Open COllaboration for POlicy MOdelling

Project co-funded by the European Commission with contract n°248128

URL: http://www.ocopomo.eu/

SEVENTH FRAMEWORK PROGRAMME

Newsletter **Number 1 in 2013**

In this issue

OCOPOMO in a nutshell

OCOPOMO is defining and demonstrating an "off the mainstream" approach to policy modelling. The project integrates lessons and techniques from complexity science, agent based simulation, foresight scenario analysis and stakeholders' participation. The approach supports in understanding alternative points of views of different parties. Policy operators and stakeholders collaborate in scenario development. Based

Declarative Rule-based Agent Modelling System in OCOPOMO

DRAMS, Declarative Rule-based Agent Modelling System is a fundamental and innovative part of the OCOPOMO configurable modular toolbox. It is a Rule Engine component for multi-agent simulation models. A Rule Engine is a software system, consisting of:

- A fact base, which stores information about the state of the world in the form of facts.
- A rule base, which stores rules representing knowledge how to process certain facts stored in fact bases, consisting of a condition part (called left-hand side, LHS) and an action part (called right-hand side, RHS).
- An inference engine, which controls the inference process by selecting and processing the rules which can fire on the basis of certain conditions, in order to draw conclusions from existing facts.

DRAMS equips agents with expert system capabilities: thanks to DRAMS it is possible to describe agent behaviour by declarative rules. It provides a distributed forward-chaining rule engine. Each type of agent is endowed with its own knowledge base consisting of facts and a set of rules that describe how to process the facts in its fact-base.

A shared knowledge base contains information about "world facts", like a permanently updated fact reflecting the current simulation time, facts for agent instances present in the simulation world, or (public) inter-agent communication messages.

The inference engine selects and processes the rules to be executed. The heart of the rule engine is the rule-scheduler, the algorithm that decides which rules to evaluate at each moment. In DRAMS, the rule-scheduler is built upon a Data Dependency Graph (see figure below). This data structure presents facts, available both at initialization time of the model (green ellipses) and generated during the execution (red ellipses), as well as rules which are represented by blue rectangles. If a rules depends on a fact, a blue arc is drawn between the fact and the rule. The shape of the arc (solid or dashed) characterises the access mode (retrieval or query, respectively). A fact that is asserted by a rule is linked with a green arc, while an arc to a fact retracted by a rule is displayed in red colour. The Data Dependency Graph is constructed once at the beginning of a simulation run from all specified rules and initially available data.

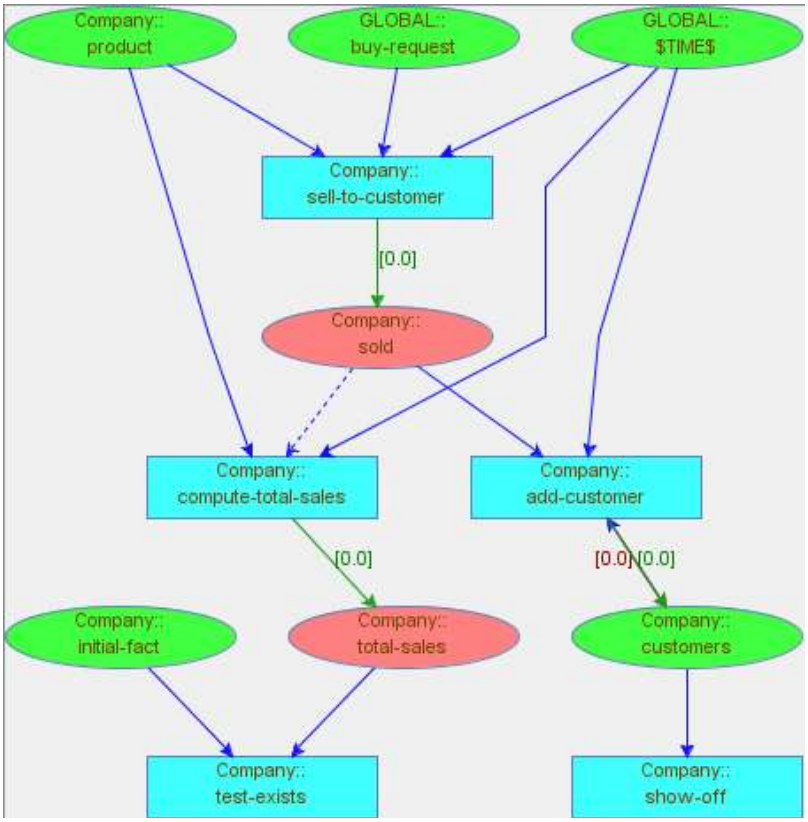
on this, an agent-based simulation model is developed, visualized and used for exploring the effects of policies. The approach is tested through three pilot applications. The project is co-funded by the European Commission under the 7th Framework Programme, Theme 7.3 -ICT for Governance and Policy Modelling).

