

Logic of Public Intervention – The role of public partners in stimulating innovation capacity

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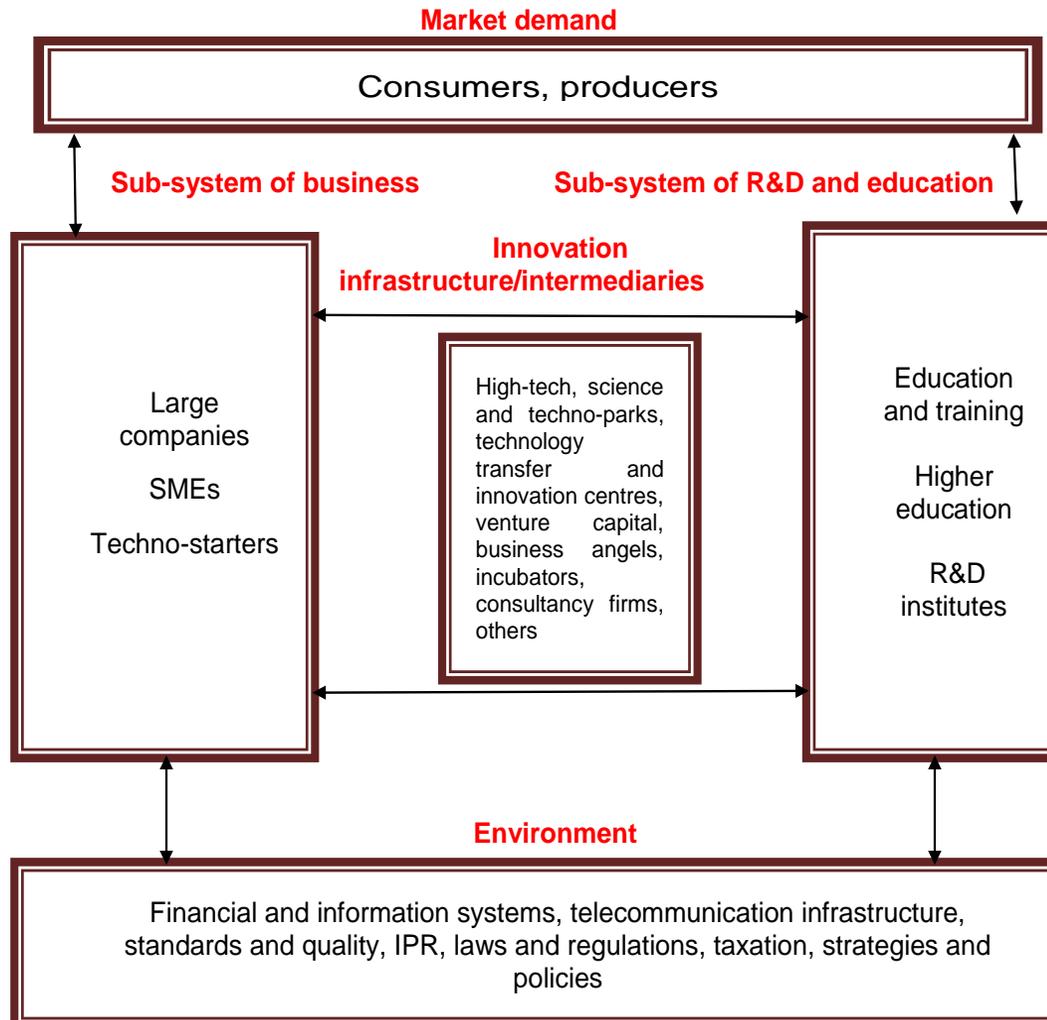
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Outline

1. From “innovation systems” to “innovation ecosystems”
2. Logic of public intervention for stimulating an innovation ecosystem
3. Some public initiatives for supporting innovation ecosystems:
 - EU: Smart specialisation strategy (RIS3) and RIS3 Platform
 - US: California Innovation Hubs (iHubs) Programme
 - Japan: Industrial Clusters and Knowledge Clusters programmes

