heat transfer is associated with losses. Modern gas furnaces are as effective as large heating stoves, so some people install them at home. They utilize fossil fuels, but by avoiding the transmission losses, this contributes to some reduction in CO2 emission. I imagine that there is a possibility in Kosice to have a sustainable utilization of resources with the usage of renewable energy sources. For example if Kosice city introduces geothermal energy, which is located 14 km from Kosice agglomeration, it will generate additional heat - 2E000E000 GJ per year without CO2. The investment will cost about 76,3 million Euro. The problem is, however, that this energy source was bought by a company with Russian and French owners (a gas company), which has stopped any investments in this area because of other interests to sell gas from Russia (contradicting interests). Another particular problem is that in order to utilize the geothermal energy, an existing heating exchangers is needed, which belongs to the main producer (TEKO). If all the possible energy Oeco-sources will be introduced, the TEKO power plant will need to produce only 700E000 GJ to satisfy the

Selection Kosice Scenarios\_Expert\_v0.1.txt

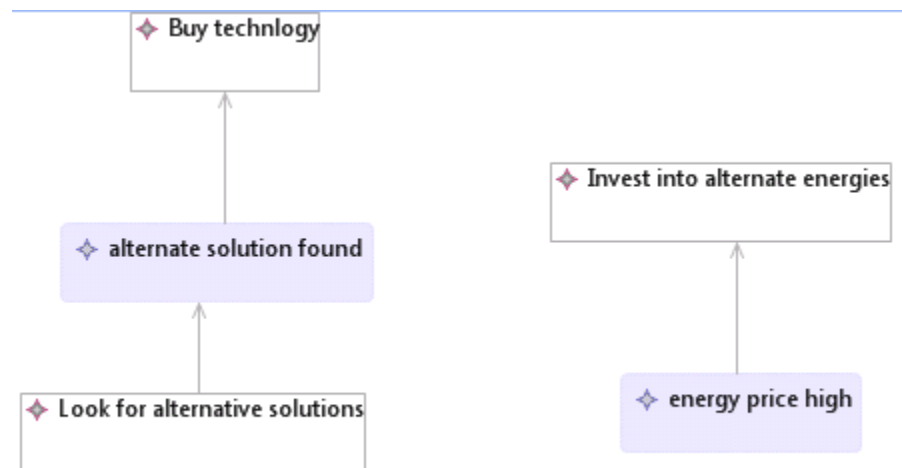
CCD Annotation View Outline

- CCD
  - Actors
    - Heat Producer
      - File Annotation heat producer
      - Relation: Heat Producer produces E
      - Relation: Heat Producer uses Sourc
      - Relation: Heat Producer isIn
      - Relation: Heat Producer uses Techn
      - Relation: Heat Producer covering
      - Relation: Heat Producer hasAgreen
      - Relation: Heat Producer deliveringE
      - Relation: Heat Producer has Agree
      - Relation: Heat Producer coveringDe
      - Relation: Heat Producer capacity In
      - Relation: Heat Producer actualCO2
      - Relation: Heat Producer sellingPrice
    - Power Plant
    - Incinerator
    - Citizen
    - Private Investor
    - City
  - Objects
  - Actions
  - ActionInputOutputs
  - Enums
  - Variables
  - Annotations