The OCOPOMO newsletter

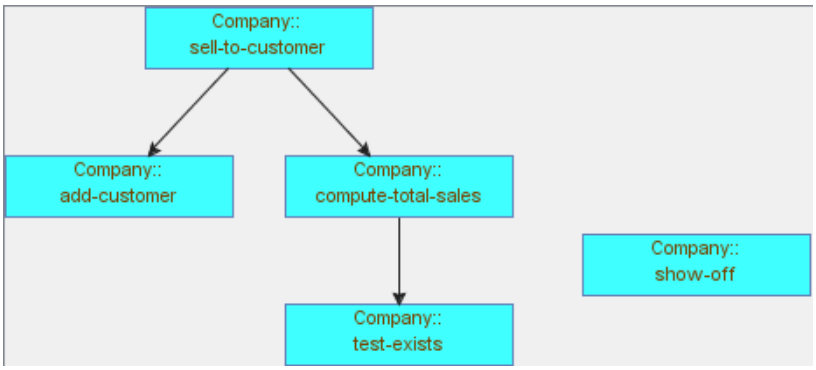
This newsletter aims at staying in touch with relevant stakeholders and at providing updates about the project developments. In addition, interesting and relevant news and articles in the context of policy modeling supported by innovative ICT tools are posted here. Interested parties shall contact Claudio Delrio

claudio.delrio@unisob.na.it

If they wish to publish relevant information through this newsletter.



A Rule Dependency Graph can then be automatically calculated from the previous graph. It shows the order in which the rules can be executed. An example related to the above figure is presented below.



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Best regards,

The OCOPOMO consortium

OCOPOMO in social networks:

Register to our LinkedIN group:

http://linkd.in/9yG3qv

Stay tuned for more updates and tell us what do you think

Updates from the LinkedIN group

A comment on complexity in policy making (from Owen Ambur)

It does seem to me that the gap between science and policy could be narrowed and significantly simplified by:

a) crafting fewer, relatively generic policy statements, in favor of

A more detailed description of DRAMS is published in: Ulf Lotzmann, Ruth Meyer 2011: DRAMS – a declarative rule-based agent modelling system, in: Tadeusz Burczynski, Joanna Kolodziej, Aleksander Byrski, Marco Carvalho, eds.: Proceedings 25th European Conference on Modelling and Simulation, Krakov: European Council for Modelling and Simulation, pp. 77—83

Agent based modeling, market outlook

Interview with Massimiliano Zanin, researcher and consultant at INNAXIS, Madrid (www.innaxis.org)

OCOPOMO tackles current problems in policy modelling:
(1) lack/inability of managing complexity in strategic planning and policy making in complex socioeconomic environments,
(2) lack of open collaboration,
(3) lack of transparency, and
(4) scarce use of ICT tools for e-participation particularly among policy makers and civil servants.

In this respect, who are the potential customers in your view?
For instance agent based modelling has been used by INNAXIS for air traffic management, taking also into account the point of view of the passenger, the air navigation service providers. INNAXIS is also working with this approach on the introduction of electric vehicles on urban mobility.

Who are potential competitors providing support to decision making through ICT tools? Which services do they provide?
International consultancy providers are specialised for a long time in providing support to policy making. They have a consolidated market (probably reduced due to the crisis): it is difficult to find a niche.

Do you think that the market is ready for OCOPOMO products? Do you see obstacle for its market take up?
The market is ripe for agent based approaches particularly at micro-level. Short term impact at micro level on local policies is easier to achieve.

What are the potential strengths, weakness, opportunities and threats of an integrated package (software+ consultancy services) supporting strategic planning and policy making?

Strengths. Agent based social simulation is one of the most viable options for complexity studies in social sciences. In general terms all evidence-based policy making solutions have a strong potential, it is undoubtedly a need that will

b) compiling more performance plans that explicitly identify not only the stakeholders and indicators by which progress will be measured but also the required inputs, processes, and outputs.

Conversely, it would also be good to document in an open, standard, machine-readable format (like StratML) the goals and objectives of the myriad scientific research projects underway worldwide ... so that they can more readily be discovered and related not only to each other but also relevant policy (performance) issues. The vision of the StratML standard (ANSI/AIIM 21:2009 & 22:2011) is: "A worldwide web of intentions, stakeholders, and results." http://xml.gov/stratml/cusson/SMLC2011wStyle.xml

come out. Moreover policy making is often perceived as a black box. Open collaboration might help.

