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A SCENARIO-BASED APPROACH TOWARDS OPEN COLLABORATION FOR POLICY MODELLING

EGOV 2011, Delft (The Netherlands) , 1st September 2011

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UNIVERSITÄT
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Agenda

- ❖ Demands for ICT supported Governance and Policy Modelling
- ❖ The OCOPOMO project
- ❖ Scenario building and analysis
- ❖ Integrating collaborative scenario texts with formal policy models
- ❖ Scenario Example from OCOPOMO use case
- ❖ Innovation and expected impact of OCOPOMO

Transparency, accountability, coherence, openness, participation …

Dealing with complexity and dynamics in a global society

- ❖ Today's global challenges are interconnected, dynamic and complex in nature

- ❖ Policies to address these challenges having strong impact on the well-being of societies and economies

- ❖ Dealing with complexity a key success factor for good governance in the 21st century

Demands for Good Governance in Policy Contexts

❖ Policy makers must be able to cope with unwanted side effects from environmental changes and dynamics

❖ Constituency / Citizenship no more just accepting what politicians decide

❖ Decision-makers to explain and to account for their decisions towards their voters and the general public
  ➢ To ensure trust in politics

Open and Inclusive Policy Making

- ❖ Means of improving democratic performance
- ❖ Enhances transparency and accountability, public participation and builds civic capacity
- ❖ Offers a way for governments to improve their policy performance
  - ➤ by working with citizens, civil society organisations, businesses and other stakeholders
  - ➤ to deliver concrete improvements in policy outcomes and quality of public services

"Focus on Citizens: Public Engagement for Better Policy and Services"
OECD Studies on Public Engagement, OECD Publishing, 2009

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Challenges in Policy Development

- ❖ Appropriate ICT support in policy planning not deployed widely

- ❖ Management of complexity in strategy and policy formation
- ❖ Development, visualisation and simulation of appropriate policy models usually done by experts
  - ➢ black-box approach

- ❖ Lack of open collaboration and therewith transparency in identifying the crucial features of complex social environments to inform policy models

- ❖ Online participation means not yet deployed widely in strategic decision making

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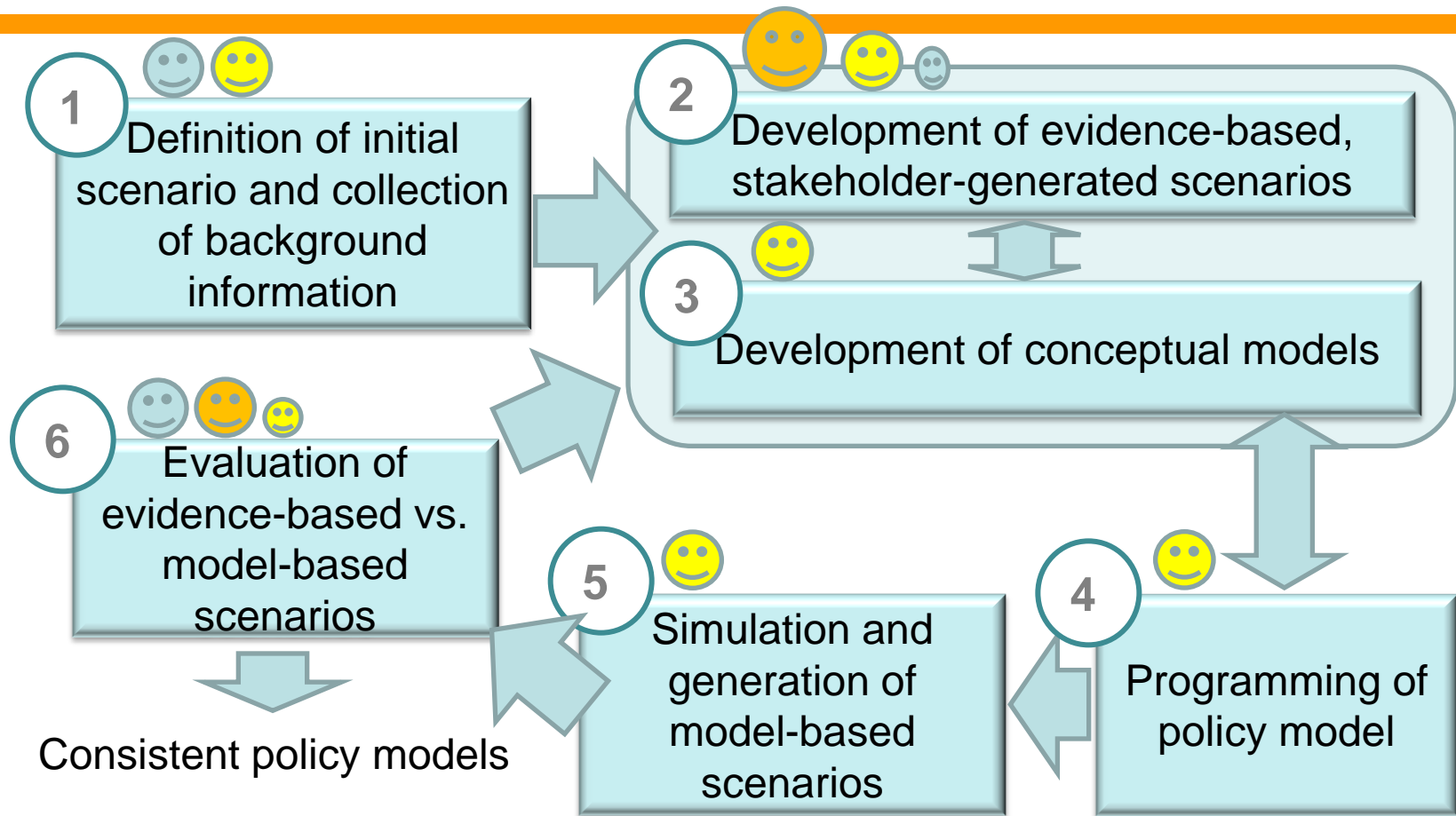
SEVENTH FRAMEWORK
PROGRAMME

