



# **Knowledge-based Development: Good Practices and Policies for the SPECA Region**

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# **POLICIES FOR PROMOTING KNOWLEDGE-BASED DEVELOPMENT**



# Knowledge-based Development and Knowledge-oriented Policies

- **What is knowledge-based economic development?**
  - The production, distribution, and use of knowledge are the main drivers of growth, wealth creation and employment
  - Development strategies risk being non-sustainable unless they are oriented towards developing and promoting knowledge-based economic activities
- **Knowledge-oriented policies**
  - Public policy needs to take into account the specificities of the knowledge-based economy: “knowledge-oriented policies”
  - This is a new brand of public policies targeting structural change through knowledge-based mechanisms and driving forces



# Knowledge and Innovation

- **Innovation: key driving force of the knowledge-based economy**
  - Commercial exploitation of new ideas which are successfully brought to market by offering more effective alternatives to existing arrangements
- **Typology of innovation**
  - Product innovation (new product or service)
  - Process innovation (new production method)
  - Organizational innovation (new organizational method)
  - Management innovation (new management method)
  - Production innovation (new production systems e.g. “just in time”)
  - Commercial/marketing innovation (new methods of marketing or product promotion)



# Knowledge and Innovation (continued)

- **Innovation as a knowledge-based process**
  - Requires a combination of different knowledge sets: pre-existing in companies; resulting from new R&D; generated through networking; supplied by markets or users; borrowed from competitors, etc.
  - Implies mixing up of different types of knowledge: explicit/codified (technical manuals, notebooks, scientific articles, etc.) as well as tacit (knowledge embedded in people)
  - Innovation is a process with highly uncertain outcomes: therefore there is a need to commit resources to reduce uncertainty

