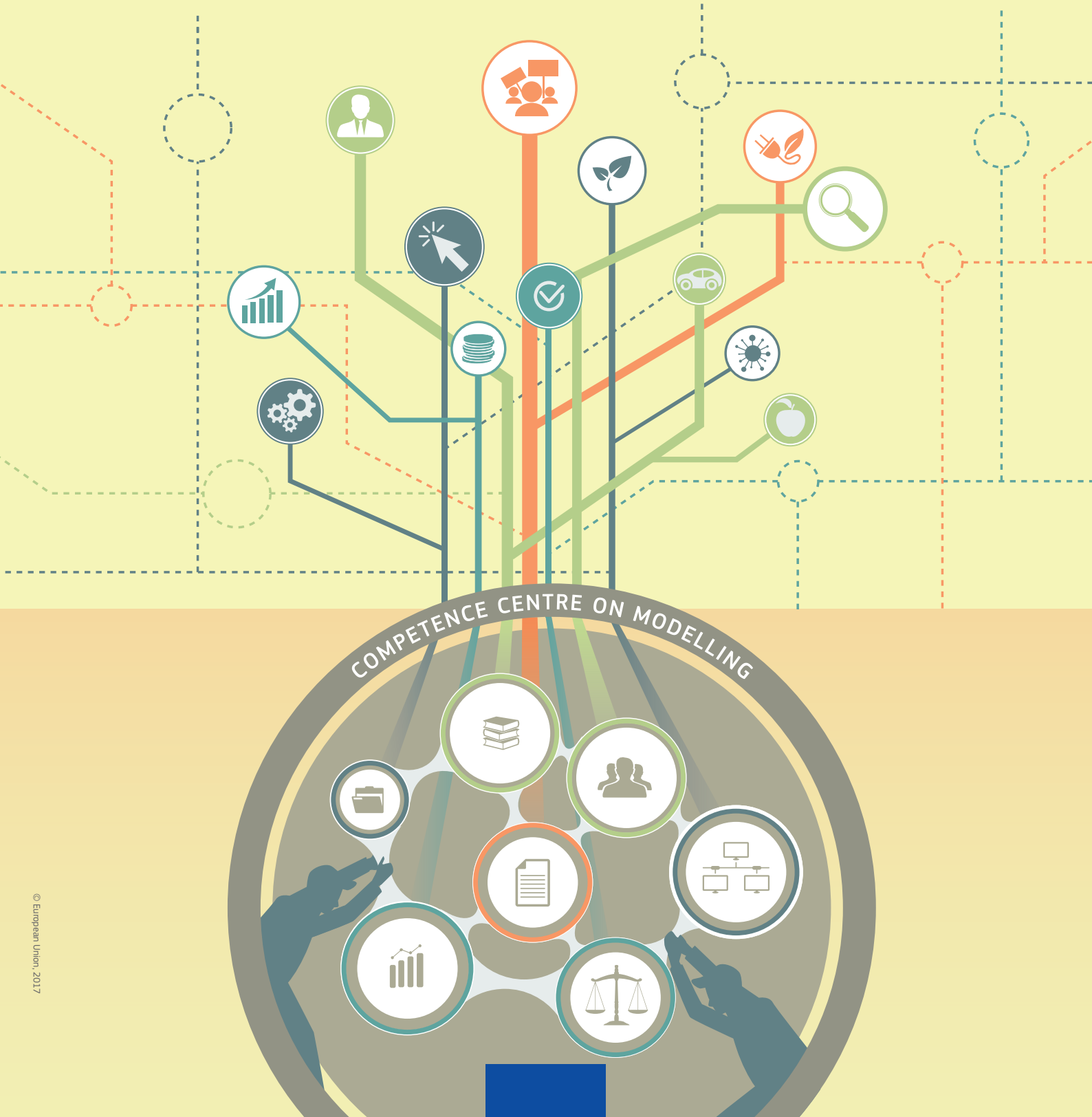
European Commission

The European Commission's Competence Centre on Modelling



The European Commission's Competence Centre on Modelling

What	The Competence Centre on Modelling promotes a responsible, coherent and transparent use of modelling to underpin the evidence base for EU policies
Why	The transparency and coherence of evidence used to support EU policy decisions – including, but not limited to, ex-ante and ex-post policy evaluations – are vital for the credibility of the Commission's policy analysis. The Commission makes extensive use of models for ex-ante and ex-post policy evaluations, for working documents and reports, and to underpin its position in international negotiations.
How	The Competence Centre leverages the modelling capacity and competences across the Commission and beyond. Starting with the Commission-wide modelling inventory (MIDAS), it supports a proper documentation, use, and reuse of models. It further helps identifying common approaches to quality and transparency of model use, and establishes a Community of Practice on Modelling
Who	The Community of Practice on Modelling, in which model developers and users in the Commission are invited to participate, will be the forum for the exchange of modelling-related knowledge and best practices. In collaboration with the Community of Practice, the Competence Centre will promote the use of multi-disciplinary and integrated modelling approaches to cater for the increasing overlap between different policy areas.

The main planned activities of the Competence Centre for the period 2017-2018 are outlined below.

