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Knowledge, Place and Economy

Smart Specialization and the Triple Helix framework in Amsterdam and Sapporo

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1. Introduction

Contemporary economies tend to be **interconnected**,
in a context of **global competition** and fast processes of **technological change**,
requiring a high **incorporation of information and knowledge**.

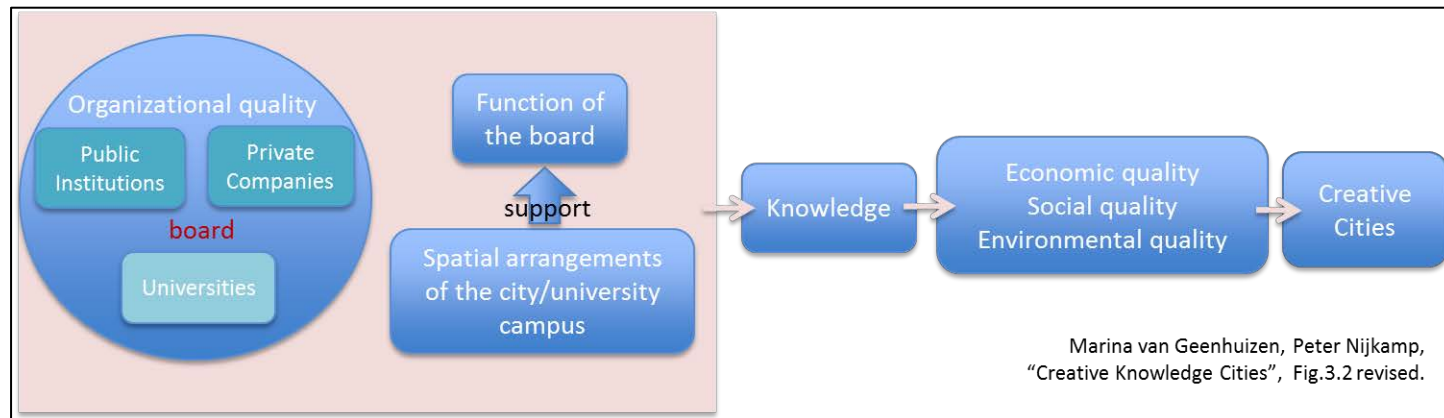
This global process demands a strong **interaction** within local and regional economies
in order to explore synergies and complementarities,
which allow companies to **innovate** and to compete in global markets.

All over the world, the **processes of cooperation at local level**
between private companies and research centres
are crucial for public institutions with responsibility on economic development,
in order to guarantee **high levels of employment** and **well-being for the citizens**.

Knowledge

Innovation

Cooperation



Nevertheless, there are important **obstacles** for this collaborative processes:

Aims

The **purposes** of researchers and knowledge centres are often different from the needs of private companies.

Communication

It's generally difficult for the research centres to **understand** how they can contribute for the economic performance of a private company, while it's difficult for the private company to perceive the application of research findings in a productive process.

Timings

Scientific research tends to have a **long-term** perspective, while companies tend to pursue **short term** objectives.

Finance

Long term research projects oriented to innovative products or services require **financial resources** without guaranteed results.

Excellence

Scientific quality measured by **global peer-review standards**, not necessarily adjusted to the **specialization, needs and priorities of local economies**.

Opportunities for the Universities within the regional innovation systems:

- stimulate the **entrepreneurial spirit** of their staff and students;
- provide **advice and services to SMEs**;
- **training workers and managers** of local companies;
- promoting **the training and placement of high level graduates in innovative businesses**;
- **host incubators** for spin-offs in science and technology parks;
- cooperation with companies to design **specific curricula**.

The **results** of the collaboration of Universities with private companies are **not quick** and they are **often unclear**, requiring:

- **a long term shared vision**;
- an **holistic** approach,
- to be based on **programs** (with different components and a long term perspective) rather than projects (with a limited and precise task, to be accomplished in short time).

Human resources, Innovation and Economy in Europe:

Although Europe hosts a large and diversified pool of **skilled human resources for research and innovation**, this needs to be constantly replenished, improved and adapted to the rapidly evolving needs of the **labor market**.