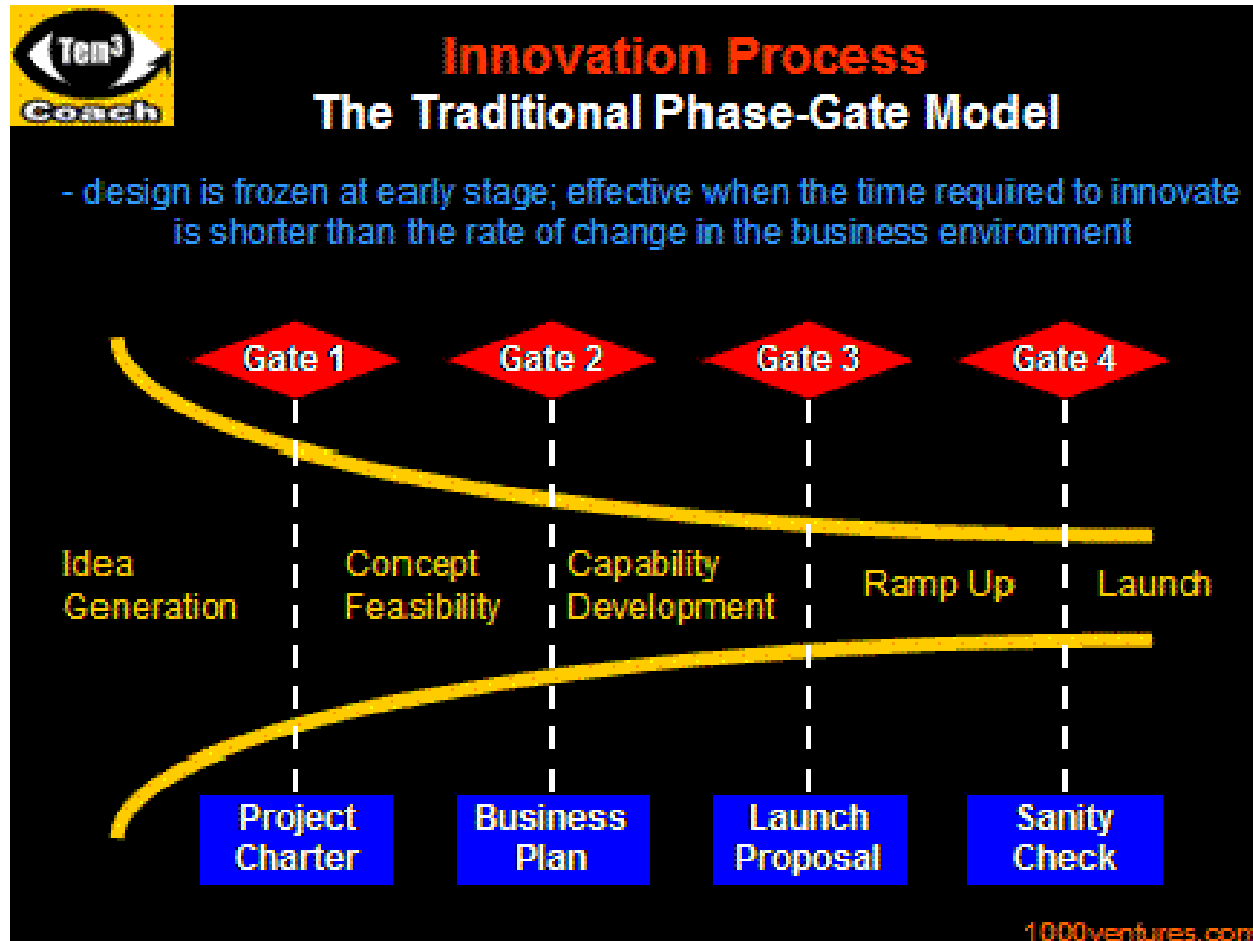


# The innovation process in the modern economy: from ideas to innovation

- Innovation is a complex phenomenon involving the interactions of many “actors” (stakeholders): academic and R&D institutions, firms, public bodies, users, etc.
- The innovation process is related to many policy areas and there exist synergies between these areas
- Invention and innovation
  - Innovation always target the market: “invention” alone is not “innovation”
  - Innovation = theoretical idea + technical invention + commercial exploitation

