The OCOPOMO Project: A Toolkit Supporting the Open Collaboration for Policy Modelling

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Abstract. The paper describes the FP7 ICT OCOPOMO project aimed at development of a software platform supporting collaborative policy modelling. After a short introduction of basic facts on the project, principles and key concepts of collaborative policy modelling are outlined and the adopted approach together with the envisioned functionality is described. Finally, a design of high-level architecture of the OCOPOMO system modules and inner software components are presented.

Keywords: Collaborative policy modelling, e-Participation, agent-based simulation models, narrative scenarios.

1 Introduction

The European R&D project OCOPOMO (Open COllaboration for POlicy MOdelling) addresses some of the future trends in the e-Governance research and applications, namely the extension of the service provision paradigm towards a broader active participation of general public and various groups of stakeholders in a collaborative policy creation [3]. In particular, the related challenges include a suitable ICT support in foresights and policy modelling, especially in the long-term policy planning. The technology should enable an open and transparent collaboration of policy stakeholders in the process of identifying crucial features of complex social and macroeconomic models to simulate potential alternative policies. This approach, adopted by OCOPOMO, is based on visualising, simulating, and iterative development of appropriate policy models and related foresight scenarios that will contribute to a qualitatively better management of socio-economic processes.

OCOPOMO is co-funded by the European Commission under the 7th Framework Program, Theme 7.3 ICT for Governance and Policy Modelling. The project consortium, consisting of ten partners from five European countries (Germany, Italy, Poland,
The collaborative policy modelling, which is in focus of OCOPOMO, is truly multidisciplinary concept that is supported by several mutually interrelated topics. It includes sociology investigations on global and regional levels, provided as macro- and micro-level models of socio-economic relationships. The agent-based policy modelling tools, built on the platform of multi-agent systems, enable to construct and visualise these models, as well as to simulate a set of possible alternatives [5].

The technique of narrative scenarios, as an advanced method for representing a definition and exploration of futures in a domain [1], is proposed to construct text-based descriptions of alternative trajectories in foresights and strategic plans [3]. Effective scenario development, including communication and information exchange between involved participants, can be supported by collaboration and e-Participation platforms, typically based on Web 2.0 features [4]. Finally, a content management system enhanced by text mining mechanisms and/or shared conceptual models of the domain (i.e. taxonomies, topic maps, ontologies) is envisioned to maintain textual scenarios, agent-based models, and other relevant resources.

![Fig. 1. The concept of open collaboration in scenario-based policy modelling](image)

The conceptual schema of collaborative policy modelling, as it is adopted in the OCOPOMO project, is presented in Fig. 1. It depicts interactions and communication flows between target user groups of policy analysts, policy operators, groups of experts, external interest groups and citizens. The order of interactions between particular stakeholders is marked by numbered items. At the beginning (1), the participants...
collaborate in developing narrative descriptions of policy alternatives for a given area. The common macroeconomic model (2) represents global economic conditions and relations, while the individual model (3) reflects the concerns, objectives and perspectives of particular local stakeholders. The policy models, aligned to the supporting narrative scenarios, are then visualised and simulated in the OCOPOMO platform (4). The policy models, aligned to the supporting narrative scenarios, are then visualised and simulated (4). The stakeholders may collaboratively modify the parameters of agent-based models, validate and evaluate the policies against the scenarios. The procedure continues in iterations that may cause changes in alternative scenarios (5a) or modifications in individual policy models (5b).

3 Architecture and Technology Foundations

The OCOPOMO platform is proposed as a web-based solution, which will be built on the Alfresco enterprise content management system (http://www.alfresco.com) and will run on the Apache application server. This framework already includes a suite of e-Participation tools, document flow and content management features. The extensions towards the agent-based modelling and simulation will be built on the Repast platform of multi-agent systems (http://repast.sourceforge.net). Tools for managing the content of narrative scenarios, linking text fragments to conceptual schemas and policy models, retrieval capabilities and text mining mechanisms will be designed specifically for OCOPOMO system as Alfresco add-ons.

The architecture design, schematically depicted in Fig. 2, follows the structure of the Alfresco framework. The three-level architecture includes data layer (Hibernate data access framework, MySql database, file system storage and related indexes), the system core (business logic components for collaboration space, communication infrastructure, document workflow, user management, etc.), and tools layer (client applications and administration interface, built on JavaServer Faces framework). It is supposed that the internal system components will communicate via standardised API interface provided and maintained by the system core. Modular architecture should enable implementing and providing some of the components as web services.
4 Conclusions

The above-presented OCOPOMO project aims at providing a collaborative policy modelling platform that enables active and sustainable participation of a wide range of interest groups in a long-term policy formation. This approach will be tested on two pilot applications targeting a development of regional strategies for the domains of EU structural funds (Campania region, Italy) and a policy of renewable energy resources (Košice self-governing region, Slovakia) [2]. Currently (October 2010), the project is in the phase of designing the platform architecture and detailed specification of the inner system components. In parallel, narrative scenarios and related policy models are being developed for both pilot applications. After implementation and testing, the first prototype of the integrated OCOPOMO platform should be ready in summer 2011. More information on the OCOPOMO project can be found at http://www.ocopomo.org.

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References