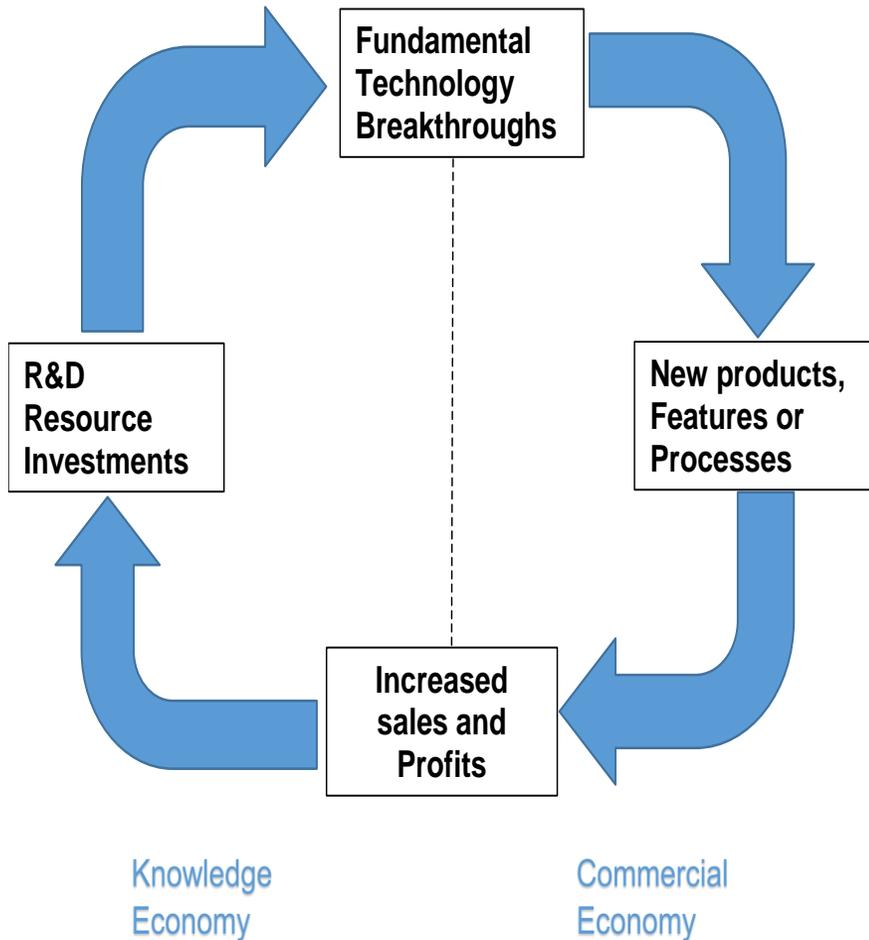
From “innovation systems” to “innovation ecosystems”



Innovation system:

- Examines the influence of knowledge and innovation on economic growth in evolutionary systems (Lundvall, 1985; Freeman, 1987, 1995)
- Sub-systems: R&D & education, business, innovation intermediaries, market demand, environment
- Later differentiated into:
 - *National innovation systems*
 - *Regional innovation systems*
 - *Sectoral innovation systems*
 - *Technological innovation systems*
 - *Triple Helix Systems* (Ranga & Etzkowitz 2013)

From “innovation systems” to “innovation ecosystems”

