



New Analytical Tools and Techniques: NAEC Innovation Lab

From Ideas to Innovation

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NAEC – new questions

Well-being

Resilience

Productivity-inequality nexus

Income inequality

Finance and financial linkages

Restoring trust

Economic activity and environmental systems

Long-term

NAEC – new approaches

Policy interactions

Complex systems

Non-linearities

Adaptive complex systems

Distributional impacts

Trade-offs and complementarities

Non-rational behaviour

Multi-dimensional outcomes

Geospatial impacts

Targeted advice

Some questions

How can policies reduce risks of financial contagion?

How does the distribution of income evolve as the economy grows?

How will digitalisation change the structure of the economy?

New tools needed

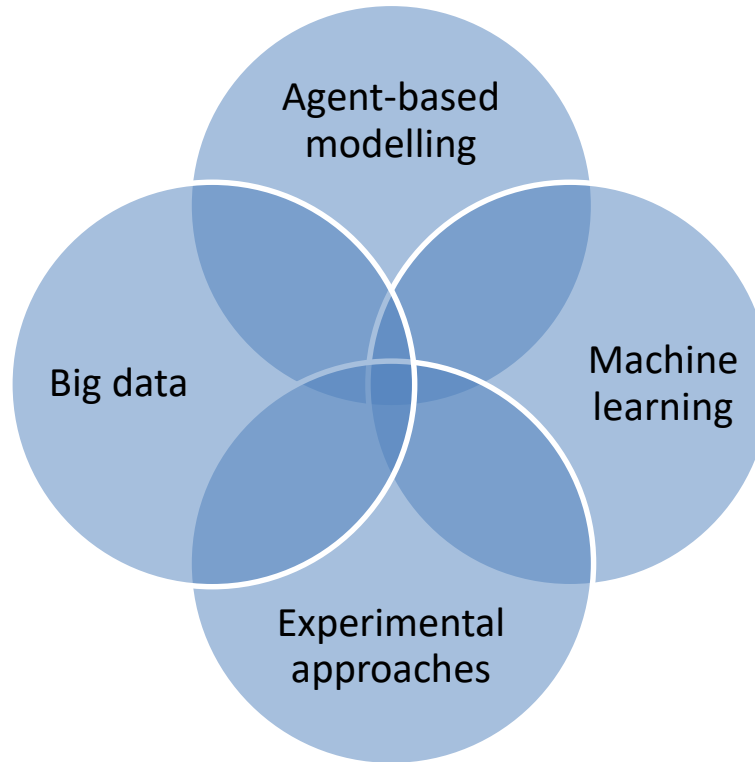
New questions may need new tools

Technology is opening new possibilities

New tools can shed new light

Add to existing toolkit

LAB will focus on 4 tools



Strong synergies between the tools

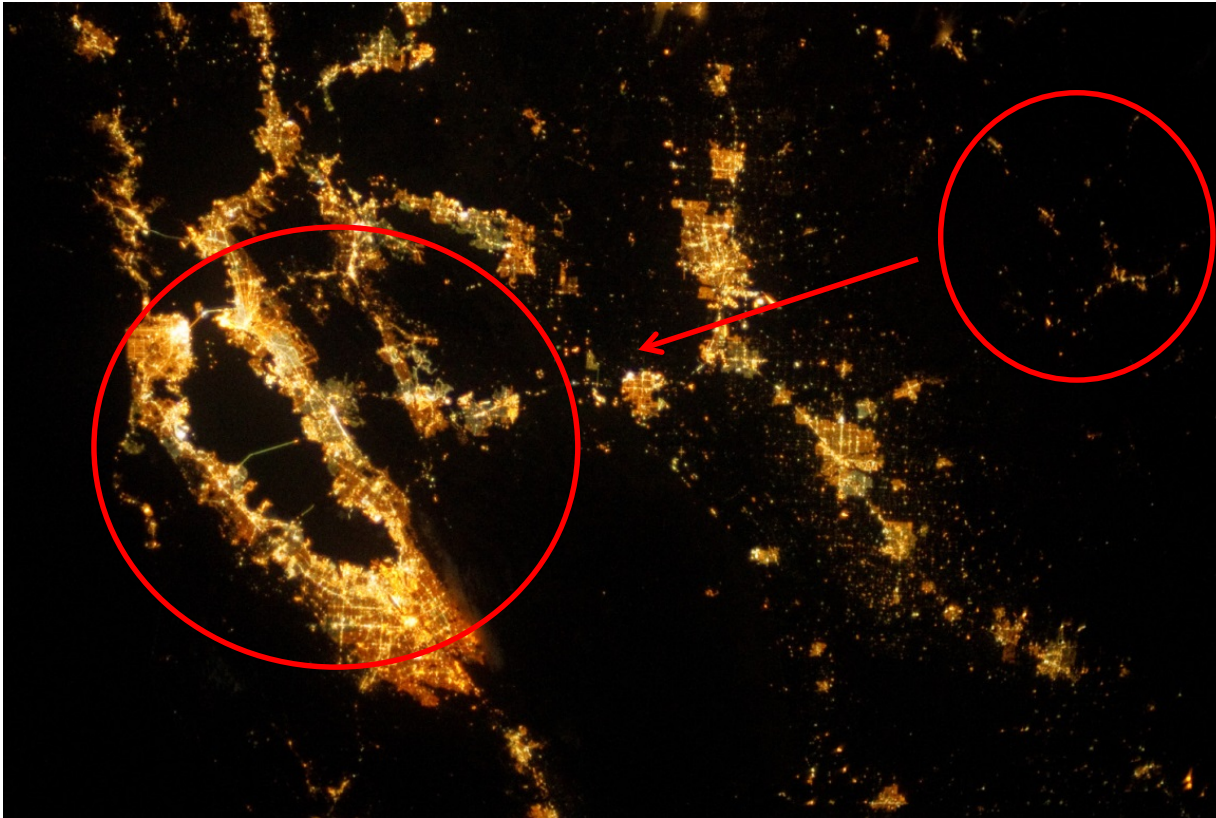
New approaches to modelling individuals and systems

