

Innovation Policy Initiatives around the Globe: A collection of Good Practices

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Outline

- Introduction to the concept of national STI programmes
 - Need for government intervention
 - Horizontal & vertical interventions
- Good practice
 - Financial support: grants and risk financing
 - Collaborative arrangements
 - Training and knowledge dissemination
 - Sector-specific initiatives
- Lessons learned



Public Policy to Support Innovation

Developed countries seem to agree on five broad policy areas to ease constraints on the incentives of private firms to innovate:

- Direct public fiscal policies to stimulate innovation, whether through *grants* or the *tax system*;
- Funding of *public research organizations* and measures to improve linkages with the private sector;
- *Intellectual property* and *competition* regulation;
- Availability of *finance* for innovation expenditures;
- Availability of *human resources* for science, technology, innovation (entrepreneurship).



Public Policy to Support Innovation

They are considered connected to particular forms of market failure leading to underinvestment in innovation.

Market failure has been the long-standing favorite rationale of economists to justify government support for STI. It has been expressed largely in terms of the argument that social returns to R&D investment exceed private returns. As a result, the private sector would be expected to underinvest in R&D.

In addition to imperfect appropriability, however, market failure may be the result of:

- factor indivisibilities
- information asymmetries among stakeholders
- uncertainty



Public Policy to Support Innovation

These traditional economic rationales for public support for STI have, more recently, been supplemented by newer approaches focusing on **system failure** due to technological and more generic system complexity involved in scientific and technological advance and innovation.

E.g.:

- “Lock-in” of early technological trajectory;
- Institutional constraints on the diffusion and utilization of knowledge;
- Technological complexity;
- Timing of R&D investments relative to the technology life cycle;
- Technical infrastructure and standards;
- Investing within the life cycle versus investing to transition between technology life cycles.



Public Policy to Support Innovation

It is currently unclear what is the appropriate government role in counteracting systemic failures. It is also unclear at what level of government there may be place for intervention. The discussion here has focused on **systems of innovation**, be they national, regional, or sectoral.

It has also focused on the re-examination of more mainstream subjects of STI policy, now under new lenses, such as:

- Firm Characteristics, Market Structure
- Technological Opportunity, Appropriability, Firm Strategy
- The Diffusion (Dissemination) of New Technology
- Globalization/Internationalization of R&D
- Linkages to External Sources of S&T Knowledge
- Intellectual Property Protection
- Small Firms - Technology-Based Entrepreneurship
- Science Parks, Technology Incubators, Venture Capital
- Innovation in Services



Horizontal & Vertical interventions

- Horizontal programmes: support for general knowledge base, infrastructure, technology development and entrepreneurial behaviour across all economic sectors
- Vertical programmes: “picking the winners” – focusing resources on the support of one specific economic sector or technology