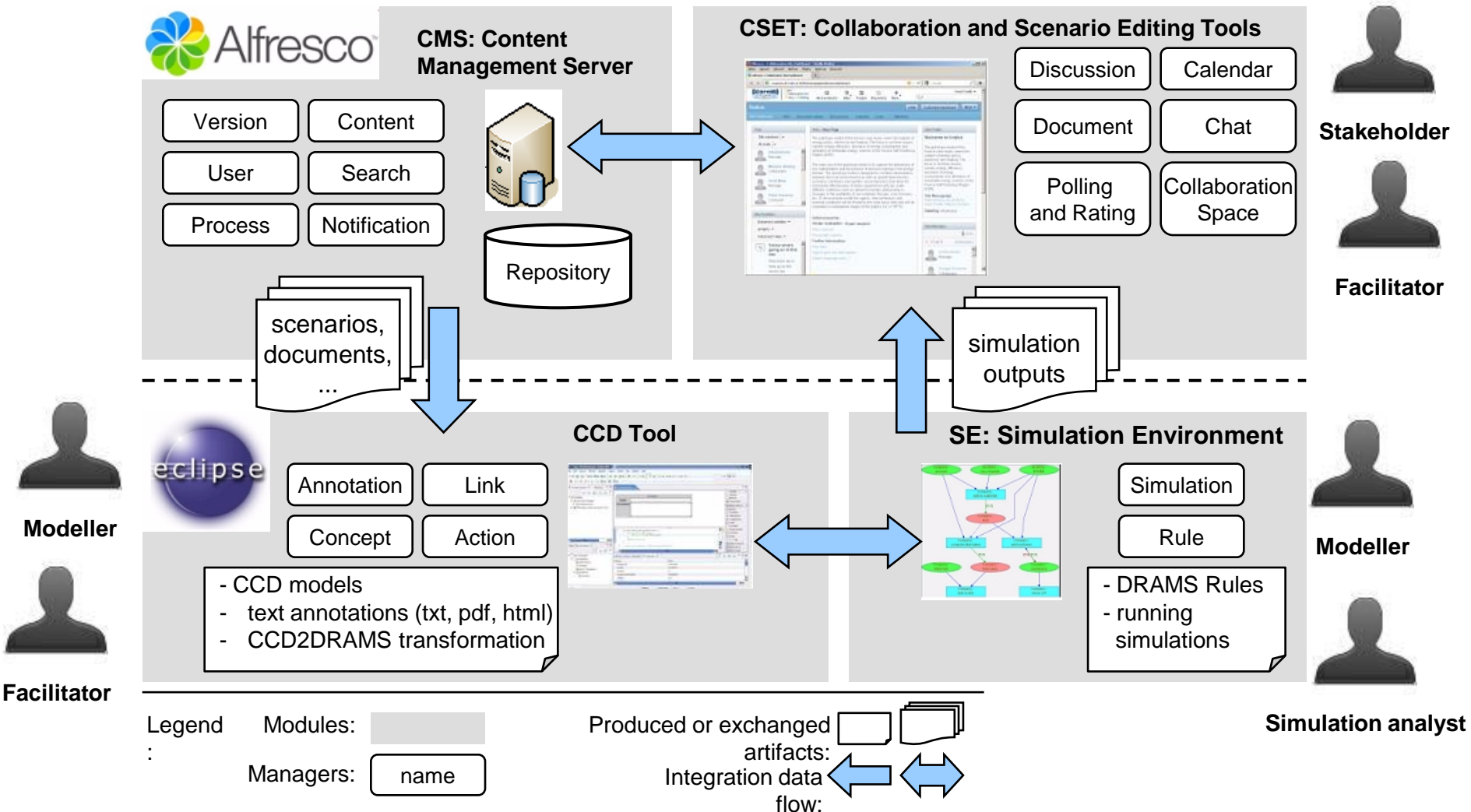
# CCD Tool – Visualisation Ontology



# CCD Tool – Visualisation of Actions



# Tool-support along the OCOPOMO process



# Three policy cases in OCOPOMO



- ❖ Renewable energy in Kosice Self-governing Region
- ❖ Competence centres for knowledge transfer in Campania Region
- ❖ Housing strategy in London

- ❖ OCOPOMO policy development process: integrated approach from narrative scenarios to formal policy models
  - Iterative process of identifying the parameters and features informing formal policy models
- ❖ Consistent conceptual description (CCD): Incorporating traceability in the iterative policy development process
- ❖ Open collaboration in policy development through integrated web 2.0 based e-participation toolbox
  - Enabling policy analysts, policy operators and wider stakeholder groups to work together collaboratively



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# Many thanks for your attention!

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## Project partners:



KSR



REGIONE CAMPANIA