Innovation policy, national innovation systems and economic performance: In search of a "useful" theoretical framework

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Where to start?

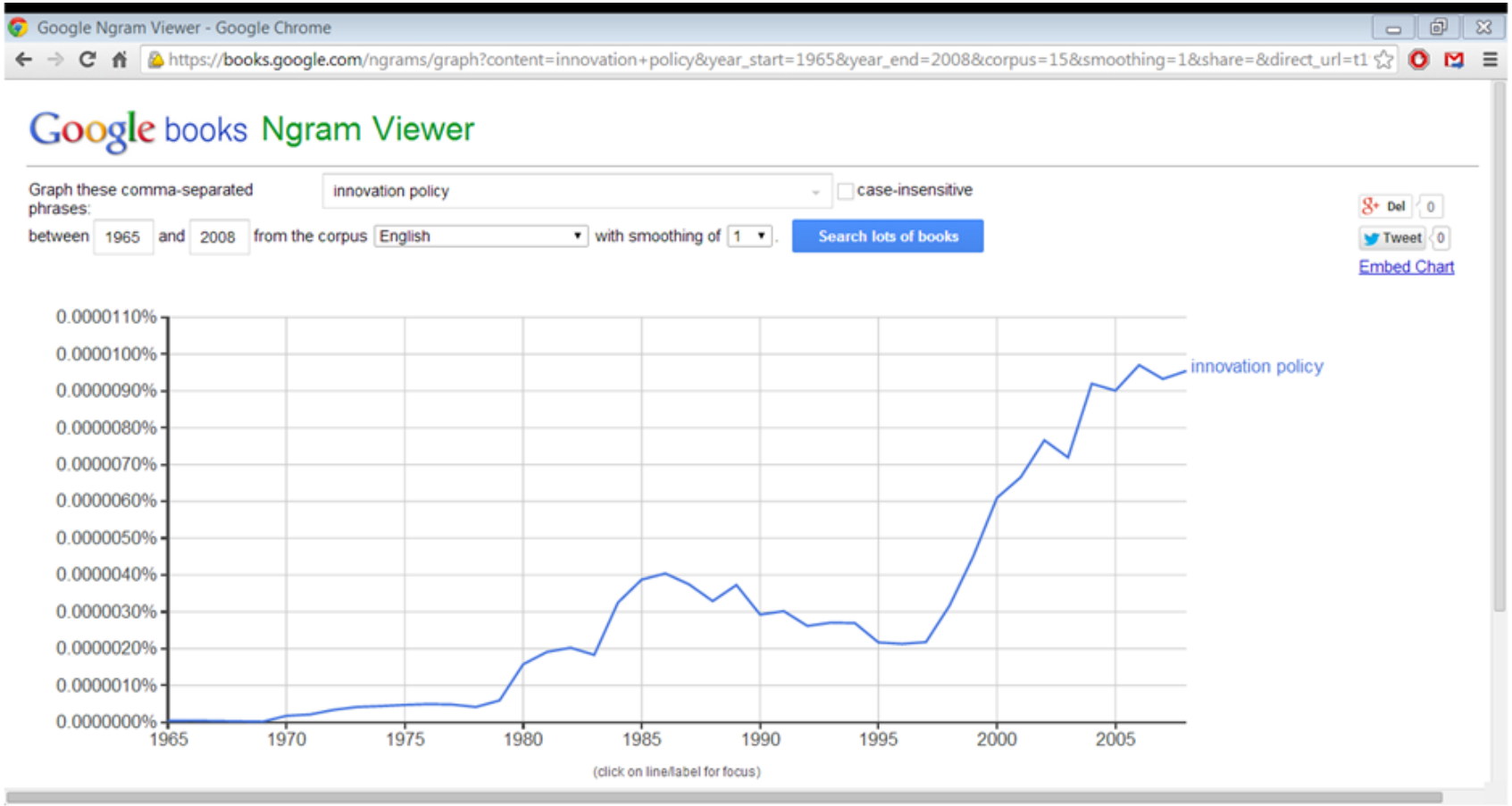



100 years of research has produced a rich theoretical literature on innovation:

- Innovation: **source of prosperity**/economic growth
- Broad perspective: entire **cycle from invention via innovation to diffusion**, feedback/loops
- Requires **capabilities/resources: Complementarity**
- Does not occur in vacuum: **innovation systems**
- Not always well received**: inertia**, «blocking mechanisms» and **actors**
- **History matters**; co-evolution, path dependency and lock in

But much less on innovation policy!

