

The Diverse Paths to Rapid- Innovation-Based Growth: Public Policy's Strategic Role

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Discussion Points

- Global changes and the multiple pathways to success
- New roles for the state in RIB-based development
- International successes and their challenges
- Innovation policy agencies?
- What does it means to have choice?

There are Multiple Ways for Success in RIB-Based Growth

Specific Set of Capabilities Were Developed by Different Regions to Succeed in a Particular Window of Opportunity

- **Israel**
 - Supplier of new technologies
- **Taiwan**
 - OEM/ODM capital
- **Finland**
 - Niche concentration
- **China**
 - Run of the Red Queen

The Evolving Globalization

- **Production is now globally fragmented**
 - Activities, not whole industries, are spatially clustered
- The service transformation
 - The algorithmic revolution
 - The rise of cloud computing
- **Rapid-Innovation-Based (RIB) growth calls for different logic of policy**
 - Undefined markets and products
 - Technology itself is the product

The Role of the State

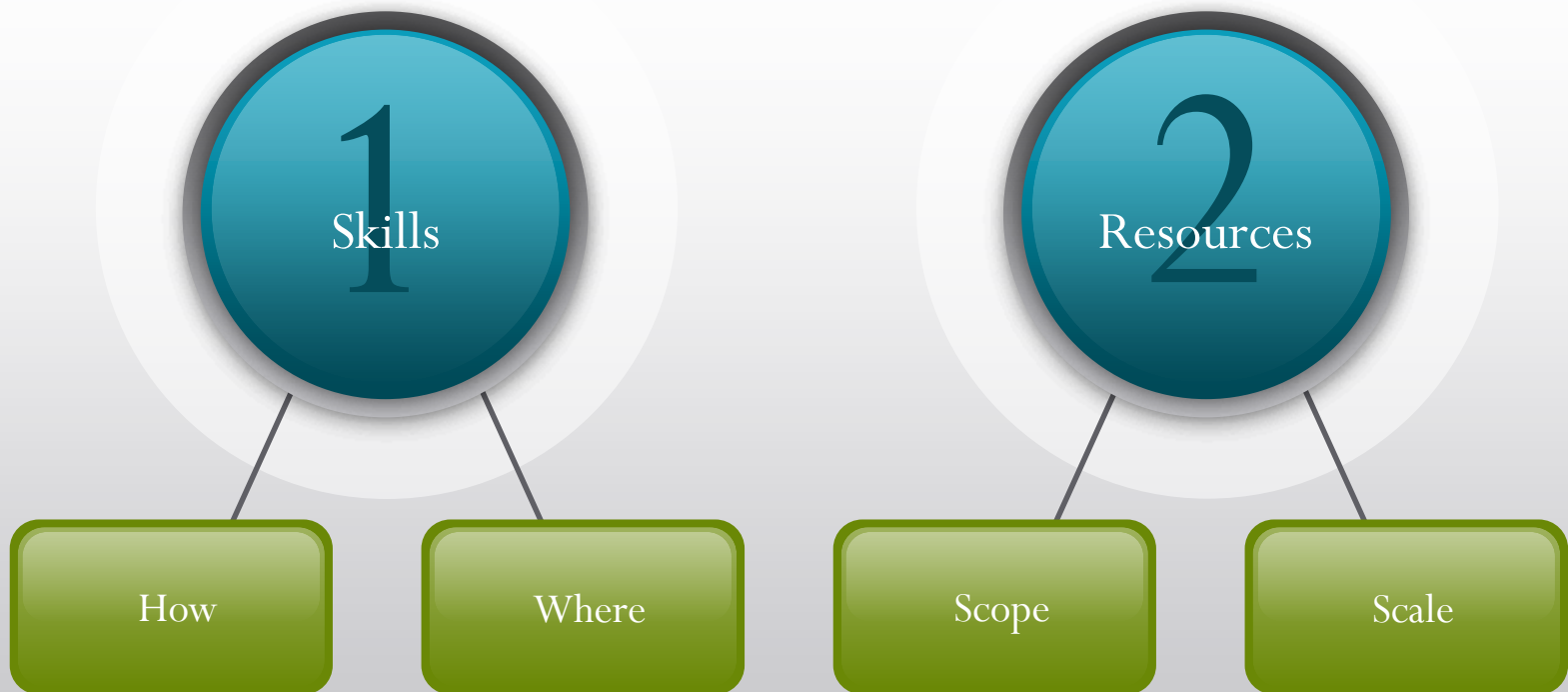
1. Create
 - Assist in capability creation and reconfiguration
2. Stimulate
 - Incentivize agents to use capabilities
3. Step in
 - Agents development and diffusion of new capabilities to others