Corporate Modelling Inventory and Knowledge Management

The Competence Centre develops and operates a Commission-wide knowledge management tool for modelling, enabling enhanced transparency and traceability of models in use for EC policy making. It facilitates the Community of Practice through its corporate body of knowledge and set of interactive tools for analysis, reporting and interactive design.

The Corporate Modelling inventory - MIDAS - allows anyone working on the Commission network to find models in use for policy making in any Commission Service, and to assess their use and potential reuse for specific policy purposes.

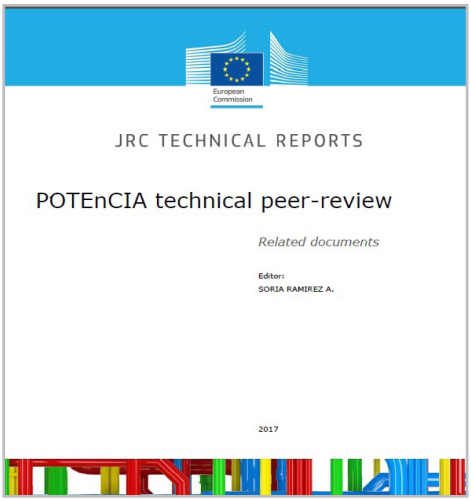
MIDAS also captures the links and dependencies between models. Especially in ex-ante IAs, when a set of models is used to answer complex policy questions, identifying these links early in the process is to lead to synergies, greater efficiency and better, more consistent results for policy making. Through access to related data, modelling exercises, past and ongoing policy contributions and related publications, MIDAS furthermore enhances the transparency of models and traceability of their results, and our understanding of the ongoing support within and across different domainsStartIng in 2017, MIDAS is integrated in the workflow for Impact Assessments that use modelling results: The 2017 revision of the Toolbox requests that any model used in Impact Assessments should be described in MIDAS. MIDAS can be used to generate the mandatory Impact Assessments Annex, that can be further edited by the user. .

This makes MIDAS an important corporate tool to use, reuse and document models in a proper way, leading to the propagation of sound methodology underpinning the Commission's Better Regulation policy and potentially to significant savings in terms of financial and personnel outlays.

The work includes the secretarial support to the **Inter-Service Group on Modelling Inventory (ISG-MI)**. The ISG-MI is the governance body for MIDAS in which currently 23 Commission Services are represented, chaired by JRC. The ISG-MI will become the nucleus of the **Community of Practice on Modelling** – an EC-wide network for the exchange of modelling-related knowledge. By organising seminars, workshops, and training to policy makers and modellers, the work package builds the capacity in the Commission to an improved and more coherent use of modelling in EU policy making.
The Competence Centre promotes good practices in data management and facilitates the use of the EU Open Data Portal and the JRC Data Catalogue by modelling teams.

Quality, transparency and sensitivity analysis of models

The aim of this work is to help improving the quality and transparency of models that are being used for EU policy making.
This involves the organisation of peer-reviews of the model quality and transparency. The model review is done by external experts with the involvement of the Commission staff. The selection of models to be reviewed is done in collaboration with the Inter-Service Group on Modelling Inventory and the modelling teams. The model review will result in a report on the model quality and transparency.

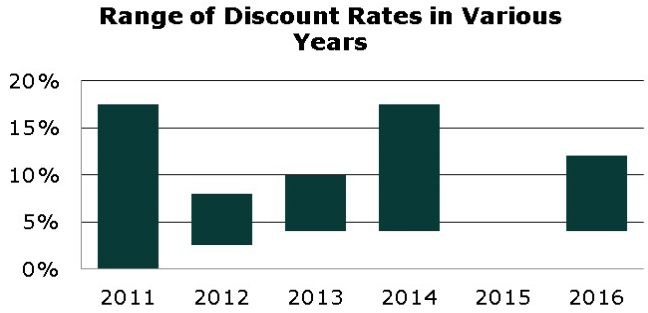


The activity also provides services and tools related to sensitivity analysis and uncertainty quantification. These tools are increasingly employed by practitioners in any field of science for the assessment, validation and verification of simulation models and computer codes in the presence of uncertainty. The JRC is world leader in this subject, contributing with its competence to the methodological development and the diffusion of the discipline worldwide. Staff of the Competence Centre will guide and train interested modelling teams in the setting up and execution of sensitivity analysis, and will further provide ad-hoc support to Policy DGs on model quality assurance.

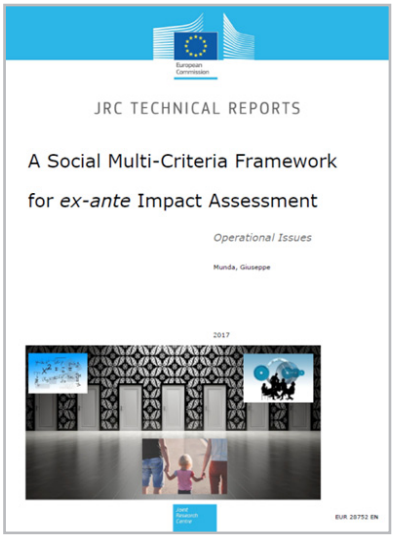
Training on Sensitivity Analysis. JRC, June 2017

Transparency and coherence of baseline scenarios for EU long-term integrated policy assessments

The objective of this activity is to improve the quality and consistency of baseline scenarios used for the policy modelling at the Commission. In close collaboration with modelling teams and the relevant policy DGs, currently used baseline scenarios in the modelling support for policy will be mapped and compared across models. Based on these insights, a number of recommendations will be put forward that aim at increasing transparency and improving the quantification of baseline assumptions in EU impact assessments.