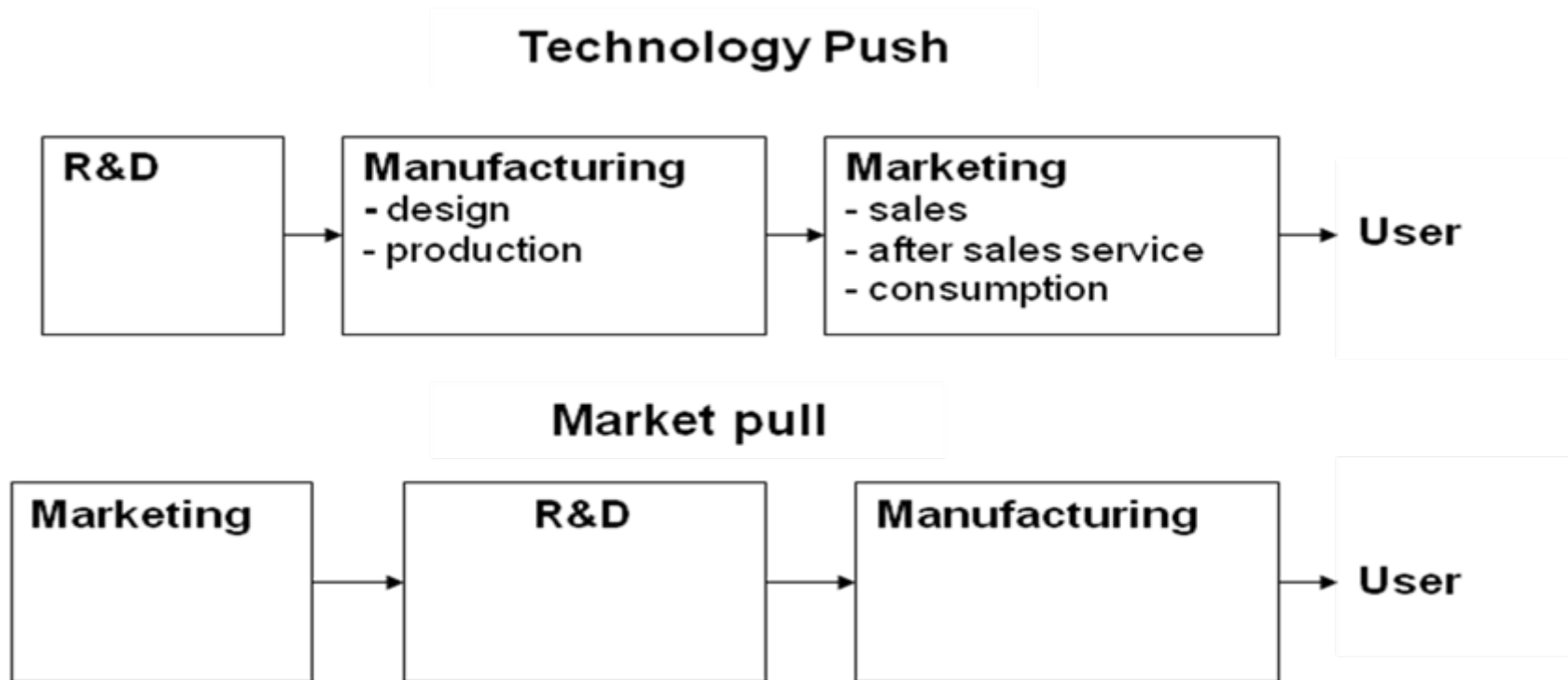


## The innovation process



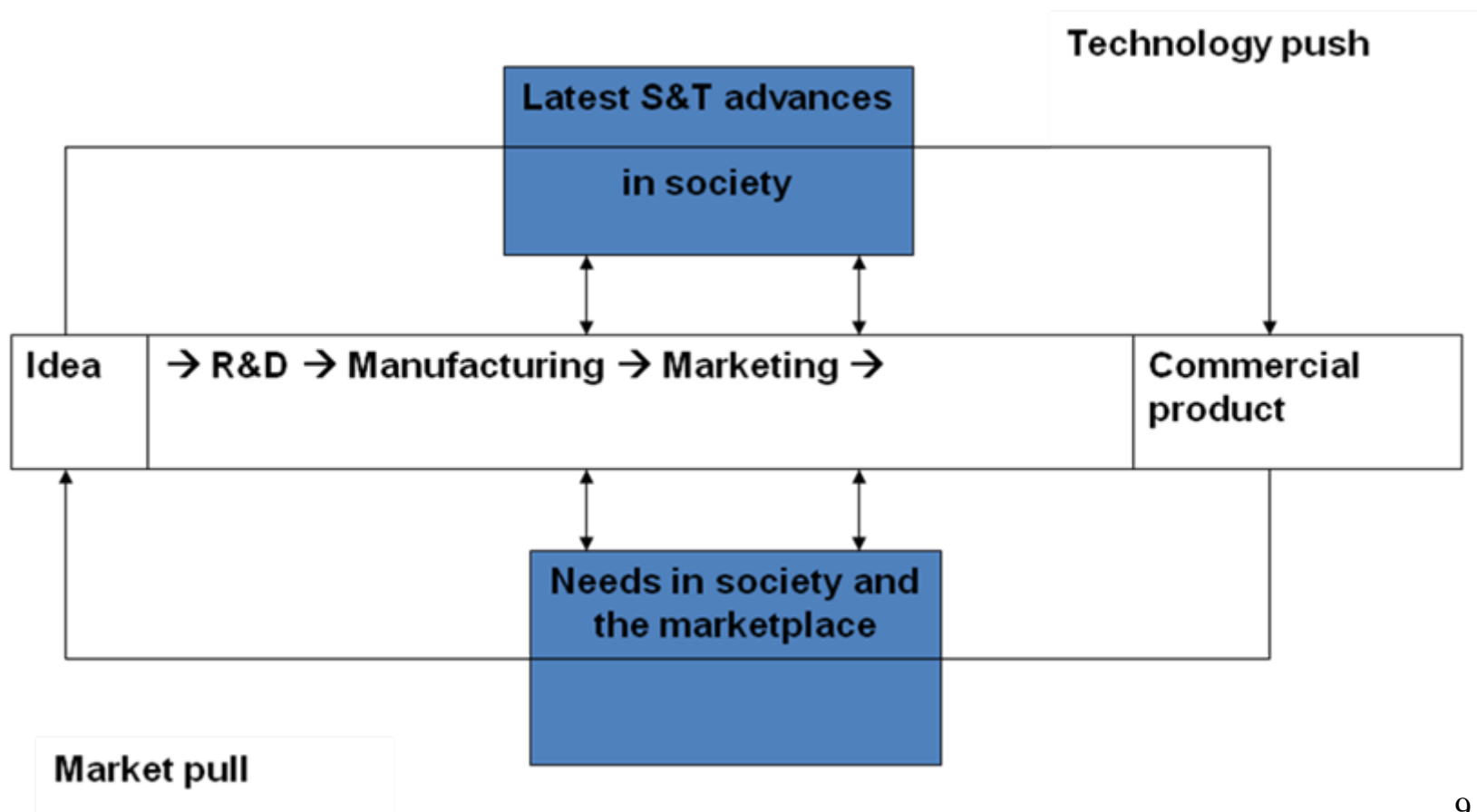


# The traditional “linear” innovation