4 initial new projects (CPF)

- **Agent-based modelling (ABM)** - financial interactions and network effects in the global economy, highlighting policy spillovers
- **Machine-learning** - improve short-term macroeconomic nowcasting/forecasting
- **Machine-learning** - non-linear interactions between growth-enhancing policies and inequality outcomes, allowing for interactions between policies and with country circumstances.
- **Big data** – analyse new information on prices to assess effects of technological change and exposure through trade and global value chains

Other projects on-going/underdevelopment
with LAB involvement

Where the OECD is today



Today

A small but increasing number of projects, dispersed across the OECD

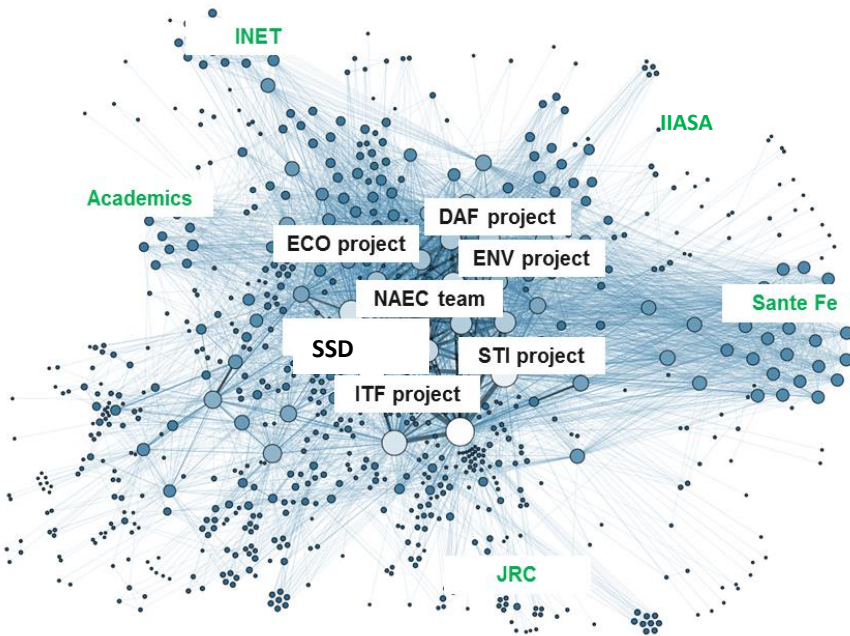
Goal

A large number of interconnected projects

Existing projects

- **Big/smart data** – research on innovation, globalisation, regions
- **Machine-learning** – some projects, particularly based on textual analysis
- **Experimental approaches** – Trust Lab
- **Agent-based modelling (ABM)** – new Shared Mobility