The State Role In *Rapid-Innovation-Based Growth*

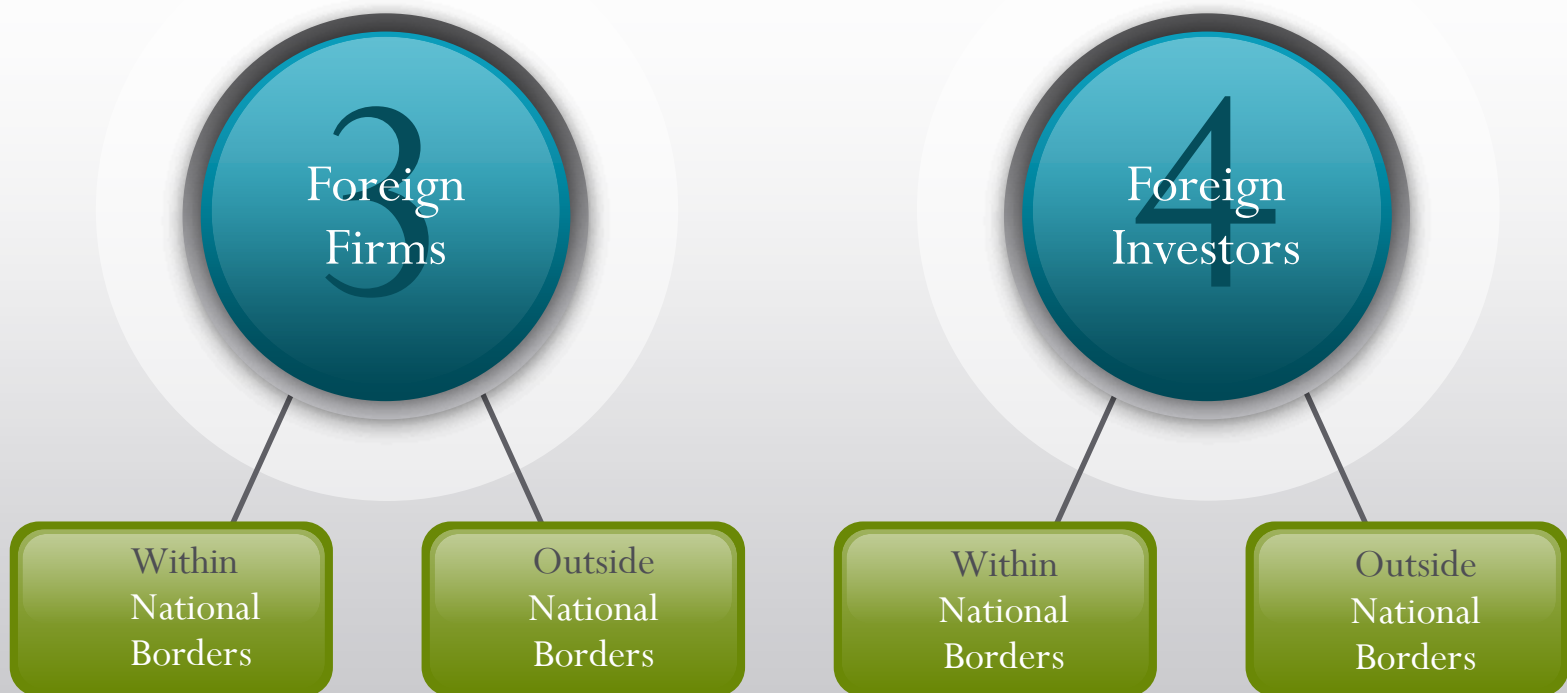
- States must actively engage in two critical domains:
 - R&D market failure
 - Local-Global
- How states **engage** in these domains **shape** the creation of capabilities and **effect** the development paths of their industries
- Each choice-path has consequences – development of specific set of capabilities but not others – **strengths** and **weaknesses**.



