



Working Group on System Dynamics for System Innovation

Fourth meeting - ONLINE (Webex)

Day 1 (*Technical discussion*): 1 December 2025, 9:00-13:15 CET

Day 2 (*Policy discussion*): 4 December 2025, 09:30-13:00 CET

WEBEX links:

Day 1: [Join the meeting](#)

Day 2: [Join the meeting](#)

*Note for Seville-based colleagues who may wish to join from JRC-Seville premises: you may connect online from rooms **Machado** (ground floor) on 1/12 and **Room 140** (first floor) on 4/12.*

[About the JRC project “System Dynamics for System Innovation”](#)

There is mounting interest in innovation policy approaches that can lead to transformative societal outcomes which include rapid economic development, environmental sustainability and an inclusive society. A persistent barrier in this respect is the difficulty of designing and evaluating complex combinations of policies and reforms spanning several production systems and policy areas. This project applies a unique system dynamics modelling methodology developed by the JRC to empower policy practitioners to design, manage and evaluate complex reforms, improve cross-department and multi-level alignment of policies and their sequencing over time and enhance transnational policy learning and cooperation. The POLYTRoPOS framework – a “POLYvalent model for TRansformative Policy Scenarios” – includes both a *multi-country macroeconomic simulation model* of productive transformations and a *participatory modelling methodology* to use the model in interaction with national and regional policy practitioners.

[Meeting purpose and scope](#)

The Working Group brings together academic experts and policy practitioners interested in systems thinking, measurement, modelling and their applications to transformative societal outcomes in Europe and beyond. It provides a space for collective learning, reflection, and co-creation. The aim of the fourth meeting is to provide an update on developments in the JRC project over the past year including:

- The general macroeconomic simulation model and its new capabilities
- The data processing methodology and infrastructure for its quick & cost-effective calibration
- Participatory modelling pilot studies in Sweden (energy and energy-intensive industries) and in Navarra, Spain (agrifood and the bioeconomy)

The meeting will additionally feature discussions around the combined use of many models and about the use of models in participatory/interactive modes. It will conclude with a meeting of the Advisory Board (by invitation only).

You are all welcome to join both days! However, please note that:

- **Day 1 will be dedicated to technical matters**, so please join that day if you have an interest in technical and quantitative aspects (theory, equations, metrics);
- **Day 2 will be dedicated to policy discussions**, around system innovation and the use of modelling in interaction with national and regional policy makers and with their stakeholders.

AGENDA

DAY 1: TECHNICAL ASPECTS OF MODELS & MODEL DEVELOPMENT

Day 1: [Join the meeting](#)

Monday 1 December: 09:00-13:15 Working Group meeting (open to all)

09:00-09:05 **Introduction to the workshop (online)**

- Carlos TORRECILLA, *Head of Unit B7, Innovation Policies and Economic Impact, JRC, European Commission*

SESSION 1 – THE GENERAL POLYTRoPOS MODEL

09:05-09:20 **JRC project ‘System dynamics for system innovation’: Introduction and project update**

- Dimitrios PONTIKAKIS, *JRC B7*

09:20-10:20 **THE MODEL: PRESENTATION OF POLYTROPOS-GENERAL**

Moderator: Igor OLIVEIRA, *Millennium Institute*

Overview

- George PAPACHRISTOS, *JRC B7*

Structure of the macroeconomic model

- Prof. José Luis TORRES, *University of Málaga (ES)*

The stock and flow model

- Prof. Pål DAVIDSEN, *University of Bergen (NO)/University of Riga (LV)*

Q&A

SESSION 2 - CONNECTING THEORY WITH REALITY

10:20-11:20 **MEASURING SYSTEM INNOVATION AND CONSTRUCTING A DATA WORKBENCH**

Moderator: Anabela MARQUES SANTOS, *ULB (BE)*

A methodology for delineating and measuring transitions: the case of Net Zero

- Hedvig NORLEN, *Urbanstat (IT)*

Introducing the Data Workbench of POLYTROPOS: making the methodology reproducible

- Tauno OJALA, *JRC B7*

Developing productive capabilities in Net Zero: a visual compendium of trends and patterns

- Niels MEYER, *JRC B7*

Policy, capabilities and output in EU Net-Zero sectors: a combined econometric approach

- Michele CINCERA, *Solvay Business School, ULB (BE)*

Q&A

11:20-11:30 **BREAK**

KEYNOTE ADDRESS

11:30-11:50: **KEYNOTE ADDRESS: THE SCIENCE OF MANY MODELS**

*Scott E. Page, John Seely Brown Distinguished University Professor of Complexity,
University of Michigan and Santa Fe Institute (US)*

SESSION 3 – USING MANY MODELS FOR SYSTEM INNOVATION

11:50-13:10 **ROUNDTABLE DISCUSSION: MANY MODELS AS “INDEPENDENT LIES”: CONSTRUCTING A MOSAIC OF MODEL-BASED INSIGHTS FOR POLICY**

*What can each model contribute to evaluating **the green energy transition in Europe**? How can each model inform **public policy concerned with system innovation** that combines prosperity, sustainability and resilience?*

The discussion should elucidate the unique capabilities and intended policy uses of each model and hopefully highlight conditions under which many models can be used to provide fuller insights.