The popularity of the term “Innovation Policy” (according to Google)



Does new term mean "new phenomenon"? Depends on ….

- What is **meant** by "innovation policy"

  Is it:

- Policies (or instruments) created with the **intent** to affect innovation (**narrow** definition)

  Or:

- Policies that have an **impact** on innovation (**broad** definition)

" Broad" definition more sensible
(but **challenging** to apply)

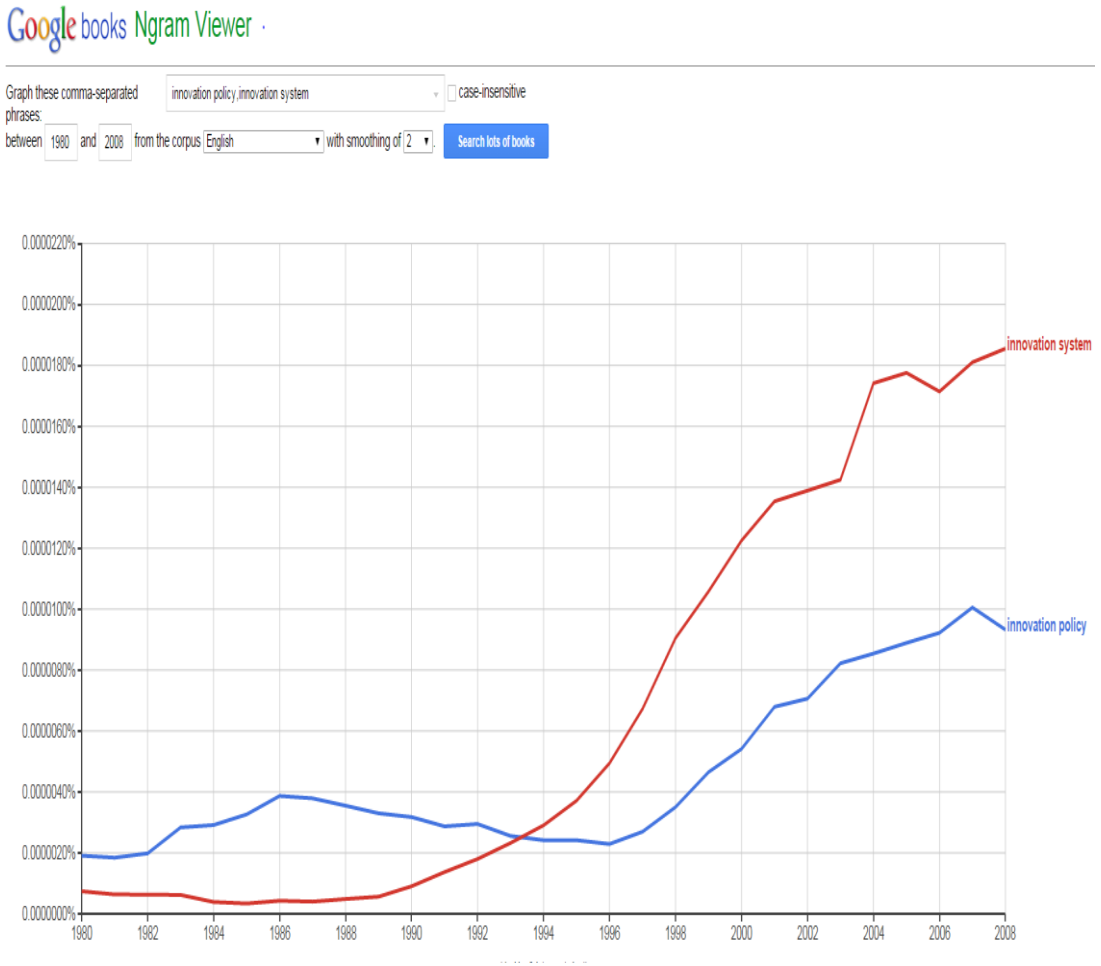
SWEDEN, 1976
AXE SYSTEM TESTING

Not a new phenomenon: "The Swedish model" (1930s onwards)

