Technology, Knowledge and Partnerships

5th Annual Forum Meeting
Building Strong Partnerships with the Private Sector for Better Jobs and Inclusion

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1. *Is there an interface between partnerships and technology/knowledge?*

2. *What is the place and role of partnerships in this context?*

3. *How can partnerships have a positive impact?*

Basic Approach of New Growth Theory

Competition for new knowledge – endogenous and external technological progress

In a knowledge based society the quality of the education system (e.g. for absorption capacity building) is a decisive determinate of competitiveness of countries and regions.

Absorptive Capacity

Positive spill-overs (e.g. of TT) can only develop if the knowledge receiving company (or: institution) has the ability to make use of it and to enhance it through own contributions.

For the development of absorptive capacities educational institutions (e.g. universities) and policy (e.g. through allocation of resources) play a major role.

The capacity of humans to acquire and use new qualifications is of essential importance for the assimilation and application of new technologies.

- cognitive dimension
- social dimension
- cultural dimension ...

Approach of the new Innovation Economy

Growth and change are driven by innovations!

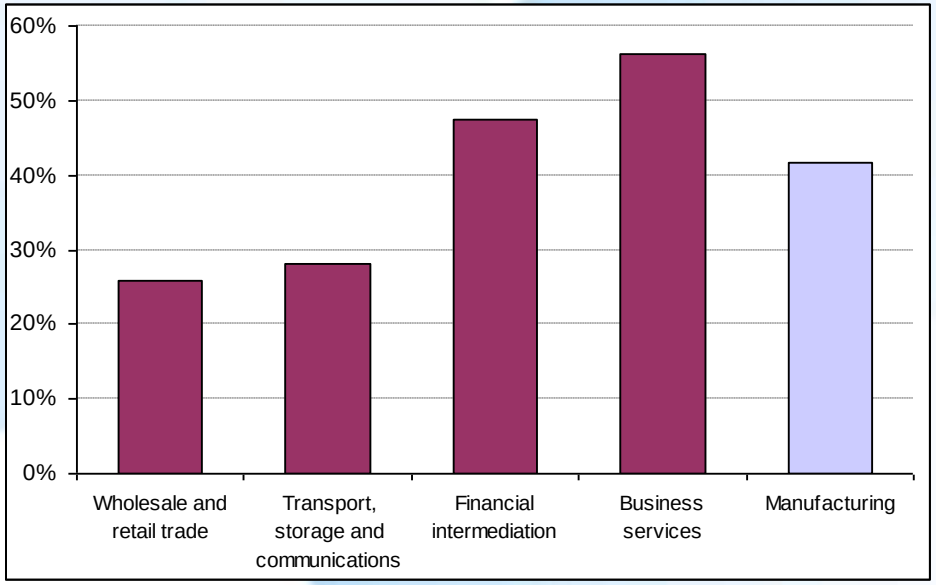
def: Innovation – [technologically] new or improved products introduced on the market or new or improved production-/distribution practices

def: technological change – extension of knowledge in way of new production and organisation technologies

- objective vs. subjective innovation
- linear vs. interactive models of technological change

Beware of High-Tech Devoutness

The importance of non-technological innovation is increasing (e.g. changes in organisations, in processes, in marketing, in design, etc.)
Services can be as innovative as manufacturing firms (e.g. financial sector)!