Complementarity of horizontal and vertical S&T programmes

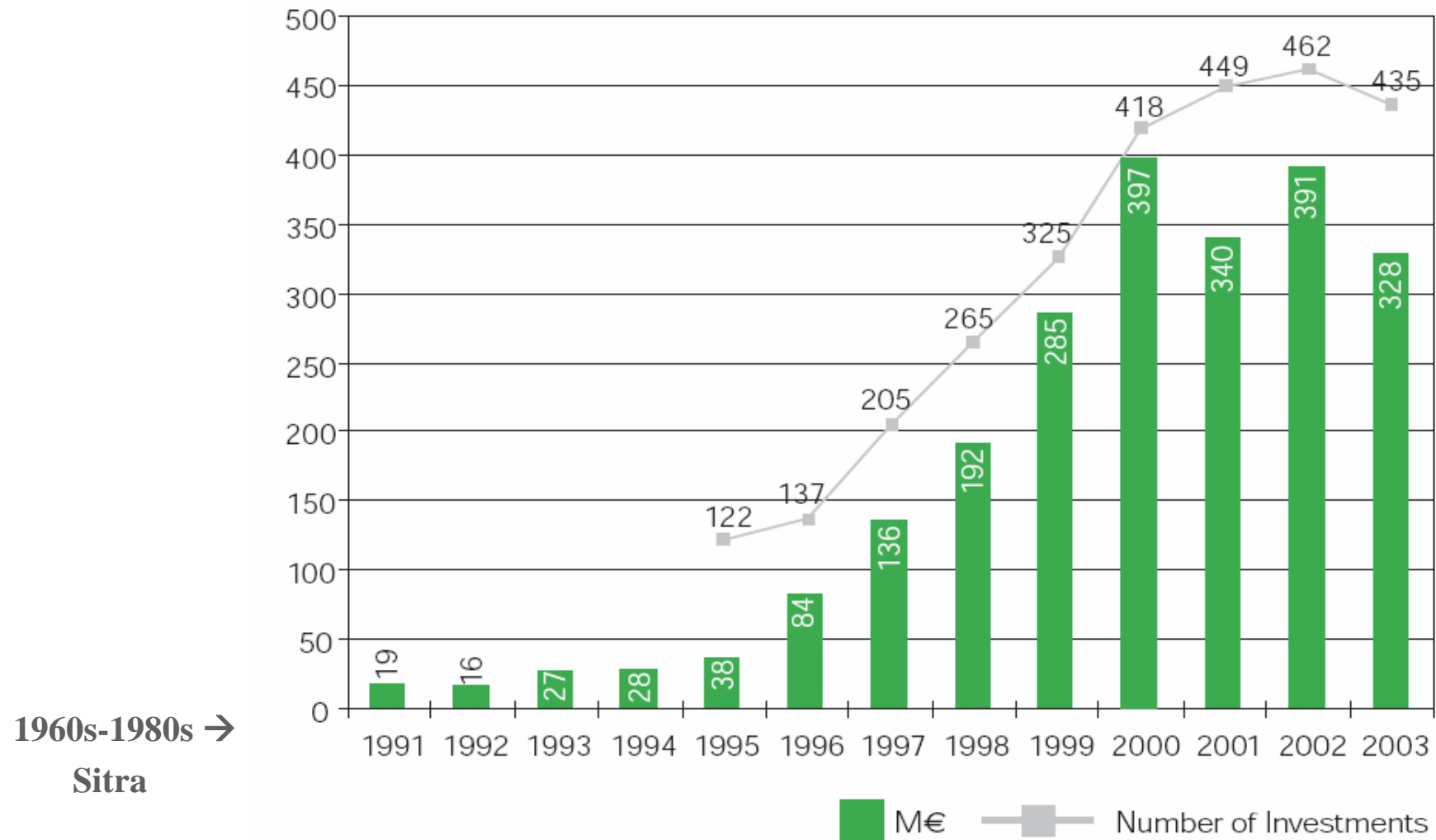


Good practice: direct financial support and risk financing

- Commercial Ready Programme (Australia)
 - Straightforward grants, mostly for SMEs
 - Grants ranging from \$35,000 to \$3.5M (USD \$)
- Small Entrepreneur Research Assistance Programme (HK)
 - Pre-venture capital stage grants with the max value of \$2M
 - Dollar-to-dollar matching of recipient's capital (including in-kind)
- Sitra – National Fund for Research and Development (Finland)
 - Equity investment in domestic companies (competitive IRR)
 - Investment into venture capital funds