- P**ublic infrastructure** used proactively to foster i**nnovation/competitiveness** in firms
- F.i. from the 1950s **Televerket** and **Ericsson** collaborated on the development of electronic switches
- 1970-1978: jointly owned development company **Ellemtel** develops the **AXE system**, the most advanced and flexible switching system at the time.
- **AXE** made Ericsson a major player in mobile telephony at an early stage (40 % of the global market for mobile switching stations in 1992)

Innovation policy & Innovation Systems (NSI)

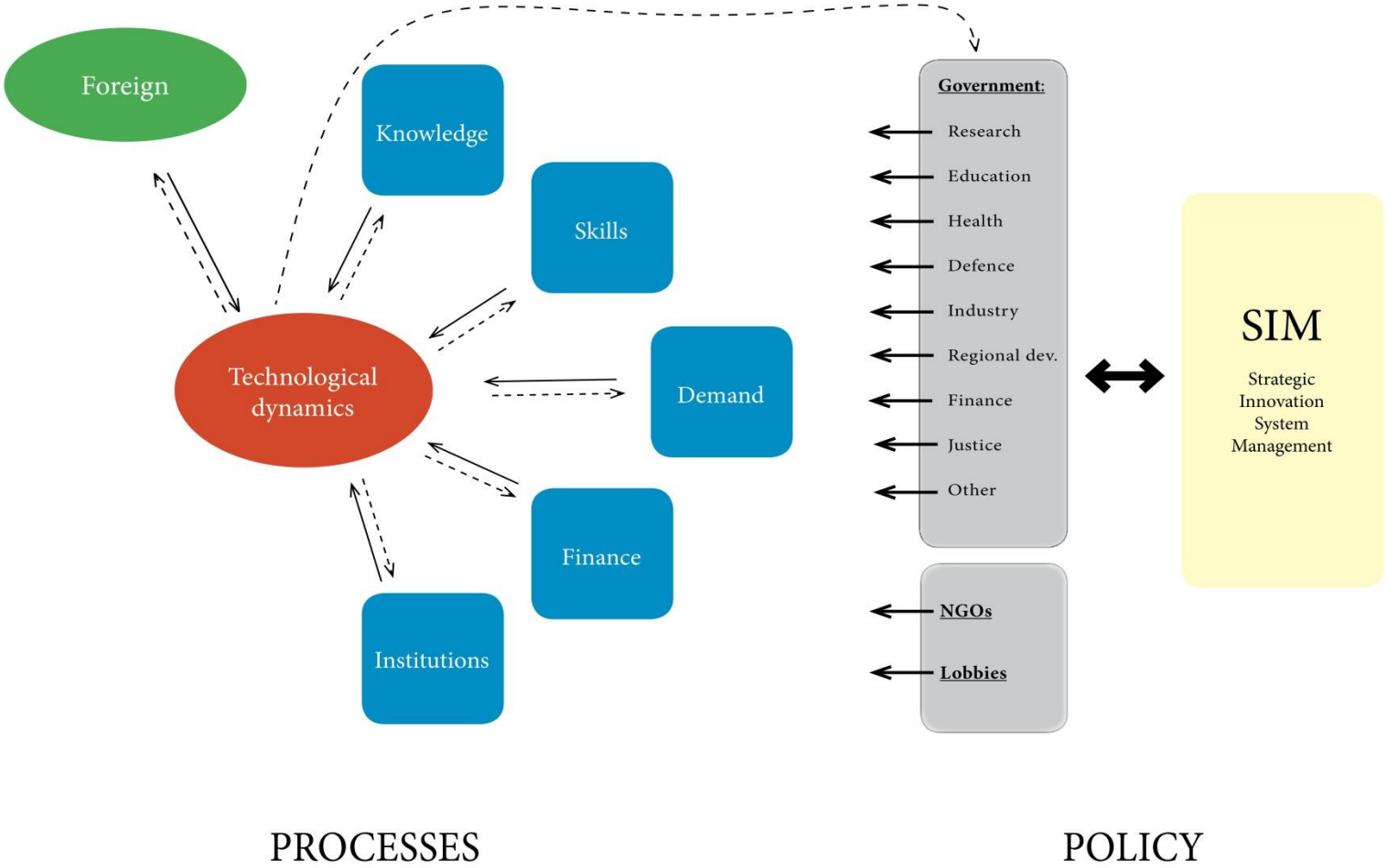
- **Interactive innovation:** Actors, organizations and institutions
- Early work: Mapping the **interaction pattern** (**structure**) - may vary for **historical reasons** – all systems **unique**?
- Recent work: Focus on the **dynamics** of the system and **factors influencing it** (functions, activities or **processes**), which **policy** may influence (Edquist 2004, Bergek et al 2008)