model





# The interactive/network innovation model





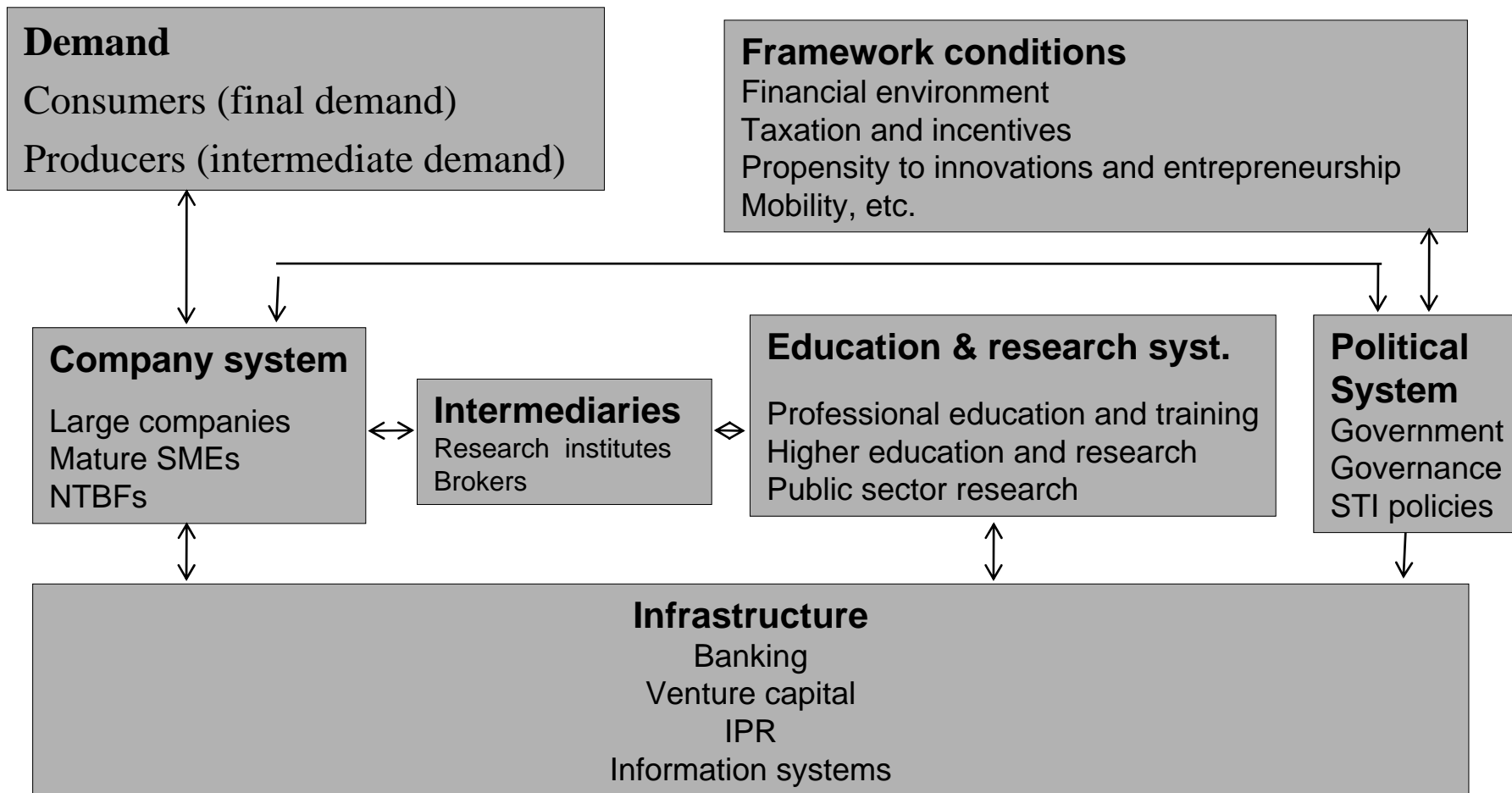
# The National Innovation System (NIS)