Innovative firms in Europe as % of all firms in an industry, 2002-2004

source: OECD

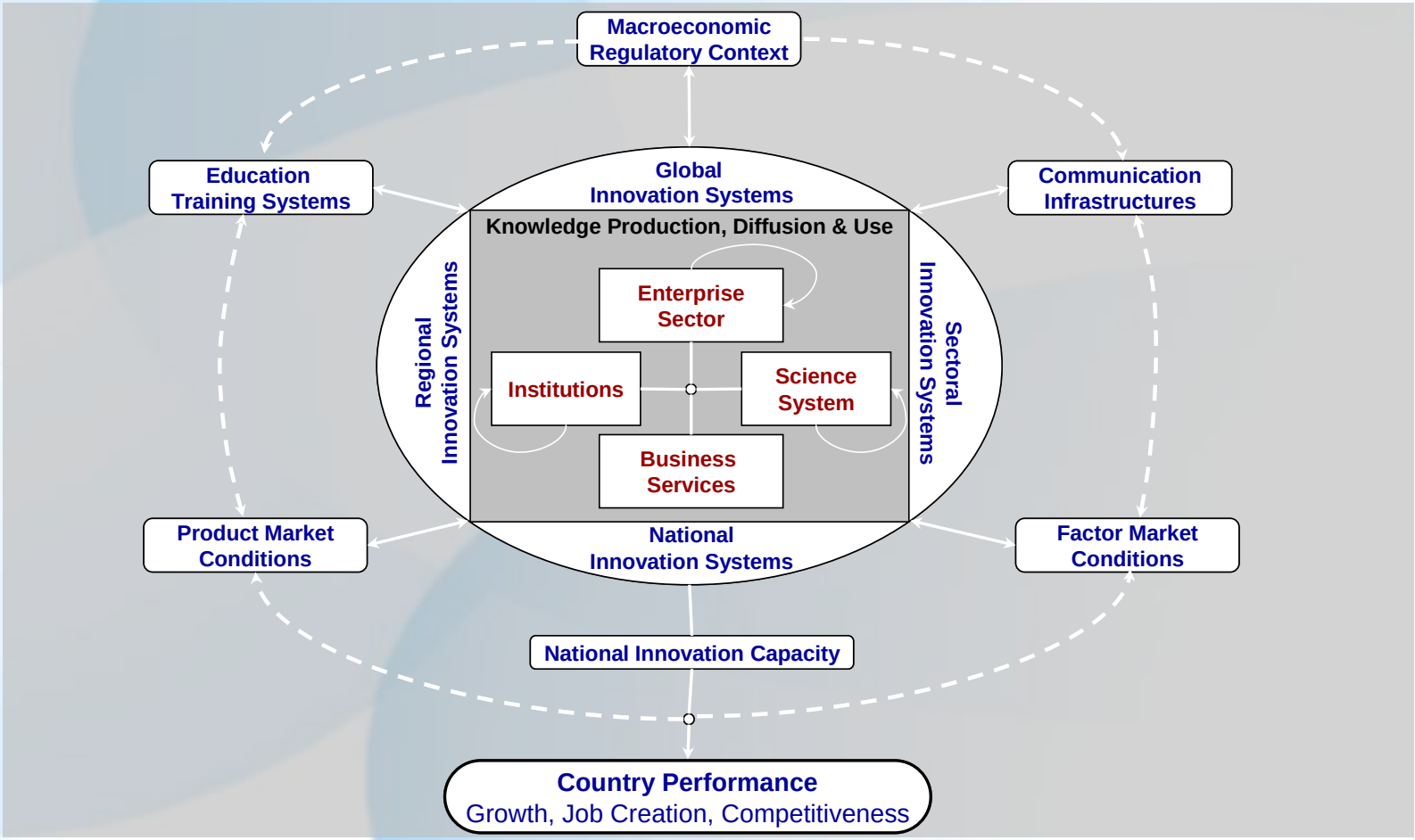
Social Innovation

Also social innovations are drivers of change!

def: Social innovation – new concepts and measures to resolve societal challenges, adopted and utilised by social groups concerned.

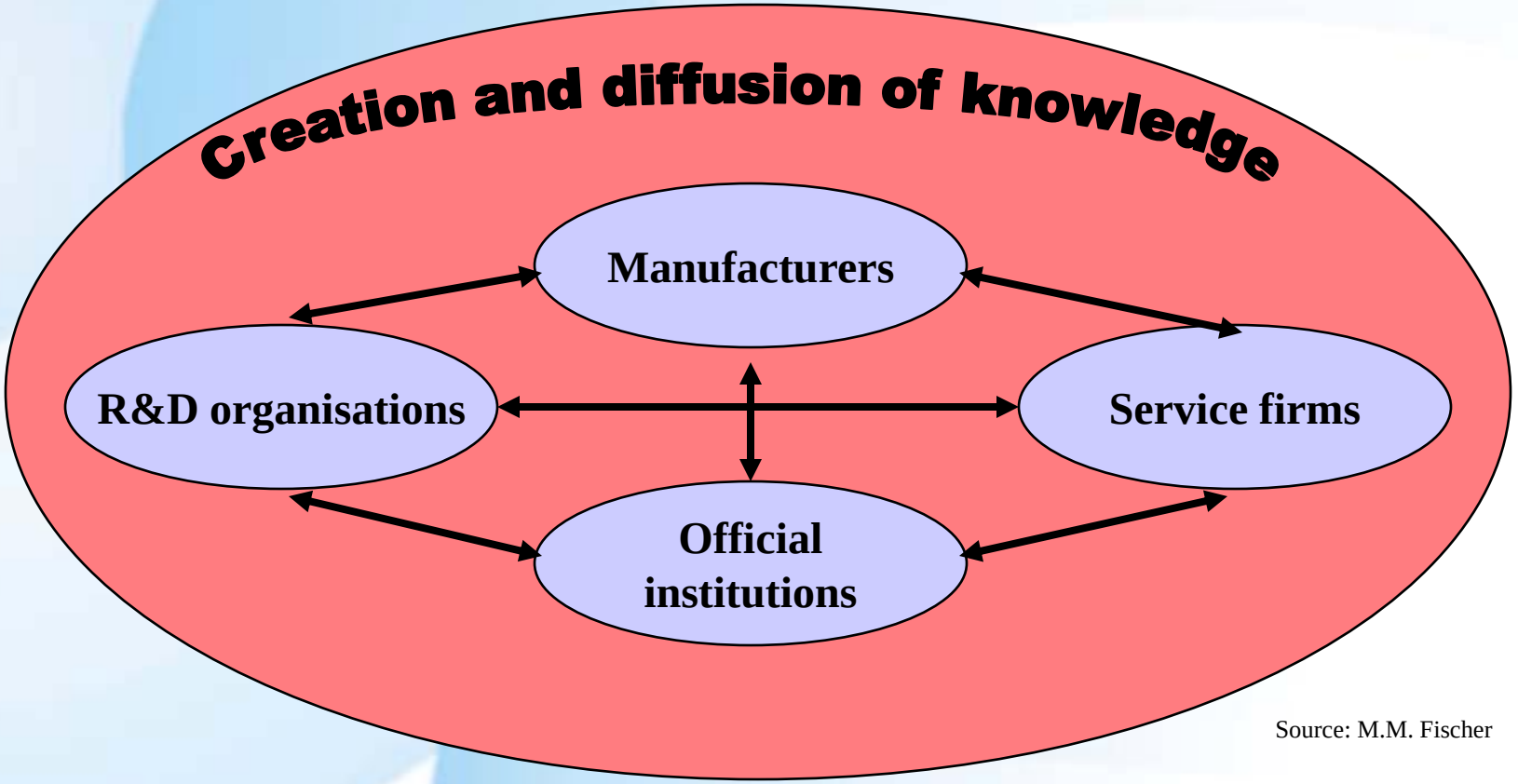
- products: e.g. street papers (e.g. „Augustin“)
- processes: e.g. communication via social software (e.g. „facebook“)
- concepts: e.g. „solidarity region Weiz“
- measures: e.g. mother and child health programmes
- policies: e.g. reforms of ... [pension system]