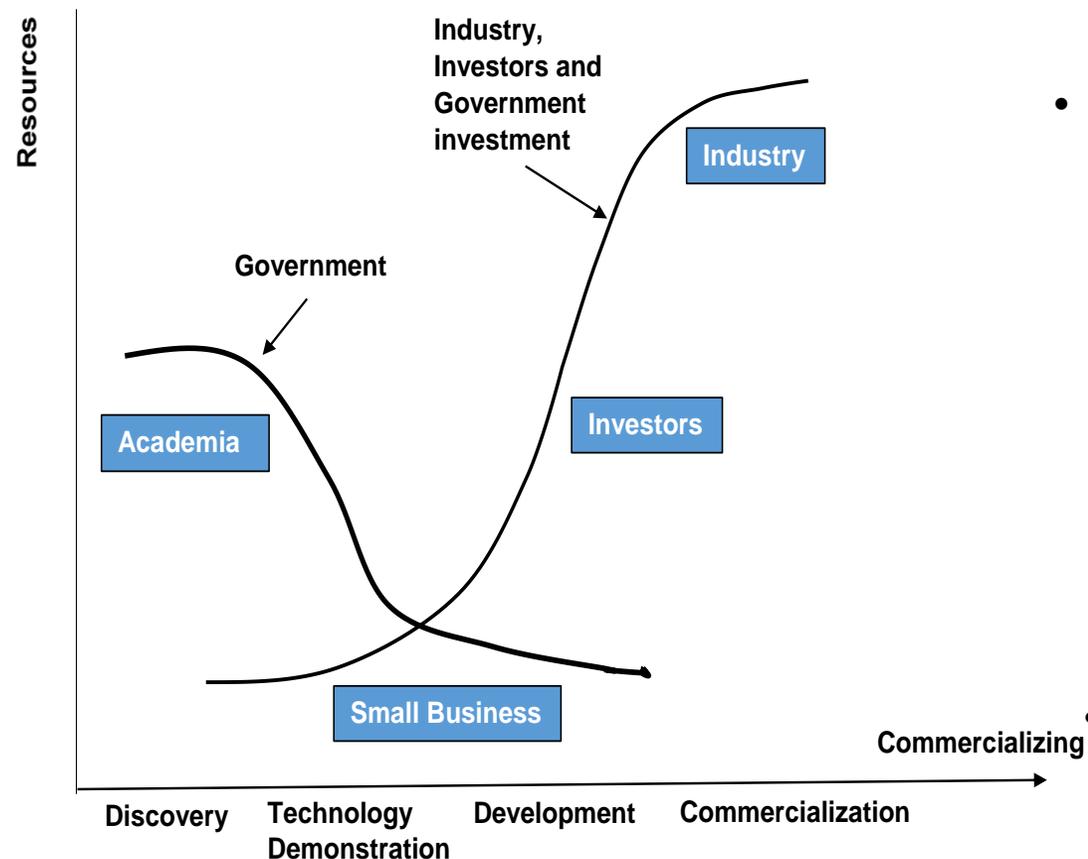


Source: [Jackson \(2011\)](#)

Innovation ecosystem:

- Conceptual analogy with biological ecosystems in nature
- Comprises individual and institutional actors that enable technology development, innovation and entrepreneurship.
- Individual actors: human capital (students, faculty, university staff, industry researchers and managers, VCs, policy-makers, entrepreneurs, etc.)
- Institutional actors: universities, R&D institutes, business firms,, interface institutions, state and/or local economic development and business-support organizations, funding agencies,, etc. and resources (funds, equipment, facilities, etc.)
- **Knowledge economy** (driven by research) coupled with a **Commercial economy** (driven by the market), as resources invested in the KE (government R&D investment) are derived from CE (tax revenues)
- Different reward systems → difficult to turn research discoveries into innovative products and profits on the market

Key challenges for the growth of an innovation ecosystem



Source: [Jackson \(2011\)](#)

- Turn R&D results into innovative products that lead to profits, jobs, growth
- Uneven resource distribution
 - Higher concentration of government investment in (basic) research in academia
 - Much higher investment in direct product development in the commercial marketplace
 - Resource gap for the phases of technology demonstration and development (“Valley of Death”) - many potential innovations die for lack of the resources to bring the innovation to market.
- Equilibrium between KE and CE for a healthy innovation ecosystem (resources invested in KE by private, government, or direct business investors) are replenished by innovation-induced profit increases in CE