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- ❖ Challenges to use ICT in policy making
- ❖ **The OCOPOMO project**
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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

1 Definition of initial scenario and collection of background information

2 Development of evidence-based, stakeholder-generated scenarios

3 Development of conceptual models

6 Evaluation of evidence-based vs. model-based scenarios

Consistent policy models

5 Simulation and generation of model-based scenarios

4 Programming of policy model

Legend:

Prodess phase

Transition to next phase

Actors:

Domain Experts (Policy Planner / Strategic Decision Maker)

Stakeholders involved

Experts for Policy Analysis / Policy Modelling

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What is scenario building in OCOPOMO

❖ Method for foresight according to Geschka (1978):

"*systematic,*

participatory,

future intelligence gathering and

medium-to-long-term vision building process

aimed at present-day decisions and

mobilising joint actions"

Scenarios as instrument for stakeholder engagement in OCOPOMO

- ❖ Scenarios can be developed in a transparent and inter-subjective manner
- ❖ Scenarios used as common reference point for formal policy modelling and as communication instrument
- ❖ Relevant information and data can be included in scenarios in an unbiased manner by stakeholders
- ❖ Assumptions on developments expressed through the scenarios are shared

Scenarios as instrument for stakeholder engagement

❖ Scenarios must be consistent but no common agreement and viewpoint has to be developed

➢ Different scenarios may accommodate different viewpoints and conflicting positions

▪ Elicitation of critical features

❖ Scenarios developed by others help to understand their viewpoints and therefore supports acceptability

Collaborative Scenario Building in OCOPOMO

- ❖ Scenarios
  - ➢ Are textual description of a perceived view or understanding of a topic under discussion
  - ➢ Cover existing world status or mental model of stakeholders
- ❖ Alternative scenarios may exist or are developed to describe different aspects and /or alternatives
- ❖ Different stakeholder groups may develop different sets of scenarios independently
- ❖ Some scenarios may also be conflicting among different stakeholder groups
- ❖ Scenarios may be extended and therewith advance an existing scenario (nesting scenarios)

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Scenario Analysis

- ❖ Foresight processes, IPCC (Intergovernmental Panel on Climate Change) scenarios
  - ➢ Usually top-down: specifying social characteristics and group behaviour
  - ➢ Some research projects bottom-up: eGovRTD2020
- ❖ OCOPOMO process
  - ➢ Bottom-up
  - ➢ Issues identified by stakeholders
  - ➢ Scenarios generated without constraints by stakeholders
  - ➢ Using integrated ICT-based participation platform