Innovation System



source: OECD

Components of a regional innovation system



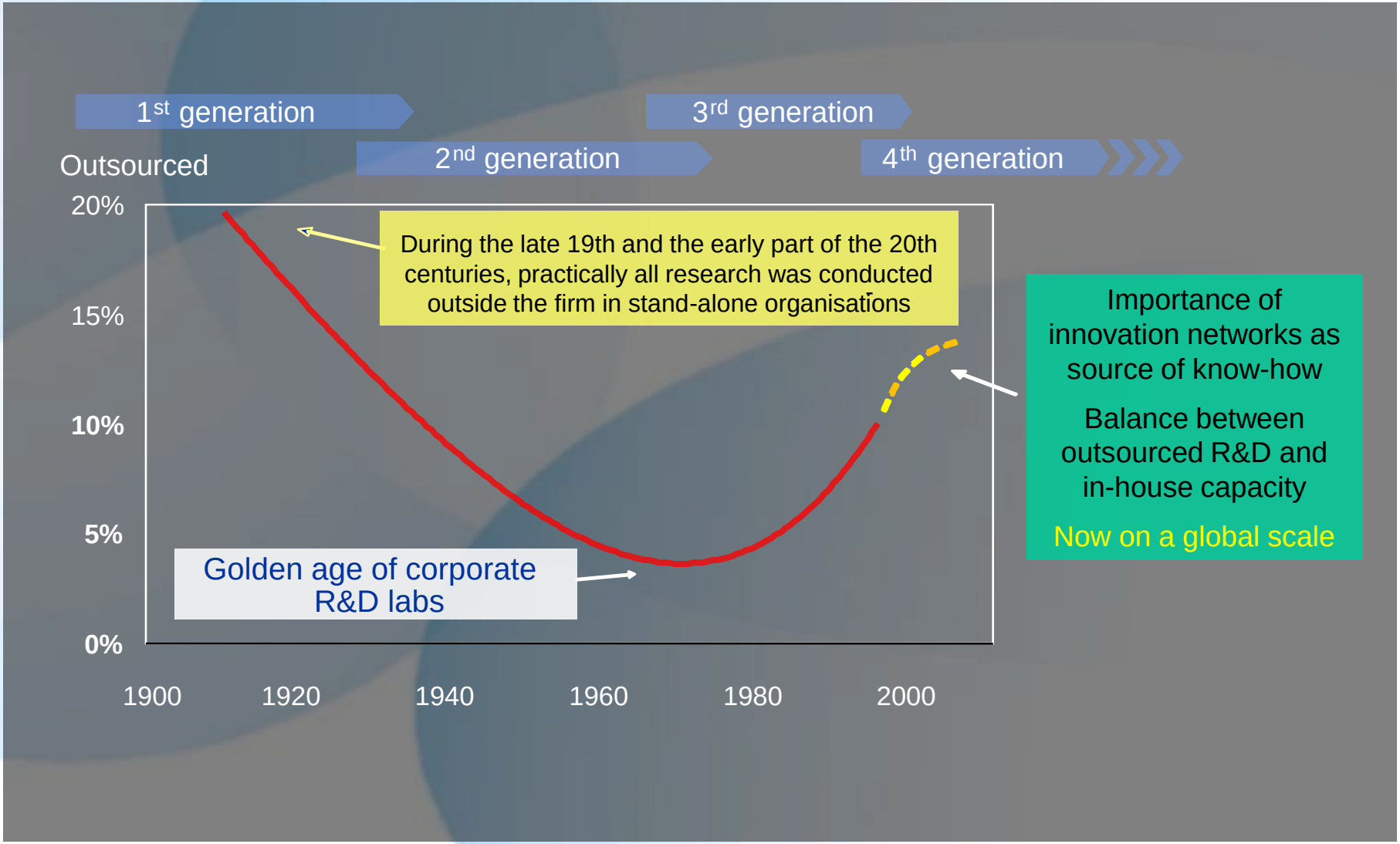
Source: M.M. Fischer

Innovation is the result of (social) interaction

-learning by interacting!

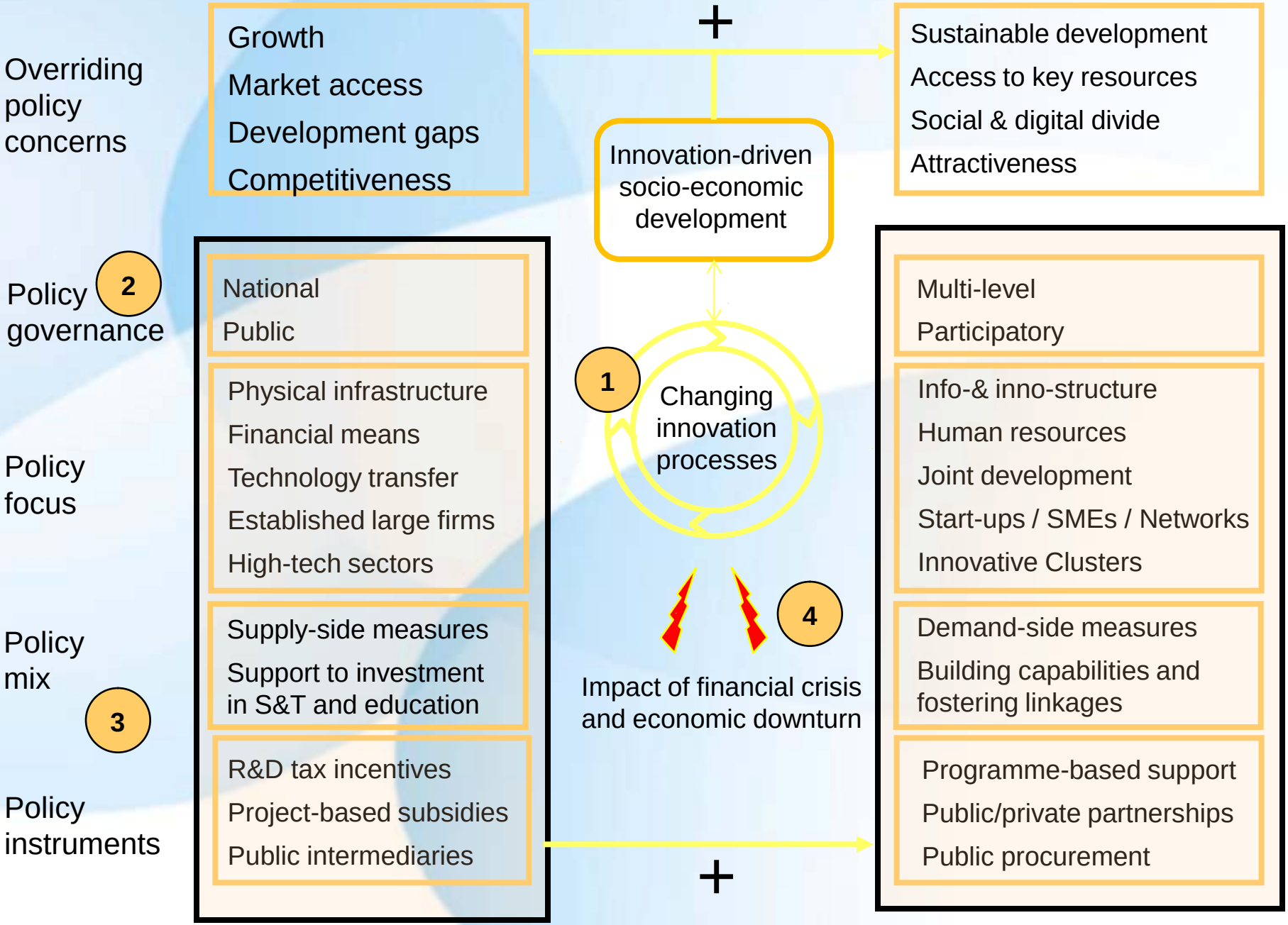
-Intermediaries are of utmost importance!