Logic of public intervention for stimulating an innovation ecosystem

- Increasing investment in TD&D: not necessarily a good strategy because of high failure rate (99.9%)
→ better to limit investment losses by carefully screening the projects receiving translational funding
- Teaming with successful entrepreneurs, angel investors, or venture capitalists, BUT only 10% of VC investments are commercial successes (10 x ROI to recover the other 90% failed investments).
- Move the academic side of the Death Valley wall further to the right; or move the commercial side of the Valley wall further to the left to successfully span the Death Valley
- Invest more in applied research, university technology transfer and commercialization
- Lower the perceived risk for investors: e.g. stimulate early stage investment by industry investors in academic technology discoveries, facilitate U-I dialogue about nascent technology
- Make infrastructure investments that benefit the innovation ecosystem and spread the risk among a larger number of actors, increasing the chances they will invest in an enterprise that creates jobs
- Build linkages and trust relationships between the ecosystem actors
- Recycle resources (including human capital) released upon failure of an enterprise
- Improve business framework conditions

Improving business framework conditions in innovation ecosystems

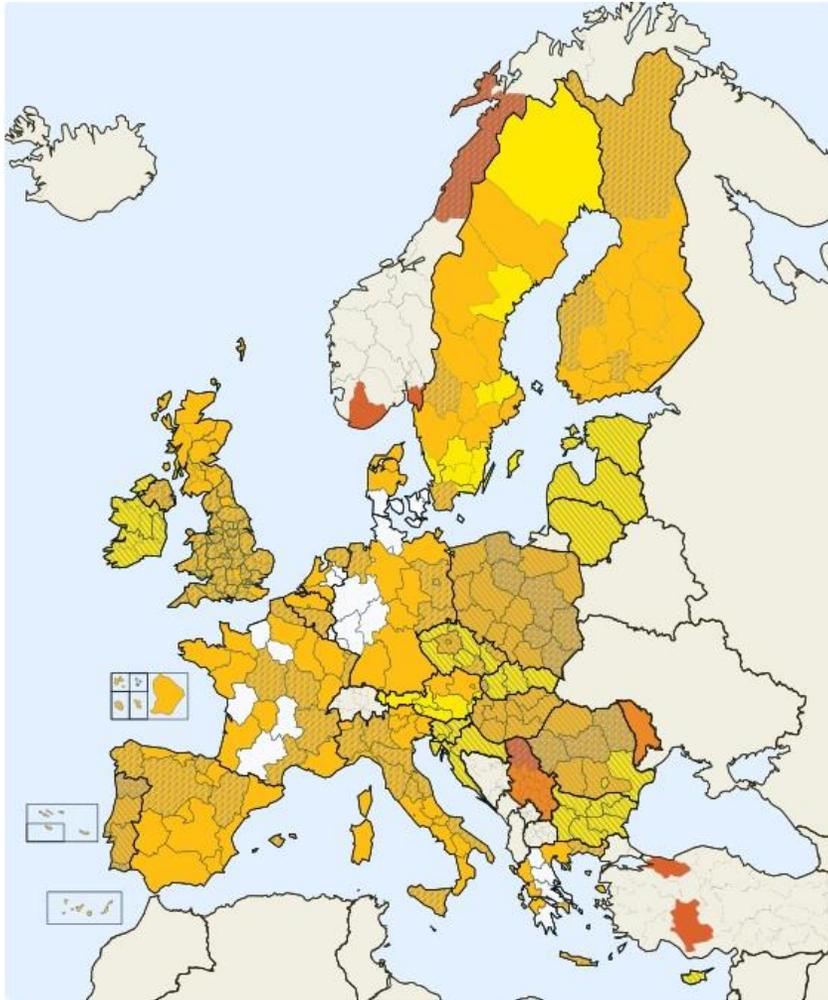
- Regulatory environment: clear, friendly, respect for IPR
- Tax system stimulating growth
- Simplify conditions for starting and operating business

- Access to capital (VC, bank loans)
- Financial incentives to entrepreneurship (e.g. tax incentives for funding start-ups from private funds)
- Predictability of funding (e.g. competitive funding, grants, etc.)