Four Critical Decisions: Industrial R&D



Four Critical Decisions: Connecting the Local with the Global



Israel

Crisis

- 886 R&D workers with academic education in the whole industrial sector
- 1978–1986 raging inflation = 109187%

Recovery

- The largest number of high-tech firms on NASDAQ after the US and Canada
- By 2000: IT exports \$13USD billion = 71% of industrial exports and 70% of GDP growth

Success and Its New Challenges

Choice and Problem Formulation—How Capabilities Were Created:

- Science-based industry
 - Policy—R&D = horizontal policies
 - Policy—global local = R&D focus/division of labor/activity
not ownership is the focus

Outcomes:

Success as supplier of new technologies and products

Success in both software and hardware

Challenge:

Industry migration to the US

Building of sustainable success

Economic inequality

What next after ICT?

Finland

Crisis

- Collapse of the Soviet Union
- Destruction and disruption of the mainstay of Finnish economy
- Severe economic crisis: Output down by 15%; unemployed 17%

Recovery

- Nokia is (Has? Was?) the world leader in Mobile Telephony
- Finland is considered one of the most successful and innovative countries in the world in BOTH ICT and traditional industries

Success and Its New Challenges

Choice and Problem Formulation—How Capabilities Were Created:

- Structural reconfiguration of the innovation system
 - Policy—supply side investment in R&D
 - Policy—internationalization of Finnish firms

Outcomes:

Success in ICT—build around ONE (rapidly fading) company

Success in traditional industries revamping

Challenge:

While Helsinki's startups scene created even more jobs, are these jobs sustainable?

Do they have the same overall impact? Who is employed? Can these companies grow?

Demand and User-based Innovation Policy

Schumpeterian Development Agencies I

- Different logic of policy:
 - Undefined markets and products
 - Technology itself is the product
- Commitment to a process of continuous policy experimentation (ability to kill is as important)
- Radical ideas – new (sometimes non-yet-existing) partners

Schumpeterian Development Agencies I

Three functions:

1. Identification of ideas and targeting of different actors and activities.
2. Engaging P&P partners to implement, test and validate.
3. Redefining mission in a co-evolutionary process vis-à-vis the state of the local industry

Reality check I: many innovation agencies were created, but...

Reality check II: can you think about one successful RIB transformation led by a powerful centralized innovation agency?

Open Question: can you create a peripheral SDA a-la the Israeli OCS, the Finish SITRA, or the Taiwanese ITRI under current political conditions?

If not can provincial efforts a-la AOSTRA and NRC-Plant Biotechnology Institute in Saskatoon, point the way, or are they just one time wonder?

In Way of Conclusion:

How to start thinking about innovation policy for inclusive growth?

1. Imagine the society you want to become
2. Understand your current strengths and weaknesses – think where you WANT to fit in the global production networks
3. Devise innovation policy (taking into account the changing global reality, R&D market failures, global/local, skills and capabilities, and distributional outcome)
4. Institutionalize and have patience – RIB growth is a long-term high failure game, structural and paradigmatic economic shifts do not happen overnight
5. Money is not the key – sustained effort is