## ■ What is the NIS?

- The network of agents whose activities and interactions generate, import, modify and diffuse new technologies and products as well as government policies, institutions and financial resources devoted to knowledge and innovation
- NIS agents include, but are not limited to, knowledge institutions (universities, research institutes, technology-providing firms), firms and government bodies
- The interactions and linkages between the elements of the NIS are also part of the system
- The flows of ideas and knowledge, as well as the ability to learn are also part of the NIS



# NIS structure



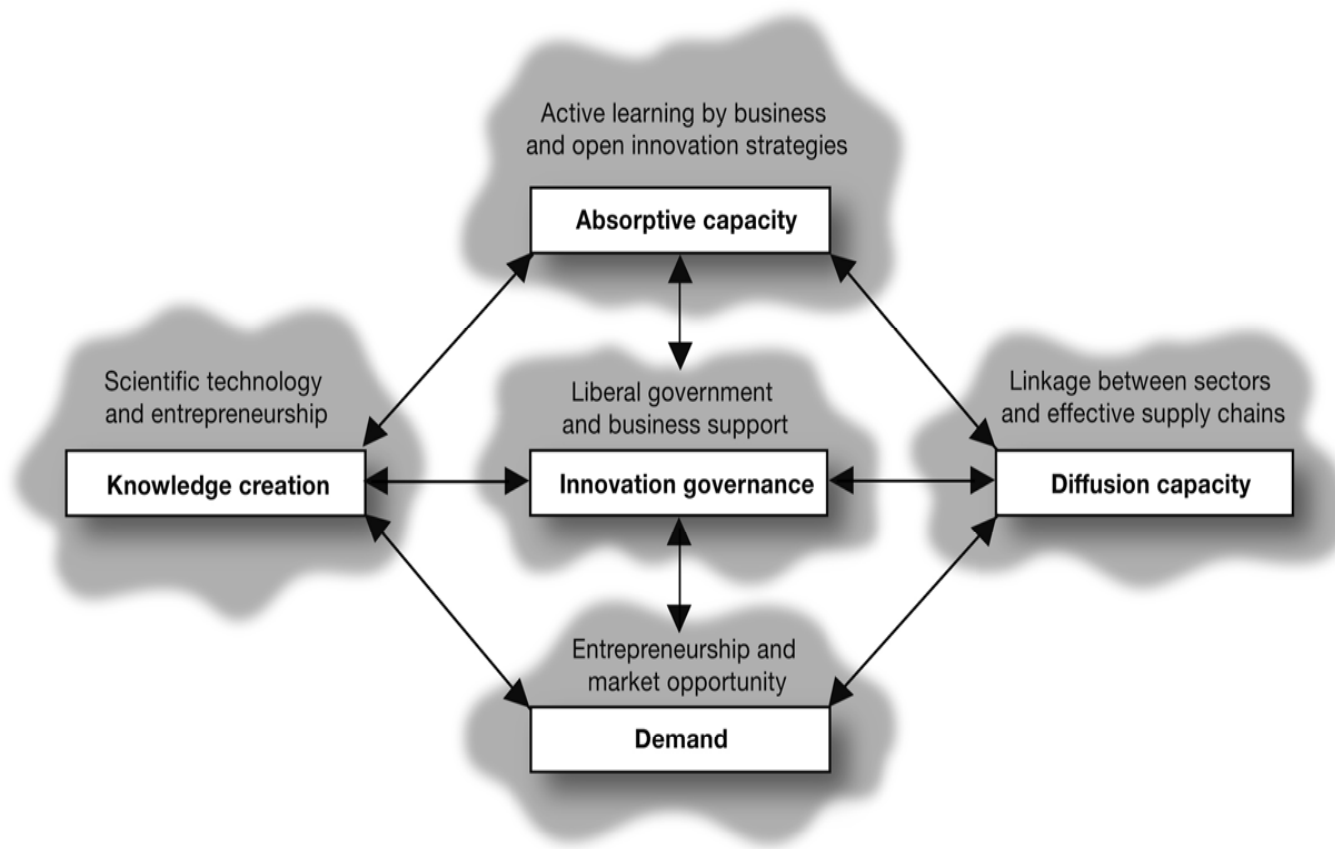


# The national innovation capacity (NIC)

- The capacity of the economy to generate and diffuse innovations -> the national innovation capacity (NIC)
- Depends not only on the supply of R&D but also on the capability to absorb and diffuse technology and on the demand for its generation and utilization
- Four dimensions of the national innovation capacity:
  - absorptive capacity -> ability to absorb new knowledge and adapt imported technologies
  - ability to generate new knowledge
  - diffusion of innovation -> ability to disseminate innovations
  - demand for innovation
- The four dimensions of the national innovation capacity interact among themselves through the national innovation system