Linking Processes and Policy

- **Knowledge**: F.I. public R&D organizations, R&D support, technology platforms etc. Supported by the Ministry for **Research**, but also ministries for **industry, regional development, health, defense, finance** etc.
- **Skills** are normally the responsibility of the Ministry of **Education** (but vocational training may fall under the Ministry of **Industry**).
- **Demand** for innovative solutions may be spurred by the creation of markets (subsidize use f.i.), by changing standards and regulations and by using public procurement. These policies often falls under the Ministry of **Industry** but the ministries of **defense, energy, health** and the **environment** may also matter.
- **Finance**: Some innovative initiatives may have problems in ordinary financial markets, leading the public sector to step in. This would normally fall under the ministries of **industry**, **finance** or **regional development**.
- **Institutions** refer to the "rules of the game" influencing entrepreneurial actions. They range from law and regulations, the responsibility of the Ministry of **Justice**, to informal norms and rules (on which policy actors may have less influence).

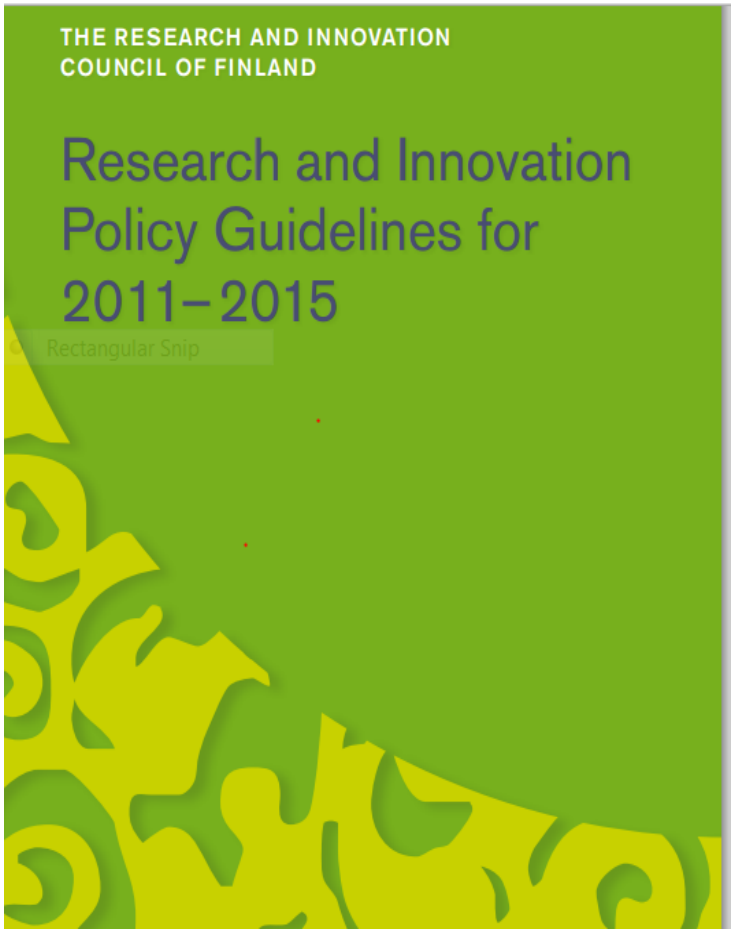
A National Innovation System: Dynamics, processes and policy



Implications

- It is of little help to have superior **knowledge**, if you don't have the **skills** necessary for its exploitation, the required **finance** or **demand** (lack of **complementary** factors)
- If one critical factor is lacking/fails to progress, this may **block or slow down** the growth of the entire system **("blocking mechanisms**")
- An effective innovation policy therefore requires **mapping of the innovation effects** and **close coordination of policies across a number of different domains** (a **holistic** perspective required)
- This in turn requires the development of **new forms of governance** ("strategic innovation-systems management", SIM) that are in need of research

Can it work? Research needed!



- The **Finnish** example:
- Policy **coordination** with strong involvement of the **political leadership** pioneered in Finland:
- (How) did it work? Can it be **replicated elsewhere**? Other relevant experiences to consider?
- Vulnerable to **"group-think"**, **"path dependency"** and **"lock in"** ?
- A **"democratic deficit"** or just the **opposite**?