Moderator: Juliana SUBTIL, *European Environment Agency*

5-minute “elevator pitches” by representatives of various models

FIDELIO – Full Interregional Dynamic Econometric Long-term Input-Output

- Luis Enrique PEDAUCA, *JRC B7*

RHOMOLO – Regional Holistic Model

- Simone SALOTTI, *JRC B7*

RI:COMPASS – An agent-based simulation model of regional innovation & transition pathways

- Thomas SCHERNGELL, *AIT (AT)*

RADAR – Long-term impacts of R&I policy on competitive sustainability

- Bianca CAVICCHI, *DG Research and Innovation, European Commission*

COMPASS – The COmprehensive Model for Planetary And Social Sustainability

- Reo VAN EYNDE, *University of Barcelona (ES)*

FTT – The Future Technology Transformations model

- Cormac LYNCH, *University of Exeter (UK)*

Green-EUROMOD – Tax-benefit microsimulation model for the European Union

- David KLENNERT, *JRC B2*

POLYTRoPOS – POLYvalent Model for TRansformative POLicy Scenarios

- George PAPACHRISTOS, *JRC B7*

EPILOGUE: The emerging mosaic of perspectives and policy contributions

- Amber GEURTS, *TNO (NL)*

Q&A

13:10-13:15 **Concluding remarks and anticipation of Day 2**

- Dimitrios PONTIKAKIS, *JRC B7*

DAY 2: USING MODELS FOR POLICY

Day 2: [Join the meeting](#)

Thursday 4 December:

9:30-13:00 Working Group (open to all), 14:00-15:30 Advisory Board (by invitation only)

- 09:30-09:40 **JRC PROJECT: INTRODUCTION AND UPDATE (FOR THOSE ATTENDING ONLY DAY 2)**
- Dimitrios PONTIKAKIS, JRC B7

KEYNOTE ADDRESS

- 09:40-10:00 **KEYNOTE ADDRESS: PARTICIPATORY MODELLING AND PUBLIC POLICY**
- Nuno VIDEIRA, *CT NOVA School of Science and Technology* (PT)

SESSION 1 – POLYTRoPOS DEVELOPMENT AND POLICY USES

10:00-10:30 **The process: Model features and policy uses**

The simulation model as a tool of policy intelligence

- George PAPACHRISTOS, *JRC B7*

Policy uses of the POLYTRoPOS framework

- Matthijs JANSSEN, *University of Utrecht* (NL)

Q&A

SESSION 2 – POLICY PERSPECTIVES AND MODELLING APPLICATIONS

10:30-11:50 **Case studies in Sweden and Navarre**

This session will showcase the system innovation policy perspectives of Sweden and Navarre and will report on JRC activities to support their ambitions. JRC activities include the pilot applications of a new methodology (PRISM - Preliminary Innovation Systems Mapping) that combines systems thinking with the functional perspective for systems evaluation. Above all however, the spotlight will be on Participatory System Dynamics (PSDM) modelling workshops that took place in Stockholm (10 June) and Pamplona (17 October) aimed at improving the policy relevance of the POLYTRoPOS simulation model and building capacities among policy stakeholders to think and act systemically.

Moderator: Göran MARKLUND, *Deputy Director-General, VINNOVA – Sweden’s Innovation Agency* (SE)

10:30-11.10 **SWEDEN: GREEN ENERGY AND ENERGY-INTENSIVE INDUSTRIES**

Sweden’s system innovation policy perspective

- Nannan LUNDIN, *Chief Analyst, Vinnova* (SE)

PRISM-Sweden, Participatory System Dynamics Modelling and POLYTRoPOS-Sweden

- Igor OLIVEIRA, *Millennium Institute*

Q&A

11.10-11.50 **NAVARRRE, SPAIN: AGRIFOOD AND THE BIO-ECONOMY**

Navarre’s system innovation policy perspective

- Montse GUERRERO, *Sodena, Region of Navarre* (ES)

PRISM-Navarre and Participatory System Dynamics Modelling in Navarra

- Igor OLIVEIRA, *Millennium Institute* and Eva SEVIGNE ITOIZ, *OREKAN* (ES)

Q&A

11:50-12:00 **BREAK**

SESSION 3 – ROUNDTABLE DISCUSSION ON THE ROLE OF MODELS IN SYSTEM INNOVATION POLICYMAKING

12:00-12:50 **PARTICIPATORY MODELLING FOR SYSTEM INNOVATION: TOWARDS A ‘MANIFESTO’.**

Senior policy makers and analysts take turns to offer directions for the development and interactive use of simulation models that cater to the needs of public policy for system innovation. Discussants are invited to offer their reflections in particular on:

- The concrete policy needs that may be served by simulation modelling
- Capacity building for thinking and acting systemically
- Avenues for transnational learning and cooperation

The outcomes of this discussion can later evolve into a co-created ‘manifesto’ to be documented in a future JRC Policy Brief.

Moderator: Michal MIEDZINSKI, *JRC B7*

Discussants:

- Natalia BELLOSTAS, *INTIA, Navarra* (ES)
- Fabienne CORVERS, *Secretariat-General, European Commission*
- Ian HUGHES, *Department of Education and Youth and University College Cork* (IE)
- Göran MARKLUND, *VINNOVA* (SE)
- Florian SCHWENDINGER, *Ministry for Innovation, Mobility and Infrastructure* (AT)
- **Contributions from the audience and Q&A**

12:50-13:00 **Closing remarks and appreciation**

Margherita BACIGALUPO, *Deputy Head of Unit, JRC B7* and Dimitrios PONTIKAKIS, *JRC B7*

13:00-14:00 LUNCH BREAK

14:00-15:30: Advisory Board meeting (by invitation only)

[see separate agenda]

MEETING END