Integrating Scenario and Formal Model

- ❖ Goals, scope and social processes specified by participating stakeholders
- ❖ Stakeholder-generated scenarios inform formal policy model design
  - ➢ Key in model design: agent descriptions & if-then rules
  - ➢ Stakeholders see natural-language pseudo code
    - ▪ Enforces precision in use of language, expectations, goals
- ❖ 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

Two Different Kinds of Scenarios

- ❖ Evidence-based stakeholder-generated scenarios
  - ➢ will inform simulation models to run alternative policy choices, i.e. to show potential real effects of alternative conditions and courses of action
- ❖ Model-generated scenarios
  - ➢ results of the simulation run will generate scenarios to help better understand potential interferences or conflicts of positions of stakeholders, which help them to reflect their positions

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Artefacts along the Process Phases

Legend:
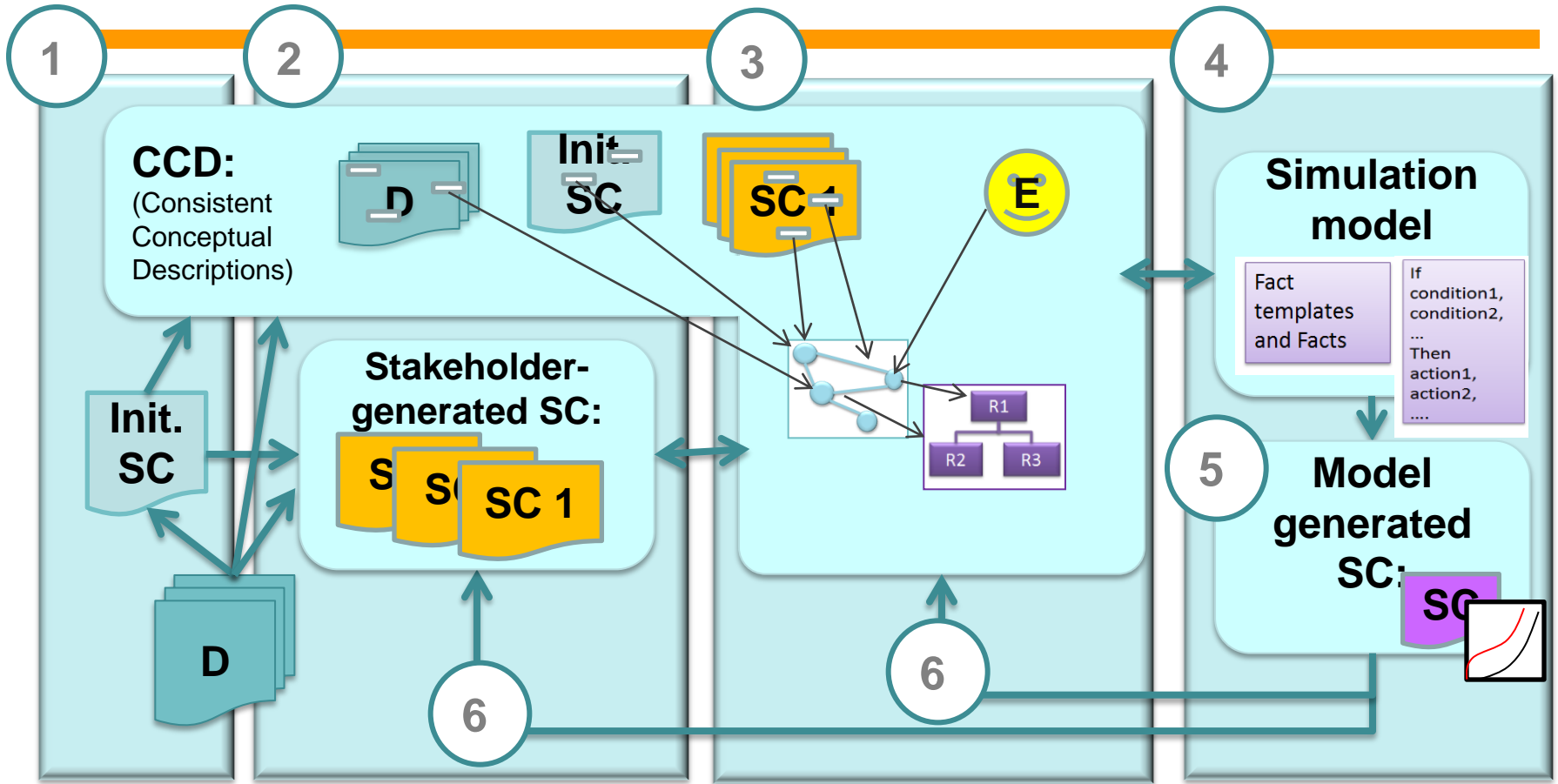
# (Process phase)	Process phase
→ (Information flow)	Information flow
→ (Information flow detailed steps)	Information flow detailed steps