# National innovation system and national innovation capacity





## **Interactions in the NIS**

- Provision of knowledge (R&D, consultancy services)
- Competence building (raising capabilities/capacity)
- Formation of new product markets, development of existing ones
- Creating and changing organizations and institutions
- Networking (improving connectivity; building relations)
- Incubation activities (breeding new innovative startups)
- Financing innovation activities
- Collaboration/cooperation among innovation stakeholders
- Intermediation between innovation stakeholders



# The role of knowledge-oriented policies in promoting innovation

- **The traditional rationale for policy intervention: knowledge spillover and market failure**
  - Knowledge spillover: the possibility that the dissemination of a specific piece of knowledge may decrease the value of that knowledge for those initially in hold of the knowledge
  - Knowledge spillovers may prevent investors in knowledge/innovation from the possibility of appropriating the benefit of the investment
  - Private costs may exceed the social gains/cost of capital := market failure -> in the absence of policy intervention, there will be underprovision of innovative entrepreneurship



# The role of knowledge-oriented policies in promoting innovation (contd.)

- **The new rationale for policy intervention in the knowledge-based economy**
  - Failures in social institutions (such as universities and research institutes, public regulatory and policy implementation offices, etc.)
  - Network failures, related to problems in interactions among different agents/stakeholders (e.g. due to poor interlinkages, low degree of trust, high perceived transaction costs, unsupportive market structure, etc.)
  - Capability failures in firms and other stakeholders, which prevent them from acting in their own best interests (e.g. due to poor managerial or technological skills deficits or inability to absorb externally generated technologies)
  - Framework failures, related to difficulties in the broad framework conditions (such as unsupportive regulations, dysfunctional regulatory bodies, poor business environment, etc.)



# The role of knowledge-oriented policies in promoting innovation (contd.)

- **Why should governments support start-up innovative firms?**
  - Commercializing an innovation can be extremely difficult and cumbersome for start-up innovating entrepreneurs
  - Start-up entrepreneurs often need to overcome additional barriers (compared to established firms) in the spheres of financing, technological, managerial, regulatory, administrative, etc.
  - Innovating entrepreneurs are weak and often find it difficult to reap the benefit of their innovation due to poor protection of their intellectual property rights
  - The main role of public policy in this regard is to establish a conducive environment that supports innovating entrepreneurs in bringing their innovation to the market
  - This includes both direct support through various public agencies and also public support for the establishment of private innovation support institutions



## **Types of knowledge-oriented policies/ instruments by knowledge functions**

- Policies and instruments supporting the generation and accumulation of knowledge
- Policies and instruments supporting the transmission and dissemination of knowledge.
- Policies and instruments promoting connectivity and coordination through knowledge sharing among stakeholders.
- Policies and instruments supporting risk sharing through knowledge sharing among stakeholders.



# Knowledge-oriented policies: Policies supporting the generation of knowledge

- **Recent trends in public funding of R&D:**
  - Shift from a lump-sum financial support to R&D institutions to a differentiated financing of specific R&D and innovation projects.
  - Project financing is often contingent on systemic networking among the participants or requires that specific linkages be established for the project to start (such as linkages between researchers from different institutions, between different R&D institutions, between R&D institutions and industry, etc.).
  - Project financing is usually allocated on a competitive principle through a selection among competing bids on the basis of pre-specified criteria.
  - Apart from project financing, specific instruments involving a financing component have been developed to promote and support networking, linkages, partnerships, cooperation and connectivity among stakeholders



# Knowledge-oriented policies: Public support to innovating entrepreneurs

- **Recent trends in policies to support SMEs:**
  - Most instruments support start-up firms, not established and running businesses.
  - The provision of funding is organized on a competitive principle
  - Financial support is of one-off nature (to avoid a lock-in into unviable ventures)
  - Public grant financing is instrumental in the pre-investment phase when the uncertainties are the highest
  - Most financing instruments contain market elements and incentive structure
  - Usually they also support connectivity with other stakeholders