Open Innovation: a long-term perspective



Innovation Policy is not simple

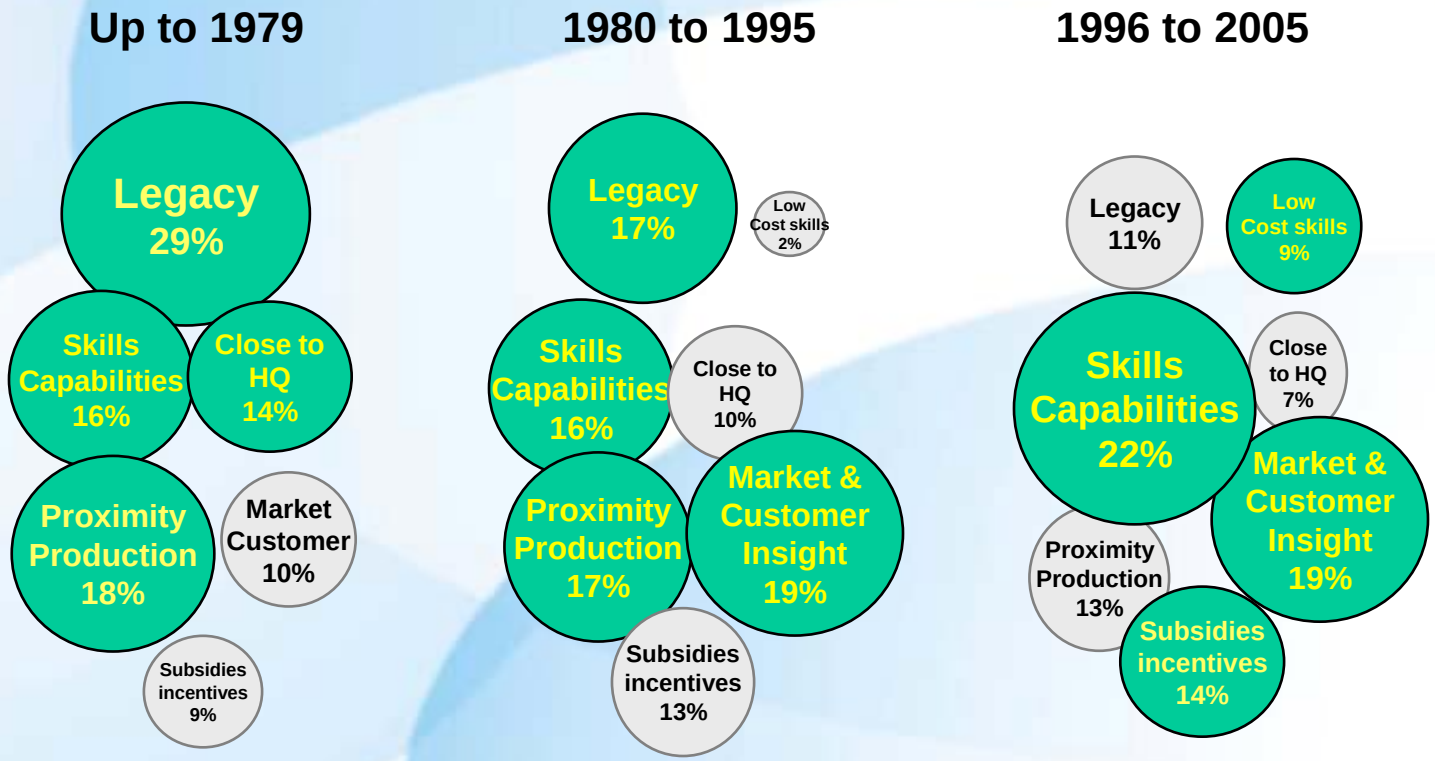
1) Business, not government, is the main driver of innovation
2) Innovation depends on many factors: business-friendly environment, strong education and science system, good links between knowledge producers and knowledge users;
3) Coordination across policy domains can be difficult
4) Improving innovation requires a long-term policy commitment
5) Stronger innovation imply winners and looser
6) Processes and drivers of innovation are undergoing deep changes



Source: J. Guinet, OECD

States who do not invest in knowledge production might in the long term not be able to master the speed of progress of knowledge based economies (and societies).

