



# Measurement of Social Networks and Innovation

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Innovation”

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# Outline

- Innovation
- Measurement
- Measured Linkages
- Networks
- Capital
- Network Capital
- Policy for Networks

# Innovation

- Innovation\*
  - New products (goods or services) put on the **market**
  - New processes to produce products or deliver them to the **market**
  - New organizational structures or practices of the firm
  - New **markets** or greater share of existing **markets**

\*OECD/Eurostat Oslo Manual (3<sup>rd</sup> edition, 2005)

# Measurement

- Activities
  - R&D, invention, **innovation**, diffusion, skill development, ...
  - Done by a single unit
- Linkages
  - Flows of money, people, material, energy, and intangibles (data, information, knowledge, ...)
  - At least two units
- Outcomes
  - Single unit, change in turn over, market share, stock value...
  - Multi units, better access to knowledge (web), ...
- Impacts
  - Change in quality of life, longevity, conflict, ...

# Measured Linkages

- Actors: Governments, Business, Higher Education, Non-profits
- Some examples
  - Government departments to other actors →
    - Contracts, contributions, grants
    - Incentives, technical support
  - Firms ←
    - Source of funding
    - Goods and services
    - People
    - Ideas

# Measured Linkages

- Firms →
  - Goods and services
  - People
  - Energy and material
- Higher Education →
  - People (tacit knowledge and absorptive capacity)
  - Knowledge (commercial and freely available)
  - Spin-offs
- Tend not to do Origin-Destination surveys
  - Do analysis of micro-data?

# Networks

- Co-Publishing and Co-Patenting
  - All Actors
  - Geography
  - Subject
- Measures both ends
- Data are available with limitations
- Time for a co-publishing map for nano?

# Capital

- Capital
  - Lasts longer than a year
  - Provides services
  - Depreciates
- Capital Investment – a flow GFCF
  - Allocation of resources to the accumulation of
    - Machinery and equipment, construction, knowledge?
- Intangibles in National Accounting?
  - Capitalization of R&D in the SNA
  - Other intangibles?

# Network Capital

- Pharmacists
  - Form groups from pharmacies not close enough to compete
  - Compare sales, floor design, suppliers, ...
  - Make changes and improve turn over
  - Knowledge is stored in the network
  - How to measure?
    - Could compare pharmacies that collaborate with those that do not but difficult to produce internationally comparable statistics
    - Does this fit in the Innovation Strategy?
    - What are the policy implications?

# Network Capital

- OECD Committees
  - Example of activities of public and private sector
    - 30 member countries + EU + Observers
    - Address problems (Financial services crisis)
    - Provide solutions collectively, using a common language, peer learning, peer review, and trust
    - No one country, or the OECD, could produce the knowledge independently
    - Knowledge is stored in the network as network capital
    - Network capital delivers network services
      - Can it be measured?
      - What are the policy implications

# Policy for Networks

## – Framework conditions

- Financial incentives
- Regulatory constraints
- Technical support
- Cultural / Historical factors

## – Markets

- Modes of collaboration
- Knowledge flows

## – Human capital

- Skills needed to build, transform and use networks