Sitra: establishing Finnish VC industry

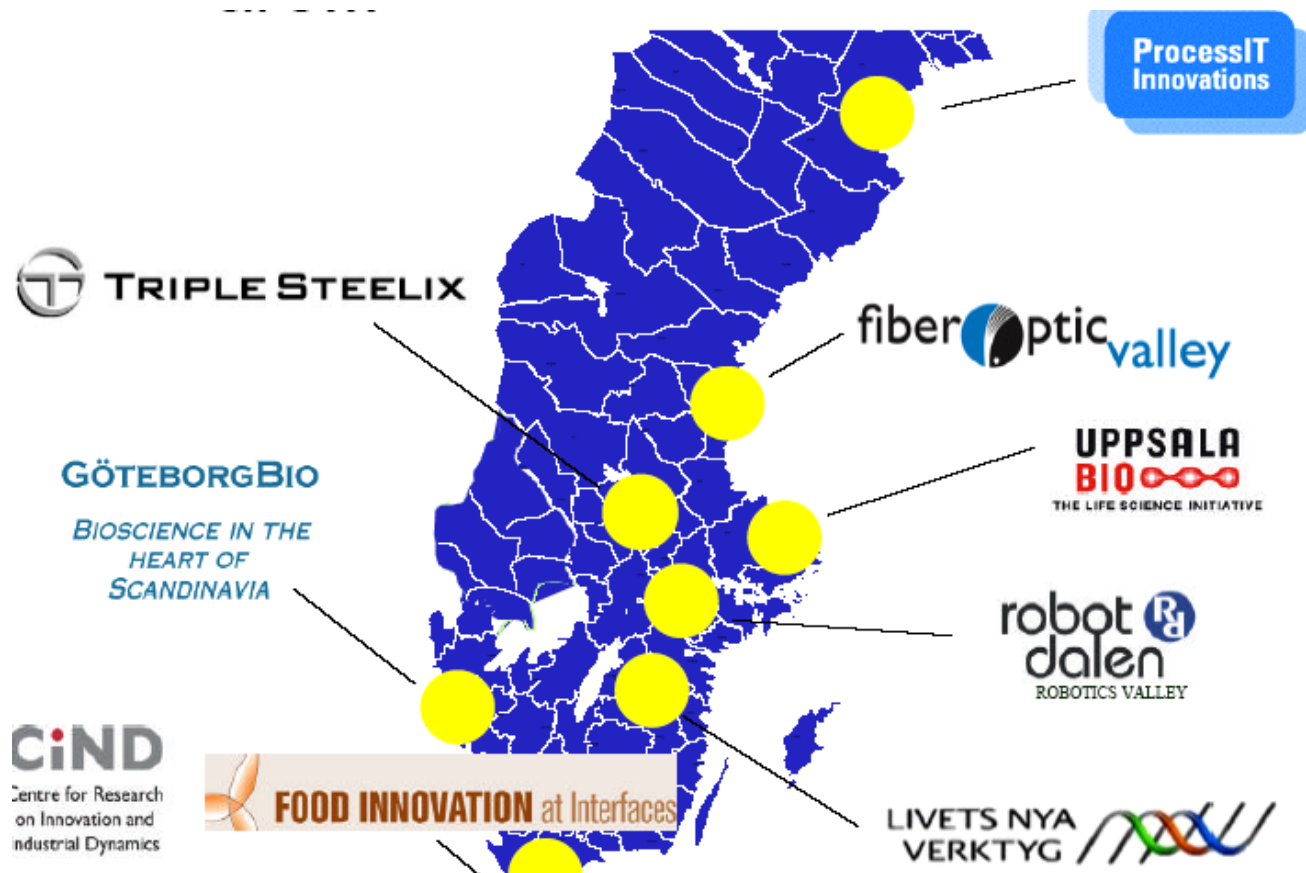


Good practice: collaborative arrangements

- University-industry partnerships (e.g. Swedish Competence Centers Programme)
 - Pooling of resources (capital as well as human) while relying on existing infrastructure and institutional system
 - Very flexible formations – multiple forms
- Incubators and technology parks (e.g Public Technological Incubator Programme)
 - Creating new institutional system
 - Supporting new company creation
- Regional Clustering (e.g. VINNVÄXT)
 - Various forms, but they always aim for broader regional and social impact