Globalisation of business R&D: the changing determinants of location



Source: INSEAD survey

Maceration of the Triadic Power

1) mid of 1990ies: 50 leading countries responsible for 100 % of high-tech production and 99 % FDI and 98 % for S&T and education expenditures
2) Erosion of EU (2nd half of 90ies) and USA (after Sept. 11)
3) More emerging economies (BRICS and many more) with Janus-shaped S&T demand *(transition is driven by growing need AND by growing wealth)*
4) Other high-(post-)industrialised countries (e.g. Israel, Singapore, Canada ...)

This leads to shifts of FDI in RTD:

→ **RTD follows production**

→ **RTD follows excellence**

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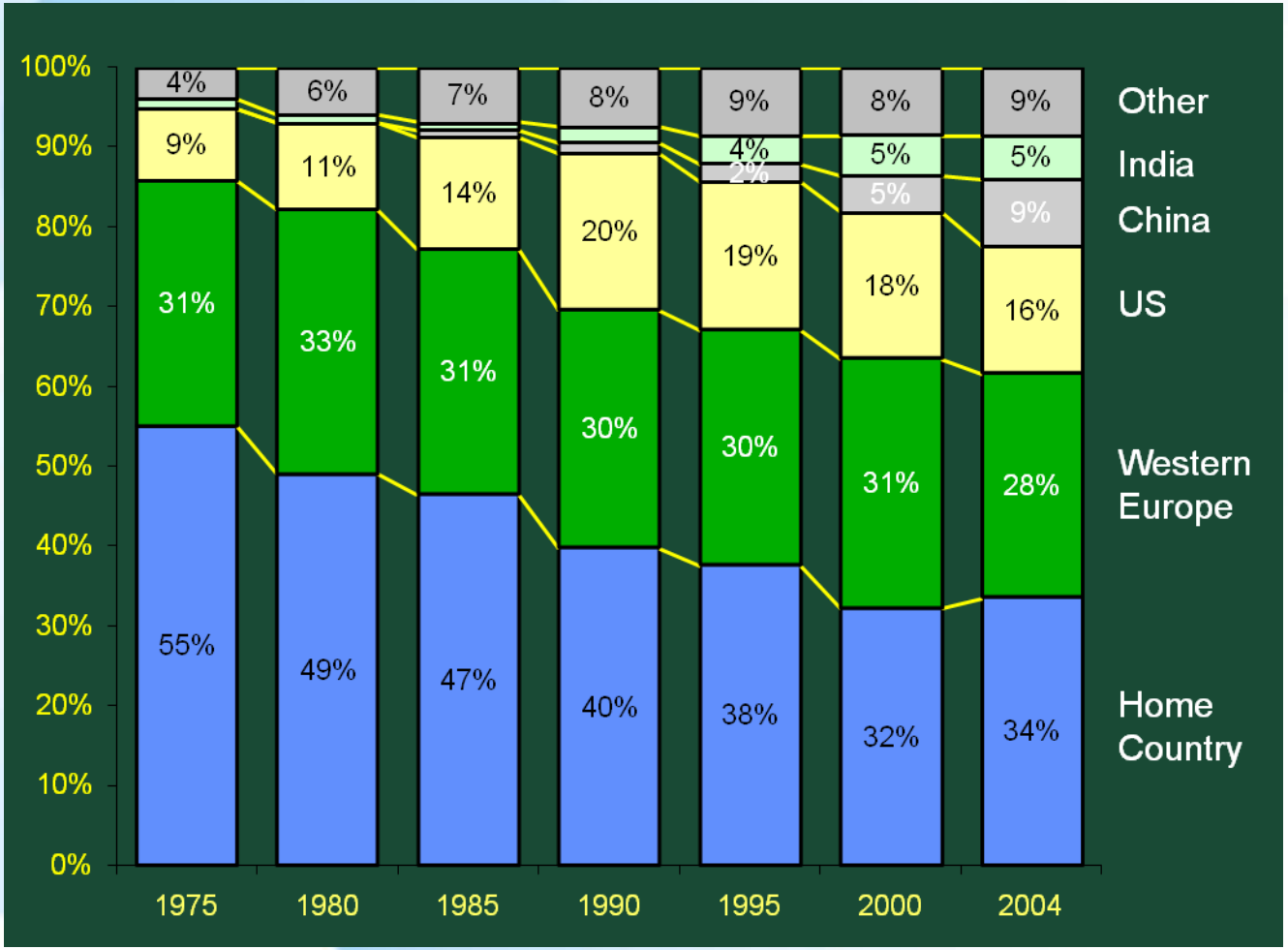
Globalisation of business R&D: the changing distribution of R&D sites



Source: INSEAD survey of firms with a combined R&D spend in 2004 of US$ 76.4b, from 17 sectors and 19 countries