E Expert knowledge

D Documents

SC Scenarios

Relevant aspect

Network of social relationships
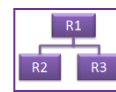
Rule-Dependency-Graph

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Transformation Needs
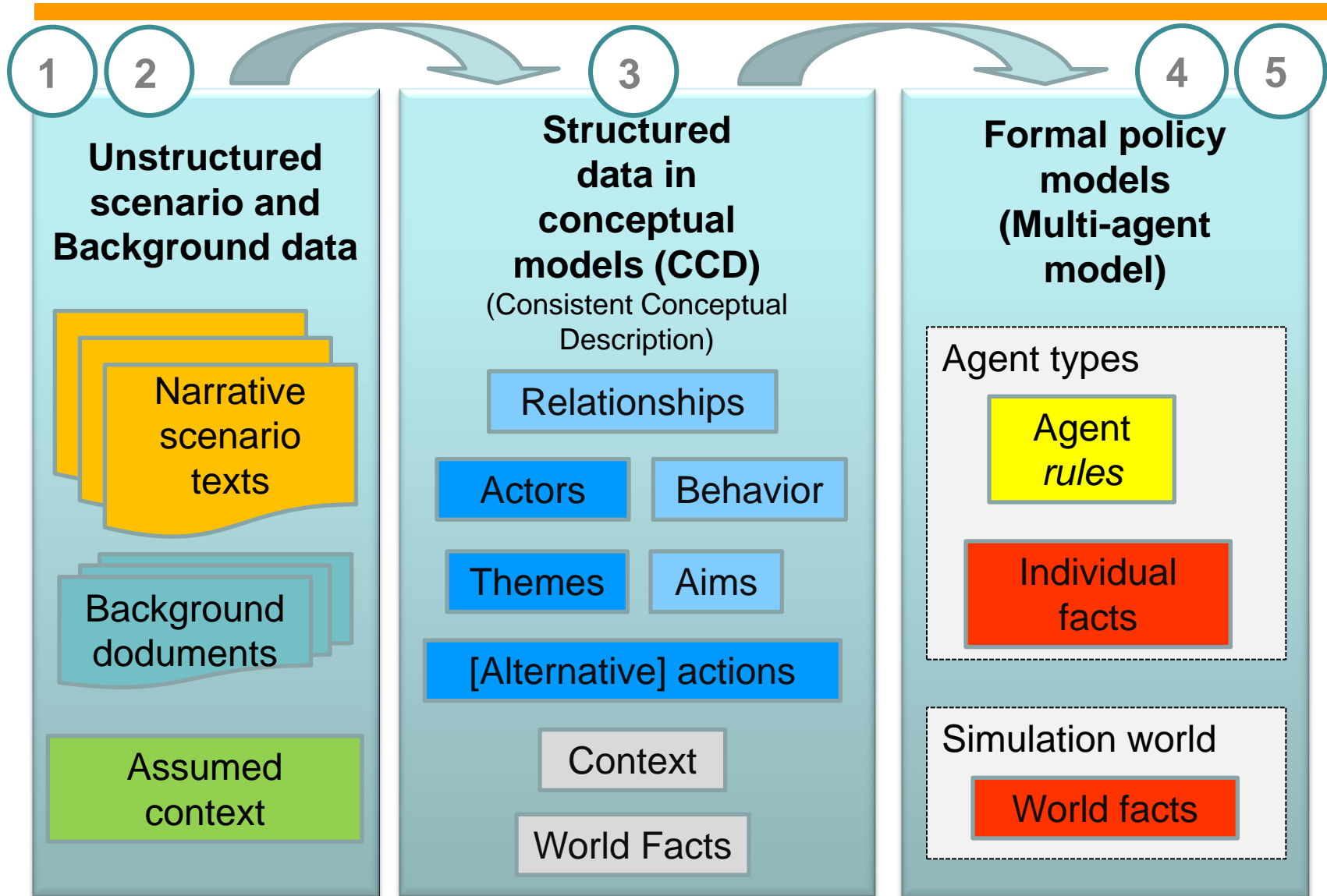
1 **2** **3** **4** **5**

