



COMPLEX SYSTEMS: A NEW APPROACH TO ECONOMIC CHALLENGES?

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The OECD

- An international organisation, 34 member countries in 4 continents
- Established in 1961 as a results of the management of the Marshall plan after WW2
- Today the organisation is expanding



What does the OECD do?

- The mission of the Organisation for Economic Co-operation and Development (OECD) is to **promote policies that will improve the economic and social well-being** of people around the world
- The OECD provides a forum in which **governments can work together to share experiences and seek solutions to common problems**. We work with governments to **understand what drives economic, social and environmental change**. We measure productivity and global flows of trade and investment. We analyse and compare **data to predict future trends**. We set international standards on a wide range of things, from agriculture and tax to the safety of chemicals



And how?

OECD's way of working





Covering many fields of analysis

- Macroeconomics
- Education
- Health
- Public governance
- Cities and regions
- Technology and innovation
- Environment
- Employment
- ...



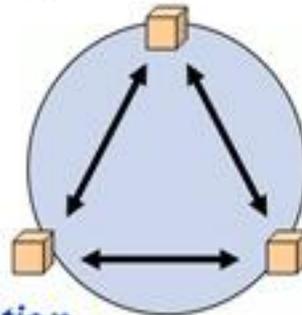
How does the OECD work?

Who drives the OECD's work?

Council

Oversight and strategic direction

Representatives of member countries and of the European Commission;
chaired by the Secretary-General; decisions taken by consensus



Committees

Discussion and implementation

Representatives of member countries and of countries with Observer status work with the OECD Secretariat on specific issues

Secretariat

Analysis and proposals

Secretary-General
Deputy Secretaries-General
Directorates



Economists and the crisis...

- Economists did not forecast the current economic and financial crisis
- An open reflection is undergoing in economics
- What is missing in economic modelling?
- How to forecast the crisis of the future?
- In search for new directions



Does economic modelling need to be revised?

- Principle of rational agents that want to maximise or minimise a specific variable
- Equations (typically linear) with key variables and constraints
- Maximise those equations
- Finding (stable) equilibrium
- Econometric/statistical analysis



Almost 5 years after, no clear solution has been identified

- Acknowledgment of the need of a better understanding and better formalisation of socio-economic phenomena
- Many institutions/policy makers and economists have engaged in an open debate on the issue
- Several initiatives starting to conceive the economy as a complex system are born: EU (Global System Science), OECD-NAEC, Institute for New Economic Thinking, ...



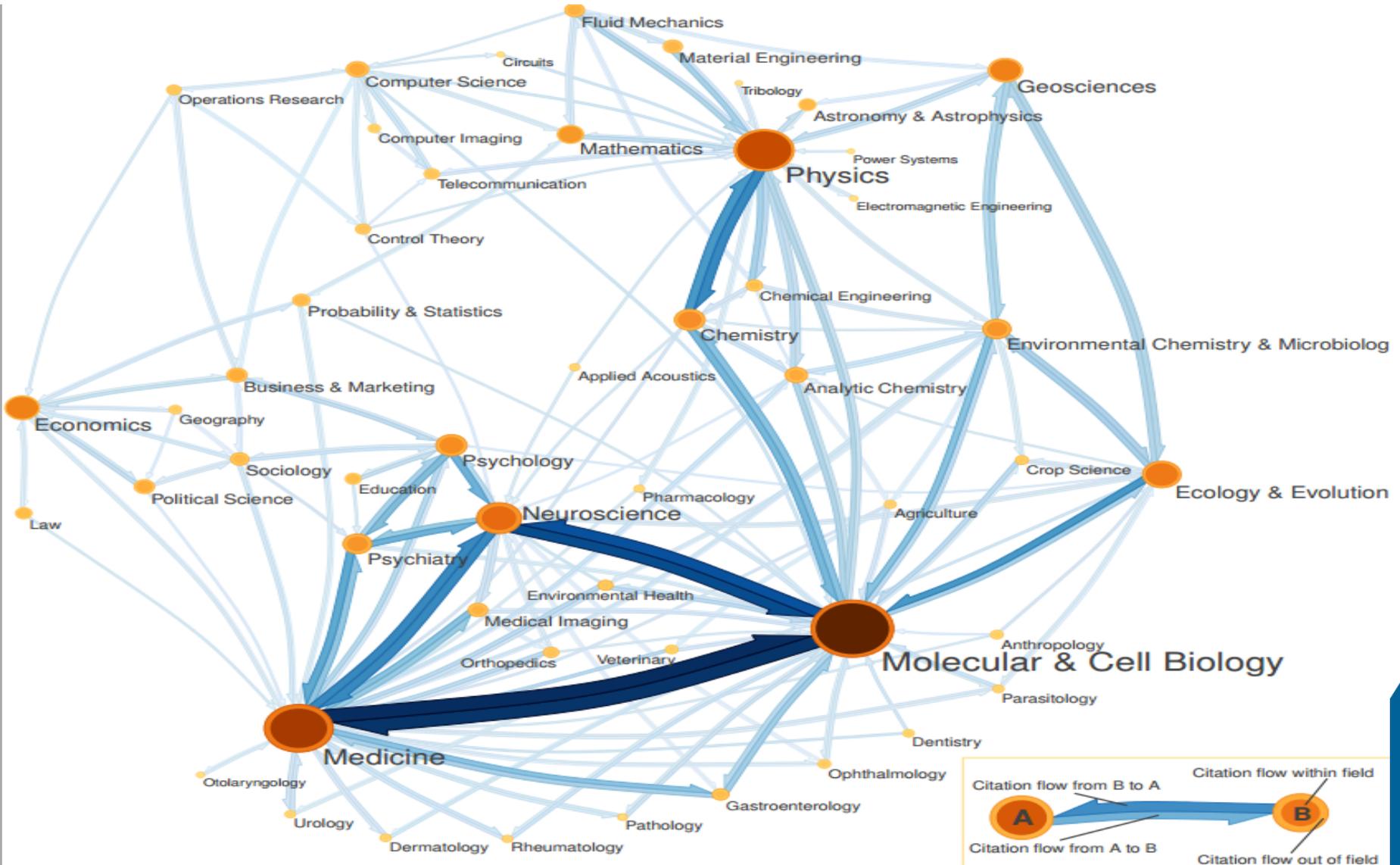
OECD initiative called *New Approaches to Economic Challenges* launched in 2012 by the SG

“A key component in developing *New Approaches to Economic Challenges* could be to identify the areas where we may need to adjust our analytical framework”

...but how to do in practice is an open question...



Taking into account interactions...





...and exploiting new possibilities
offered by Big Data?

Simulations and formalisation of social phenomena increasingly possible and accurate thanks to the enormous amount of data produced, collected and shared



Examples of on-going OECD work with clear potential linkages to complex system approaches

- Simulations and behavioural economic type of analysis with respect to environmental consumer behaviour
- Agent-based modelling related to healthcare and economics of prevention
- How's life initiative and well being (security, social aspects)



Examples of on-going OECD work with clear potential linkages to complex system approaches

- Big data, open science and networks (science maps, technology evolution, innovation adoption and diffusion)
- Urban development, evolution of urban systems



Main purposes of such analysis

- A better understanding of socio-economic phenomena (contagion, spillovers, herding behaviour,...)
- Development of new indicator to assess impact
- Forecasting and predicting



Thank you !

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