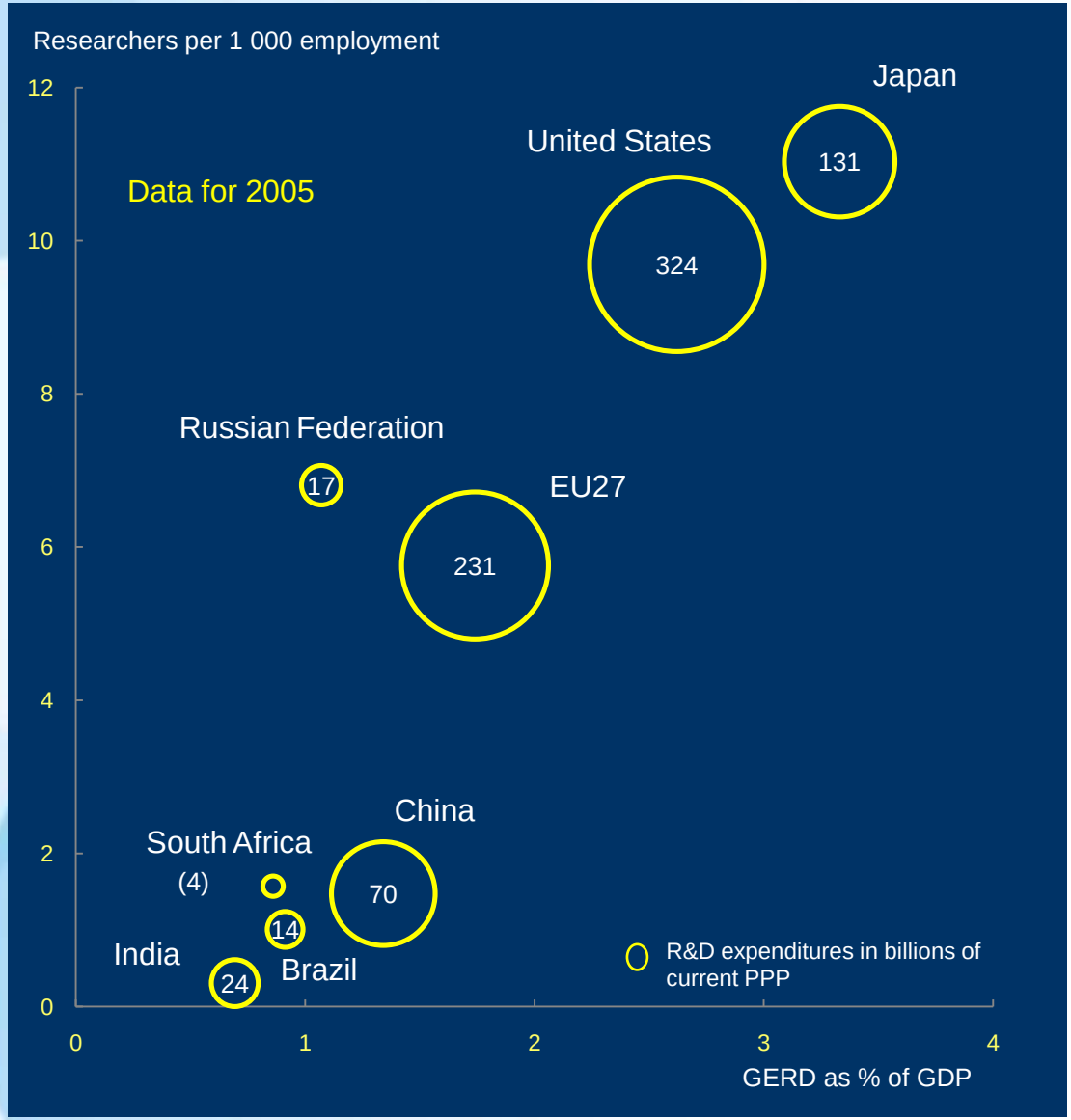
Globalisation of R&D: the rise of new players

China is now the third largest investor in R&D globally – with a target to reach an R&D intensity of 2.5% by 2020

China's growth of R&D spending has been on average 18% a year since 1995

China now counts close to 1000 foreign R&D labs, accounting for about 25% of business R&D

Some firms now undertake R&D for the global market in China



Source: J. Guinet, OECD

The EU‘s Policy Answer

(renewed) **Lisbon Growth and Jobs Strategy** (Partnership of Growth and Jobs)

Core Objective:

… to secure a prosperous, fair and environmentally sustainable future for Europe by developing Europe’s economy and guarantee quality of life for its population.

RTD and innovation support are only the means to an end, not objectives in themselves.

Approach and Targets

Focus of the Growth and Jobs Strategy is on investments in the knowledge economy (emphasis on education, research, technological development, innovation and entrepreneurship).

Targets of the Growth and Jobs Strategy:

-total investment of 3 % of Europe's GDP in R&D by 2010

-employment rate of 70 % of the working age population by 2010

Funding Instruments

1) **Structural Funds and Cohesion Fund** to support the cohesion policy
   - > ERDF (European Regional Development Fund)
   - > Cohesion Fund
   - > ESF (European Social Fund)
2) **European Framework Programme for RTD (FP7)**
3) **CIP - Competitiveness and Innovation Framework Programme**
4) and others …

Structural Funds and Cohesion Fund (1)

Objective: to strengthen economic, social and territorial cohesion by reducing disparities in the level of development among regions and EU Member States.

>**convergence objectives** (concerns 84 [+16] regions in 17 MS with a per capita GDP at less than 75% of Community average; budget: € 282.8 billion)

>**regional competitiveness and employment objective** (strong focus on knowledge society and knowledge economy; concerns 168 regions in 19 MS; budget: € 55 billion)

>**European Territorial Co-operation objective** (for cross-border and trans-national cooperation)

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Structural Funds and Cohesion Fund (2)

Implementation: Operational Programmes are implemented decentralised by regions or national bodies.

RTDI is a major topic (€ 86 billion or 25 % between 2007-2013), but not every region targets RTDI activities with the same scope and size.

- >€ 50 billion are for RTD and innovation in the narrower sense;
- >€ 8.3 billion for entrepreneurship
- >€ 13.2 billion for ICT
- >€ 14.5 billion to human capital development (LLL)

Structural Funds and Cohesion Fund (3)

How is the budget spent?