# Knowledge-oriented policies: Protection and commercialization of IPRs

- **Intellectual property (IP):**
  - Industrial property: inventions (patents), trademarks, industrial designs, and geographic indications of source;
  - Copyrights: literary and artistic works, films, musical and artistic works, etc.
- **Protecting IP rights in the knowledge-based economy:**
  - legal protection of IP rights (e.g. through patents, copyrights, trade marks and other forms of IP rights protection)
  - Policies facilitating the speedy commercialization of intellectual property and innovation so that innovating entrepreneurs appropriate the returns to the investment (e.g. support to technology transfer; removing administrative obstacles to speedy commercialization, awareness raising and training of entrepreneurs on techniques like trade secrets, gaining first-mover advantage, etc.)



## Knowledge-oriented policies: Cooperation with the private sector

- Help in overcoming knowledge/information asymmetries and sharing risk among potential stakeholders -> help in engineering new projects that would not have been in place in the absence of such cooperation
- Need to distinguish between public-private partnerships (PPPs) and other forms of cooperation between the public and the private sector
- PPP is a long-term contractual arrangement between a public body and a private business targeting the design, construction, financing, running and servicing of public infrastructure units
- Apart from PPPs, there are numerous forms of public-private cooperation in running joint projects between the government and the private sector (industry-university cooperation; running business incubators and S&T parks; research consortia, etc.)



# **SUPPORT TO SPECA COUNTRIES IN PROMOTING KNOWLEDGE-BASED DEVELOPMENT**



# The UNECE Subprogramme on Economic Cooperation and Integration

- **Mission: To promote a policy, financial and regulatory environment conducive to economic growth, innovation, knowledge-based development and higher competitiveness of countries and businesses in the UNECE region**
- **Main thematic areas:**
  - innovation and competitiveness policies
  - entrepreneurship and enterprise development
  - financing innovative development
  - promoting public-private partnerships
  - commercialization and protection of intellectual property rights



# Promoting knowledge-based development through international cooperation

- International cooperation can support knowledge-based development through the cross-border pooling of joint efforts
- Providing a forum for high-level international policy dialogue and exchange of experience and good practices supporting knowledge-based development
- Promoting international cooperation on equal footing between all stakeholders: governments, the business community, academic institutions, NGOs, etc.
- Developing practical solutions (practical guidelines, policy recommendations, toolkits) to important policy issues related to knowledge-based development
- The main focus of these activities is on countries with economies in transition



# Organizational Framework

- Committee on Economic Cooperation and Integration (CECI)
- Work organized through Teams of Specialists (on Innovation and Competitiveness Policies; on Intellectual Property and on PPPs) and expert networks
- A broad multi-stakeholder policy dialogue through expert meetings, policy seminars, conferences, etc. with the participation of government experts, business and academic communities and NGOs:
- “Soft” regulatory work: synopses of good practices, guidebooks, policy recommendations and guidelines, etc.
- Technical cooperation activities in requesting countries



# The SPECA Project Working Group on Knowledge-based Development

- The SPECA PWG on KBD was established after a decision by the SPECA Governing Council to expand the mandate of the previous Project Working Group on Information and Communication Technologies
- Objectives: to support its member countries in developing subregional cooperation, and integrating their economies into the world economy by promoting and supporting policies on knowledge-based development as well as capacity-building and institutional strengthening activities and programmes related to knowledge-based development in the member countries
- Thematic areas: cover main areas of knowledge-based development as outlined above
- UNECE is ready, in cooperation to ESCAP to continue supporting the work of the SPECA PWG on KBD in all thematic areas



## **Scope for new activities under the SPECA PWG on KBD**

- Continued efforts in capacity-building related to policy options and practical instruments for promoting innovation and knowledge-based development in the SPECA region (including through seminars, workshops, training courses and other capacity-building events)
- Further support to subregional cooperative efforts in areas related to innovation and knowledge-based development
- Enhance possibilities for information sharing and exchange of expertise both among SPECA experts and between them and European experts on policies and good practices for innovation and knowledge-based development (incl. through the UNECE platform for information exchange)
- Efforts to increase the possibilities for participation by experts from SPECA countries in various UNECE meetings focused on innovation and knowledge-based development



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