Unstructured scenario and Background data

Narrative scenario texts

Background doduments

Assumed context

Structured data in conceptual models (CCD)
(Consistent Conceptual Description)

Relationships

Actors | Behavior

Themes | Aims

[Alternative] actions

Context

World Facts

Formal policy models (Multi-agent model)

Agent types

Agent *rules*

Individual facts

Simulation world

World facts

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A detail of a scenario developed for the Kosice Self-Governing Region

I am *living with* my wife and two children *in* a three room *flat* below the top of the *house.* The house, in which my flat is in, is not well insulated and, hence, has high consumption of energy for both electricity and heating. Since energy prices are increasing and the energy consumption in my *house* is very high, I am *reflecting alternatives* both to *decrease consumption* such as *renovation* and to *switch the source of energy* (if possible). Currently, I am *recognising* that *energy consumption* is too high and more and more becomes too expensive for me and my *family*. Hence, I want to *reduce costs of energy consumption*. For me who am *living in* a *flat*, the *association of flat owners is responsible for* energy issues, i.e. they have to *perform energy audits* by law. *Citizens need to provide certificates on* how efficient energy use is in the house (*energy certificates* and *energy audits*). I have to *discuss with* my *family* and *neighbours*. Together we *can consult* the *association of flat owners* for a plan to *trigger renovation*. The *association of flat owners*, then, *calculates* the *impact of the renovation*, the increased *energy price* and the reduced *energy consumption* for the future *maintenance costs*. *Urban householders are obliged to create* an association; *rural houses are not*. An *association hires service company/building manager* (on fee) who is *responsible for dealing with heat and electricity providers*. An *association may refuse to cooperate with* a *service company* and *make arrangements with heat provider* on its own. An *association* itself can *be member of* a higher association. An association of associations *is* a *board of directors*, which e.g. *talks with regional* or even *national governments.*

Relations Subjects / Objects Stakeholders

Data derived from scenario (1/2)

Class of Stakeholders	Class of objects	Characteristics

→ Households
  - *Flat owner*
  - *Flat mates*
  - *Neighbour*
→ Association of flat owners
→ Service company
→ Government
  - *Regional*
  - *National*
	→ House (Flats)
	→ Heating system
	→ Energy audits
	→ Message
	  - *Demand*
	  - Provide energy certificate
	  - Perform energy audit
		→ House
		  - *Established in*
		  - *Renovated in*
		  - *Insulation*
		  - *Electricity consumption*
		  - *Heating consumption*

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Actions:	Rules:	Relations:

→ Flat owner
  - recognising
  - reflecting alternatives
  - decreasing consumption
  - switching source of energy
  - reducing costs
  - discussing with
  - consulting
  - creating an association
→ Association of flat owners
  - trigger renovation
  - calculating impact
  - hiring service company
  - perform energy audits
	→ IF energy prices are high AND energy consumption is very high THEN flat owners reflect alternatives to decrease consumption AND/OR to switch the source of energy.
	→ IF renovation is needed AND support is asked for THEN energy audit AND certificate are needed
		→ being responsible for
		→ living in
		→ sharing flat with
		→ providing certificates to
		→ belonging to

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Why Scenario-based Policy Modelling?

❖ Stakeholder participation and collaboration in the development of different views on a policy context

❖ Bottom-up approach, evidence-based

❖ Deployment of integrated ICT based participation platform

❖ Comparison of model-generated scenarios with evidence-based narrative scenarios generated by stakeholders

Innovations in OCOPOMO

- ❖ 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

Expected impact

- ❖ Contribution to strategic policies and to implement open government
- ❖ Contribution to transform government and administration to an open, effective and efficient participative governance (good governance principles)

- ❖ Provide new opportunities for open discourse among stakeholders of the policy domain and the policy experts
  - ➢ in stakeholder-oriented scenario generation
  - ➢ in evaluation of formal policy models

- ❖ Improve transparency and traceability in strategic decision making by involving different stakeholders in the participative process via the open collaboration platform

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Many thanks for your attention!

Project partners:

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