>€ 10.2 billion to RTD infrastructure and centres of competence

>€ 9 billion for investment in firms directly linked to research

>€ 5.8 billion for RTD activities in research centres

>€ 5.7 billion for SME assistance to RTD

>€ 5.6 billion for TT and improvement of cooperation of networks

>€ 4.9 billion for HRD in research and innovation

>€ 2.6 billion for SMEs for the promotion of environmentally-friendly products and production processes

FP7 – European Framework Programme for RTD

Objective: *for economic competitiveness and quality of life*

Implementation: *central management by EC; co-funding mainly by competitive calls for proposals; trans-national cooperation*

Focus on

-RTD cooperation (ICT, health, biotechnology, nano-technology, materials, production technologies, transport, energy, social sciences etc.) (€ 32 billion)

-frontier research excellence ("Ideas" programme by ERC)(€ 7.5 billion)

-research mobility (e.g. Marie Curie fellowships) (€ 4.75 billion)

-RTD capacities (€ 4 billion)

€ 50 billion between 2007-2013

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CIP – Competitiveness and Innovation Framework Programme

Objective: *to foster the competitiveness of European enterprises.*

Implementation: *central management by EC; mainly competitive calls for proposals, but also tenders and other types (for policy support); transnational cooperation.*

Focus on

-innovation (including eco-innovation)

-business support services and better access to finance (for SMEs) (€ 2.1 billion)

-better take-up and use of ICT and develop information society (€ 730 million)

-use of renewable energies and energy efficiency (€ 730 million)

€ 3,6 billion between 2007-2013

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Governance Requirements

1. Ensure an effective policy coordination and stakeholders‘ participation
2. Strengthen the regional dimension of STI policy
3. Evidence-based policy making becomes more and more important (greater actor autonomy => greater need for accountability => use of review and evaluation => generation of strategic policy intelligence)
4. Combine bottom-up measures (e.g. „cluster-based policies“) and top down policies (e.g. strengthening local knowledge infrastructures)

Relevant policy mixes and instruments

1. Put more emphasis on measures to reinforce the innovation capabilities of SMEs
2. Ensure that the support system is well adapted to the specific needs of the service sectors (not only manufacturing)
3. Foster the diffusion of new technologies, especially ICTs
4. Shift towards an innovation-friendly procurement policy
5. Raise the effectiveness of TT organisations at PROs (need for re-definition of the role of PROs; refocusing PROs towards „Pasteur‘s quadrant“ = application oriented basic research; part of PRO‘s output is no longer a „public good“; enterprise education)
6. Ensure that programmes to foster industry-science relationships are market-pulled or mission-oriented rather than science-pushed

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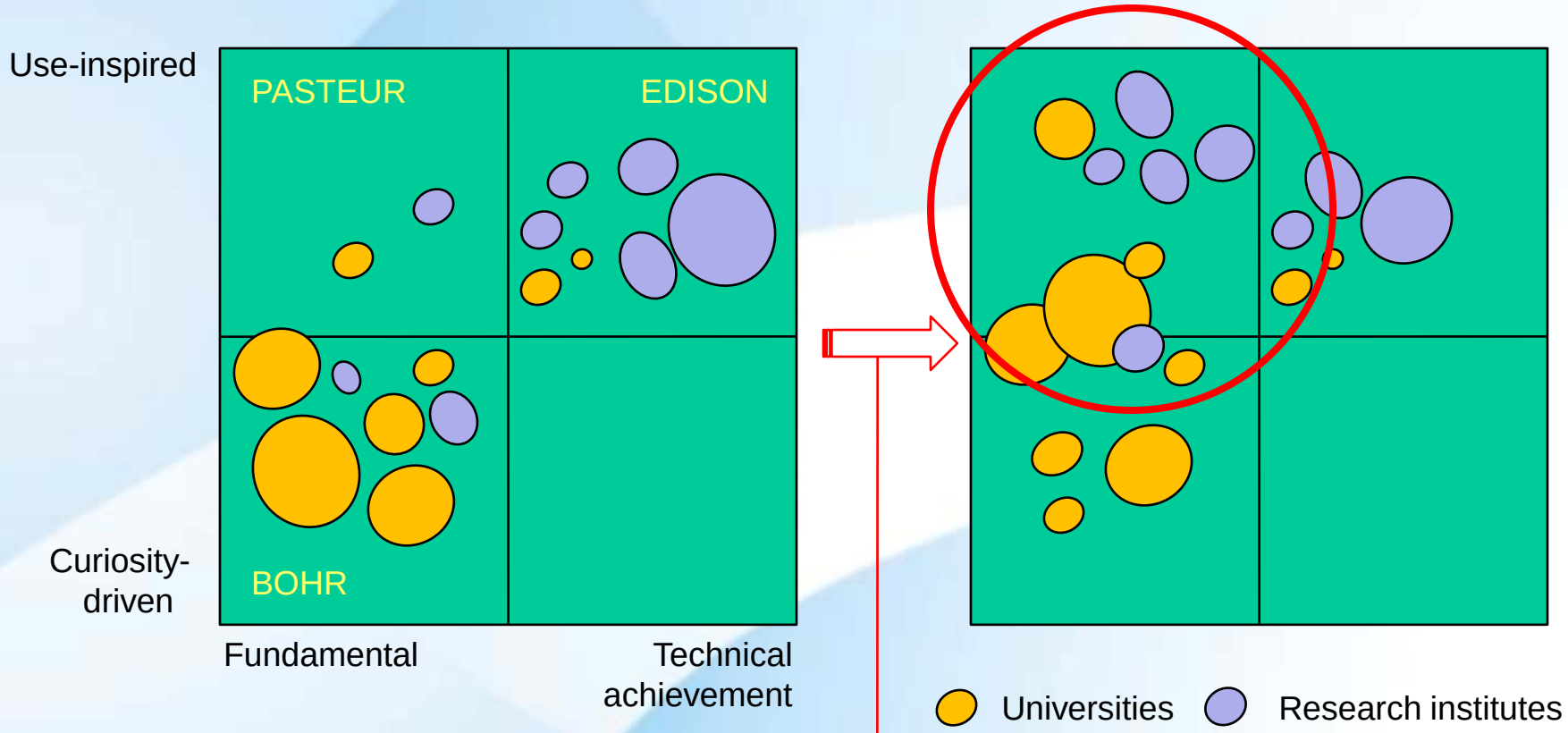


- Large-scale national programmes in priority areas (top down)
- Public-private partnerships (bottom-up)
- Better recognition of user-driven research in evaluation
- Improve HRST mobility

Food for Discussion

Partnerships as users of new technologies/knowledge?