Selected VINNVÄXT sponsored clusters

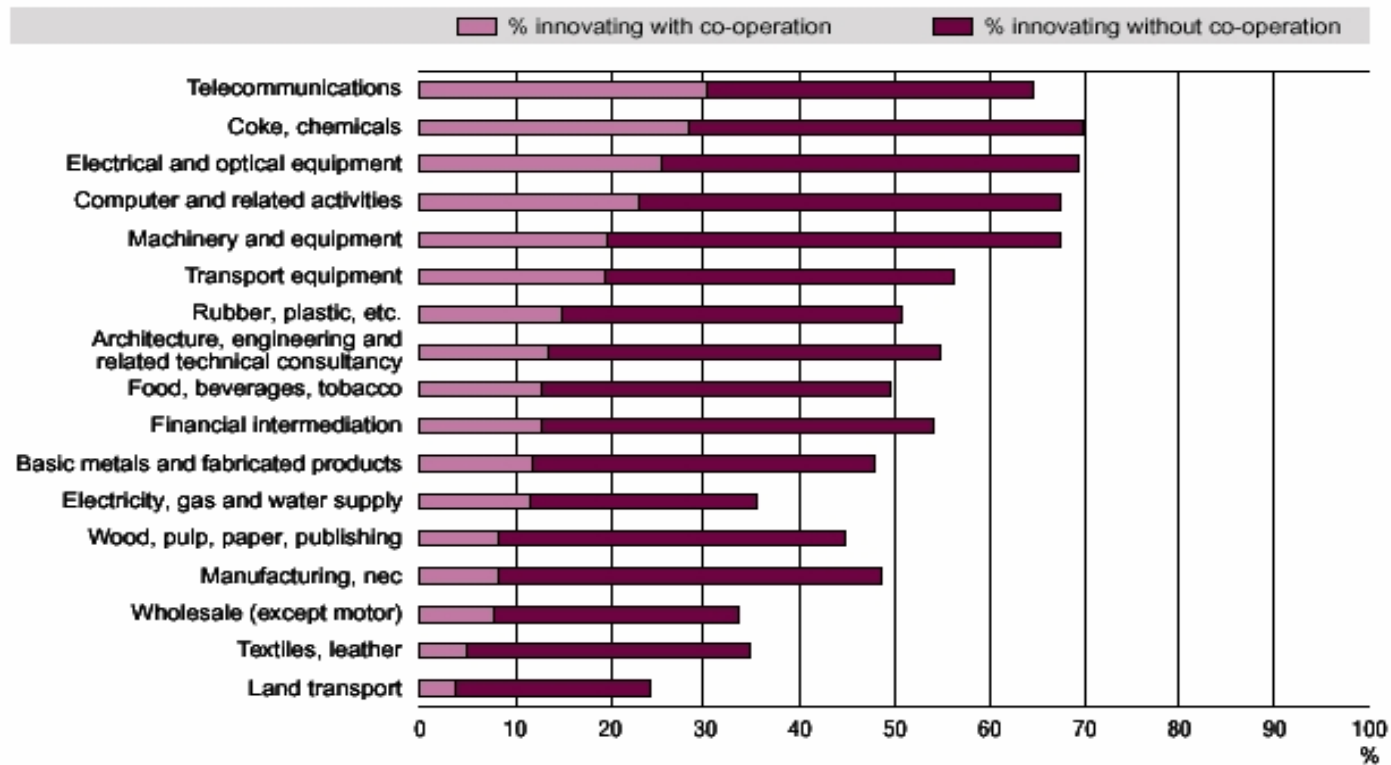


Partners in Uppsala BIO region



Collaborative innovation

Figure 4.5. Percentage of firms innovating with and without co-operation
Percentage of entire population within sectors



Note: Percentages of the entire population of firms in Belgium, Denmark, Germany, France, Spain (only R&D), Italy, Ireland, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden, the United Kingdom and Norway. No data available for services in Italy and Spain. Services sectors include land transport; wholesale except motor; financial intermediation; architecture, engineering and related technical consultancy; computer and related activities and telecommunications.

Source: Eurostat, Second Community Innovation Survey (CIS2, 1997).

Good practice: training and knowledge dissemination

- Innovation awareness raising initiatives
 - Public awareness of the importance of innovation (e.g. Estonian Innovation Awareness Raising Programme)
 - Promoting entrepreneur and technology commercialisation (e.g. Australia's National Innovation Awareness Strategy)
- Innovation and entrepreneurship training
 - Entrepreneurial skills & industry-specific training (e.g. Philippine Training and Entrepreneurship Programmes)
 - Entrepreneurial skills to S&T students (e.g. India's Entrepreneurship Development Programme)