Weaknesses. Moving from theory to practice, level of commitment of policy makers may change, and involving stakeholders might turn out to be very difficult. Also stakeholders might oppose to evidence based policy making, particularly when their interests are threatened. Example of a spin-off working on intermodal travel planning. (Skybus). They have produced software and yet taxi drivers were against the uptake of the usage of this software among passengers, while public administrations were enthusiastic about the results.

Opportunities. As mentioned above, the market is ripe for agent based approaches particularly at micro-level. In this respect there is a need of branding the OCOPOMO integrated solution as Unique selling point.

Threats. Important to demonstrate already ex-ante awareness of the terminology and problems at stake, not entirely bottom up process. Particularly for consultancy service + software, you have to show that you know the problem and you have experience in a specific field. Sensitive data handling. Particularly in large private organisations, also the availability of dataset might be an issue. Weakness or threats might not be related to the approach as such but to policy makers, or management of large organisations which might not provide data, might express an interest but change orientations.

ICT for Governance and Policy Modelling towards Horizon 2020

During the ICT proposers' day held in Warsaw on the 26-27 September 2012 the new ICT work programme 2013 of the 7th Framework Programme for R&D of the European Union has been presented. Mr. Thanassis Chrissafis of the European Commission (DGCNECT-C3 Digital Science) gave a presentation on the funding objective "ICT for Governance and Policy Modelling" in the framework of the priority "ICT for Health, Ageing Well, Inclusion and Governance". He highlighted the challenges to be addressed by the "next round" of policy modelling projects, also in view of the forthcoming Horizon2020 programme. In particular Mr. Chrissafis underlined the need to take into account behavioral/societal aspects in policy design, the lack of transparency in corporate and public governance, the insufficient citizens and young people's involvement in decision-making processes, the expansion of social networking, the lack of effective tools for understanding complex environment, the need of stimulating sustainable economic growth and addressing financial crisis. Several examples of applications domains have been described e.g.: next generation of economic models that take into account linkage of economic, social and ecological issues, in particular in view of the current financial crisis and need for action in climate change; ICT tools for innovative data mining functionalities to identify emerging societal trends, Web2.0/web3.0, social networking, crowd sourcing, collaborative technologies in order to solve complex large scale policy

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New version of the OCOPOMO website

Discover our new website at : www.ocopomo.eu!

On the agenda: project meeting in Kosice

An OCOPOMO project meeting took place in Kosice (SK) on the 2-4 October 2012. It has allowed the consortium to finalise the last round of tools development and paved the way for the successful completion of the project.

problems engaging citizens in sharing knowledge and expertise; tools to allow new forms of interaction between stakeholders and modellers; validation of models, visualization of model results.

Read more about the challenges ahead of us in the area of ICT for governance and policy modelling under:
http://ec.europa.eu/information_society/events/ictproposersday/2012/index_en.htm

OCOPOMO presented at…

GLODERS Kick-off meeting (8-9 October 2012), CRESS, University of Surrey. The GLODERS research project is directed towards development of an ICT model for understanding a specific aspect of the dynamics of the global financial system: Extortion Racket Systems (ERSs). The OCOPOMO project has been presented by Ulf Lotzmann and Klaus Troitzsch (University of Koblenz-Landau).

SISY 2012 Sep 20-22, 2012, Subotica Technical University in Serbia. The IEEE 10th Jubilee International Symposium on Intelligent Systems and Informatics (SISY 2012) is well established forum with the general theme related to the development and solution of problems in the area of intelligent systems, informatics, innovative technologies and applications. Peter Smatana and Peter Butka (Intersoft and Technical University of Košice) presented a paper on "Achieving Traceability of Information in Collaborative Policy Modelling Processes".

ECSS 2012 European Complex Systems Society conference, Sep 2-7, 2012 Brussels. Bridget Rosewell & Paul Ormerod (Volterra Partners LLP) gave a presentation on "Complexity and agent based models in the policy process". Andrzej Nowak, Marta Kacprzyk, Magda Roszczynska-Kurasinska, Wojciech Borkowski, Pawel Golab (University of Warsaw); Peter Tapak, Viera Dulinova and Peter Bednar presented a paper on Agent-Based Multilevel Modeling Of Energy Policy—Kosice Use Case.

IFIP EPART 2012, Sep 3 - 6, 2012, Kristiansand, Norway. The conference provides a ground for researchers of distinct disciplines to come together and discuss advances of e-participation research from distinct disciplinary angles. Maria A. Wimmer, University of Koblenz-Landau, chaired the eGovPoliNet Workshop and presented results from a study comparing FP 7 projects along their foci, tools and areas of development. She thereby also referred to OCOPOMO.

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Link to the project website: **www.ocopomo.eu**

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