NAEC Innovation LAB: goals



Encourage experimental projects

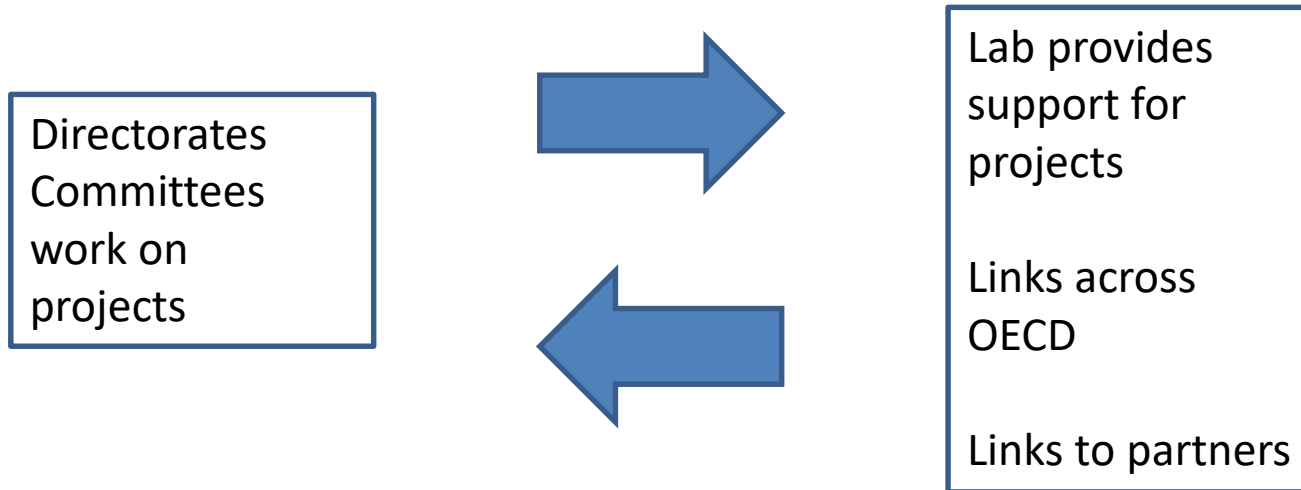
- Small-scale
- Scaling up

Encourage working collaboratively

- Across OECD
- Mix of staff/skills
- With external partners

Innovation requires a new way of working

LAB innovation model



Innovative projects in the *mainstream* of OECD work

What would the Lab do?

The Lab would incubate, connect innovative projects drawing on new tools

- **Core Lab team** of people working together
- A **Community** to amplify and create a network
- Lab provides advice, facilities and support for new projects
- Seminars and training
- Work with the OECD **Smart Data Framework**
- **Platform** for external collaboration – academic advisers and joint projects with research institutes/others
- Lab raises profile of innovative work
- Lab channels **seed funding**
- Work with researchers in **countries** interested in innovative approaches

Governance

The Lab is an initiative of the Chief of Staff, Chief Economist and Chief Statistician

- Projects would take place within Directorate/Committee Work Programmes
- LAB will report on activities to NAEC Group, EPC and CSSP

Preliminary steps towards the Lab

Seminars/workshops

ABM and Labour Market seminar

ECO/ELS/NAEC

Jean-Philippe Bouchaud

Mapping what's
happening

AMB and Financial Markets workshop

ECO/DAF/NAEC

Rick Bookstaber

Connecting to OECD
innovators

Machine learning and forecasting

ECO

Machine learning

DKI/American University

A lot of positive support; we have been able to connect some existing projects already and people with ideas for new projects

Key points

- New questions and approaches need **new tools**
- LAB will focus on complexity-related tools
- LAB aims to promote ***more innovation, working across OECD***
- Innovation ***mainstreamed*** with LAB providing support

The LAB takes forward the NAEC agenda and helps to make it operational for policy