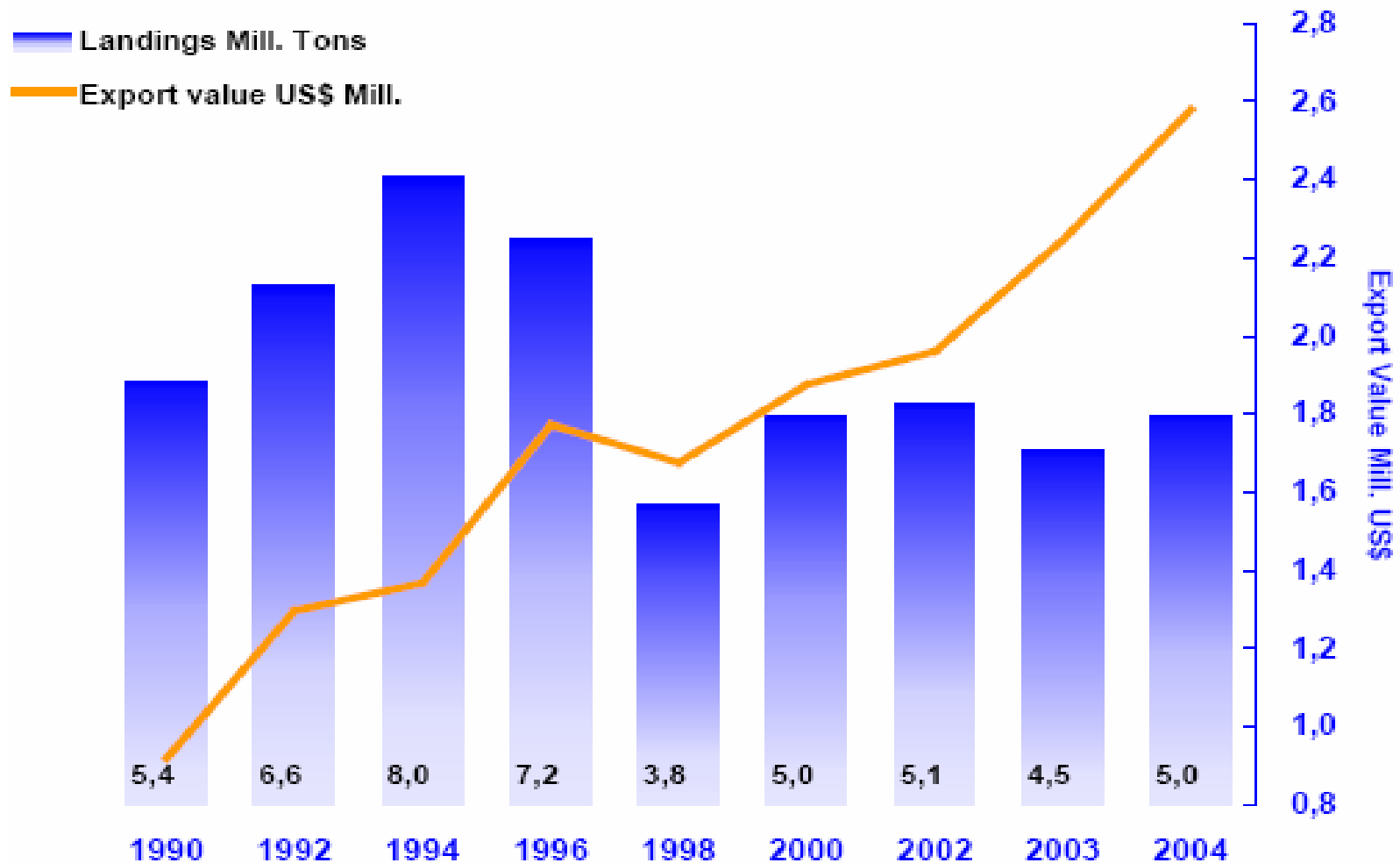


Good practice: sector-specific initiatives

- Leveraging local specializations
 - Better exploitation of local resources and specializations (e.g. Chile's National Aquaculture Policy)
- Adding value to traditional, low technology industries
 - Integrating new technologies into traditional industries (e.g. Finnish Value Added Wood Chain programme)
- Developing future emerging industries (e.g. IT, biotechnology, nanotechnology)



Increasing productivity and value added in a local industry



Lessons learned (1)

- Innovation is a creative process and so is STI programme design – enormous scope of variations in successful programmes.
- Each initiative is unique in its approach to specific local problems and situations – leveraging local strengths and opportunities is the key to success



Lessons learned (2)

- A holistic approach is needed in innovation support – ensure that individual instruments support each other and fill existing gaps.
- Attitudes of decision-makers and the culture of the wider population towards risk, entrepreneurship and innovation are increasingly seen as crucial to economic growth.
- Alongside with horizontal policies, vertical policies are as widespread and no less important – especially for the resource-restricted smaller countries.
- **Be patient**