Goal: to work more efficient!

- To what extent are new technologies used (e.g. new social software to get connected [such as „doodle“, „wiki“, „blogs“]?
- Are joint databases/repositories available?
- Training companies?
- Who cares about the competencies and technological progress of partnerships?
- How do partnerships learn?

Food for Discussion

Partnerships as creators of (social) products and measures?

- Is there a technological component in it?
- How can it be further valorised?

Food for Discussion!

Partnerships as creators of knowledge / technology intense jobs?

- How can partnerships bring technology to jobs and vice versa (e.g. assembling of solar cells; biomass power plants at farm houses)?

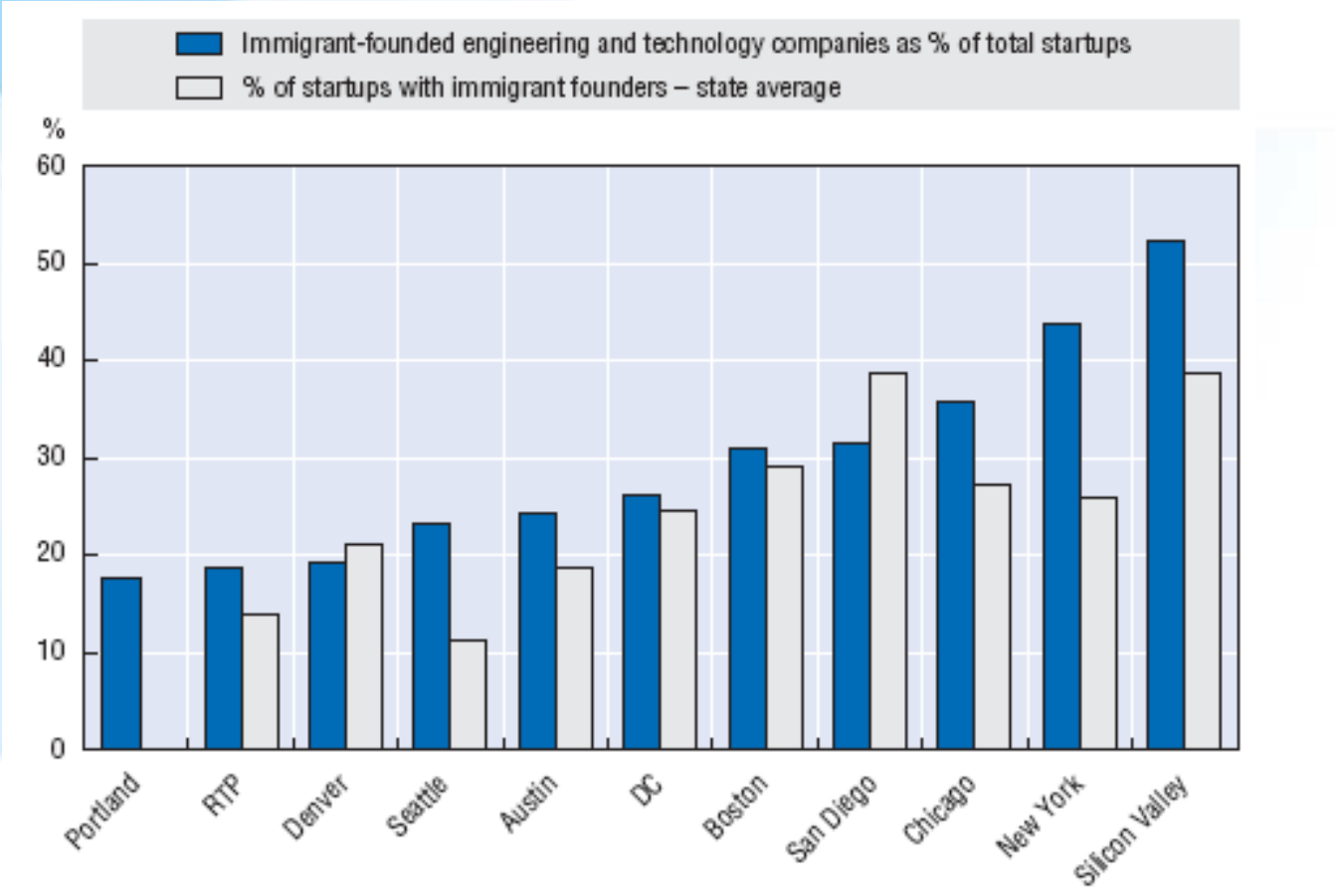
GLOBAL WARMING? AGEING SOCIETY?

Partnerships as value creators?

- Is the knowledge of e.g. migrants adequately used?
- Innovation friendly-procurement policy?

Human resources for innovation: global competition for talents

Immigrant-founded start-ups in US technology centres, 1995-2005



Food for Discussion!

Involvement of partnerships in knowledge based regional economy?

- To what extent?
- Is there an active inclusion in cluster policies?
- Is there an exchange with technology centres, companies and research organisations?

Food for Discussion!

Involvement of partnerships in regional profile creation?

Are partnerships just covering the „social“ side of labour markets?

Do partnerships care that the technological infrastructure is at place to create jobs (e.g. broad-band internet connection)?

Food for Discussion!

Partnerships as lobbyist for the have-nots in terms of technological progress?

- Since RTDI has its lobby, should partnerships rather lobby for those who do not profit from technological progress?
- Is there a clear division of labour, understanding and respect between the different interest groups?

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