- Build innovation centres with commercial focus
- Create opportunities for U-I dialogue, meetings of like-minded, visionary young people (F2F & virtual)
- Lower the perceived risk-taking (e.g. government guarantee funds for bank loans by start-ups)
- Foster entrepreneurship culture, management/commercial mentorship to young entrepreneurs

- Spatial concentration of innovation ecosystems: large cities, with satellite areas outside of cities, but reliant on them
- Increase cross-border collaboration - rise of 'micro-multinationals' targeting global markets

EU Smart Specialisation Strategies



- EU Countries registered in S3P: 18
- EU Regions registered in S3P: 168
- Non-EU Countries registered in S3P: 2
- Non-EU Regions registered in S3P: 7

- **Smart Specialisation Strategies (RIS3 or S3)** set national and regional priorities to build competitive advantage by developing and matching R&I strengths with business needs.
- Biggest EU investment instrument for Europe 2020 - over €450 bn (including national co-financing) in 2014–2020 Cohesion Policy
- 4 key priorities: R&I, digital agenda, support for SMEs, low-carbon economy (EUR 125 bn allocated to these areas).
- 4 themes: S3PEnergy, Digital Growth, Key Enabling Technologies (KETs) (nanotechnology, micro- and nanoelectronics, advanced materials, photonics, industrial biotechnology, AMS), Value chains (Agri-Food, Blue Growth, Digital Agenda and ICT, Industrial Modernisation)
- **RIS3 Platform** (est. 2011, IPTS Seville) assists EU countries and regions to develop, implement and review their RIS3 strategies
- ‘Entrepreneurial discovery process (EDP)’ for systematic discovery and pursuit of RDI investment priorities, open new technological and market opportunities by regional actors

REGIONAL LOCATIONS OF THE INNOVATION HUB PROGRAM



California Innovation Hubs (iHubs)

- Managed by the Innovation & Entrepreneurship Unit of the Governor's Office of Business & Economic Development
- Established in 2010 further to CA 2009 budget crisis and soaring unemployment rates
- Commercialization of innovation and technology in specific research clusters as an economic development strategy, diversification of local economy
- Stimulate partnerships between research parks, technology incubators, universities, federal labs, startups, economic development organizations, business firms and VCs
- Connect the emerging labor force (from layoffs) with existing businesses and entrepreneurial start-ups
- **16 existing iHubs + 3 new ones** in historically strong economic sectors: healthcare, manufacturing and aerospace (5 year-iHub designation, can be renewed). Each iHub has a specific focus determined largely by its specialized resources.

Cluster policies in Japan

The Industrial Cluster Programme (METI)

- Launched in 2001 to enhance Japan's competitiveness through new technology-driven businesses by local firms, universities and other research institutions.
- Three phases spread over 20 years:
 1. *Launch (2001-2005)*: 20 cluster projects started, collaboration with existing clusters developed by local governments;
 2. *Development (2006-2010)*: reforms in corporate management and start-up creation, network formation, development of specific businesses;
 3. *Autonomous growth (2011-2020)*: financial independence and autonomous growth of industrial clusters, network formation and development of specific businesses.
- 19 Industrial Clusters since 2009 (10,200 regional SMEs, 560 universities and colleges).



The Knowledge Cluster Programme (MEXT)

- Launched in 2001, rooted in the regional R&D and innovation policies of the S&T Basic Plans
- Based on local governments' cluster creation plans in areas with high concentration of knowledge and industry, involving universities, public research institutions, firms and other entities
- Coordinated by Core Organisations (foundations or other corporations designated by the local government), supported by MEXT.
- Stimulate U-I-G joint research, patenting, incubation, forums, dissemination of research
- 30 candidate regions selected in 2001, 18 clusters (2002-2004).
- Significant increase in collaborative R&D and UIG networking, many regional initiatives in 2001-2006

THANK YOU!

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