Social Multi-Criteria Evaluation of Policy Options



Social Multi-Criteria Evaluation (SMCE) builds on formal modelling techniques serving the purposes of decision and policy making; in the policy cycle, it refers to the policy formulation step. SMCE is useful for helping the Commission to integrate a plurality of technical aspects and social views into its ex-ante impact assessment in a coherent and transparent manner.

SMCE can provide a **methodology** which is:

Inter/multi-disciplinary, since the various criterion scores can assess a wide range of impacts for example, by using results of economic, environmental, energy, and other simulation models.

Participatory, since fairness in the policy process is seen as an ethical obligation to take a plurality of social values, perspectives and interests into account.

Transparent, since all criteria are presented in their original form without any transformations in money, energy or whatever common measurement rod.

The importance of mathematical approaches in SMCE is their ability to allow a consistent aggregation of the diverse information. Otherwise, the standard objection might be that the aggregation of apples and oranges is impossible. Multi-criteria mathematics does answer to this objection in a definitive way.

The Competence Centre offers training on SMCE and ad-hoc support to DGs for Impact Assessments.

Upcoming

EU Learn

22-23 November 2017: Training on Ex-ante Impact Assessment: a Social Multi-Criteria Evaluation Framework, Brussels.

2018 Summer School on Sensitivity Analysis in Modelling

Further reading

Becker W., *Sensitivity Analysis in European Commission Impact Assessments*, JRC Technical Report (JRC106312), 2017.
Albrecht D., T. Mara, E. Pisoni, R. Rosati, S. Tarantola, *Sensitivity Analysis of the SHERPA Air Quality Model - Reliability evaluation & Key Variables Assessment,* 2017.
Mara T., V. Kopustinskas, R. Rosati, G. Stakelyte, P. Praks, S*ecurity of Gas Supply study by using probabilistic gas network simulator ProGasNet: an Uncertainty & Sensitivity analysis exercise,* 2017
Munda G., *On the use of Cost-Benefit Analysis and Multi-Criteria Evaluation in ex-ante Impact Assessmen*t, EUR 28768 EN, doi:10.2760/311199., Publications Office of the European Union. Luxembourg, 2017.
Munda G., *A social multi-criteria framework for ex-ante impact assessment*, EUR 28752 EN, doi:10.2760/909528, Publications Office of the European Union, Luxembourg, 2017.
Munda G., *Dealing with fairness in public policy analysis*, EUR 28751 EN, doi:10.2760/75185,, Publications Office of the European Union, Luxembourg, 2017.

Useful links

Competence Centre on Modelling – Science Hub: https://ec.europa.eu/jrc/en/modelling
Corportate Modelling Inventory MIDAS (EC-internal): http://midas.jrc.cec.eu.int
Connected (EC-intenal): https://connected.cnect.cec.eu.int/groups/cc-mod
EU Open Data Portal: http://data.europa.eu
JRC Data Catalogue: https://data.jrc.ec.europa.eu/

The people

	Competence and Activity
Svetlana Acs	MIDAS quality control, analysis of model use in policy making, gap analysis, Community of Practice
Daniel Albrecht	Team leader, Uncertainty and sensitivity analysis, model quality
William Becker	Uncertainty and sensitivity analysis
Gabriele Grimoldi	MIDAS technical development
Matthew Hardy	MIDAS technical development
Leen Hordijk	Former JRC Director, strategic advice and model reviews
Jiri Hradec	Data analytics and visualisation, analysis of model use, gap analysis
Giulia Listorti	Agricultural modelling, impact assessments, policy analyst, Community of Practice
Sven Langedijk	Head of Unit Modelling, Indicators & Impact Evaluation
Thierry Mara	Uncertainty and sensitivity analysis
Alexandra Marques	Integrated sustainability assessments, baseline scenarios
Giuseppe Munda	Team leader, Social multi criteria evaluation
Nicole Ostlaender	Team leader, MIDAS development, data management, community engagement, strategic analysis
Rossana Rosati	Statistics, uncertainty and sensitivity analysis
Eckehard Rosenbaum	Team leader, Economic and environmental modelling, baseline scenarios
Oana-Loredan Rusu	Secretarial support
Mikhail Simonov	Statistics, uncertainty and sensitivity analysis
Paul Smits	Head of Competence Centre on Modelling
Joanna Trieb	Quantitative and qualitative approaches, foresight and baseline scenarios

https://ec.europa.eu/jrc/en/modelling

#EUmodelling

Connected
https://connected.cnect.cec.eu.int/groups/cc-mod