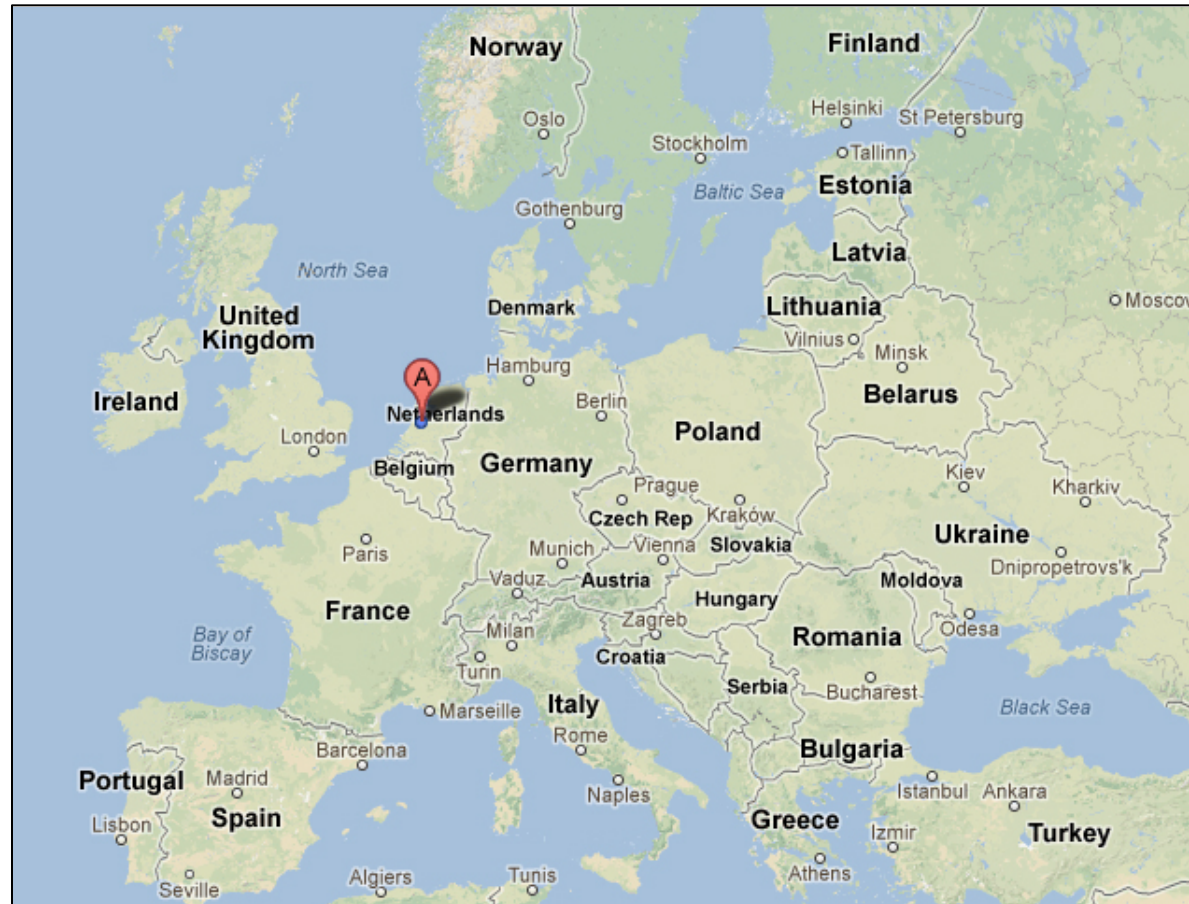
Today only **46%** of this pool works in the **business sector**, which is much lower than in Europe's main economic competitors:
69 % in China,
73% in Japan,
80% in the United States.

European Commission, 2011

2. The Triple Helix Framework in Amsterdam and Sapporo

Netherlands

is located in the **center of West Europe**, at short distance from the **biggest European economies** (France and Germany), the Nordic countries and the United Kingdom, with a very easy access to the **sea**.



Logistics, international trade and financial services are economically important.

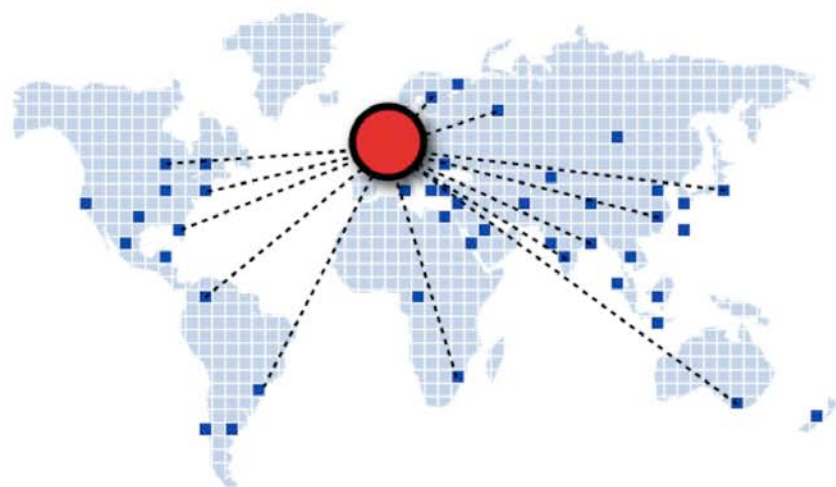
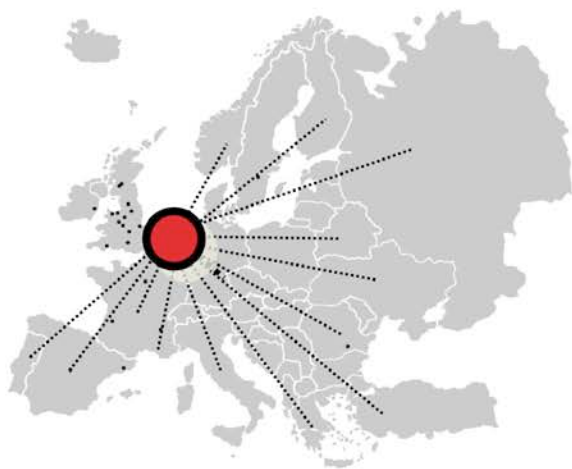


The **Amsterdam Metropolitan Area (AMA)** is located in the **center of the Netherlands**.

The **territorial limits** of this area are the result of a **“bottom-up”** process based on initiatives of local governments.

Other **important cities**, in economic, political or academic terms (Utrecht, Leiden, the Hague or Rotterdam), are located at **very short distance**.

CAUSE | global ambition



Gateway to Europe

EU2020 – Europe's Growth Strategy

Smart

Sustainable

Inclusive

Global Business Hub

Diversity - Knowledge - Creativity - Connectivity

Zuidas/Schiphol

Structuring clusters

Responsible capital

Using diversity

Presentation of AEB by Rik Bleeker (General Manager)

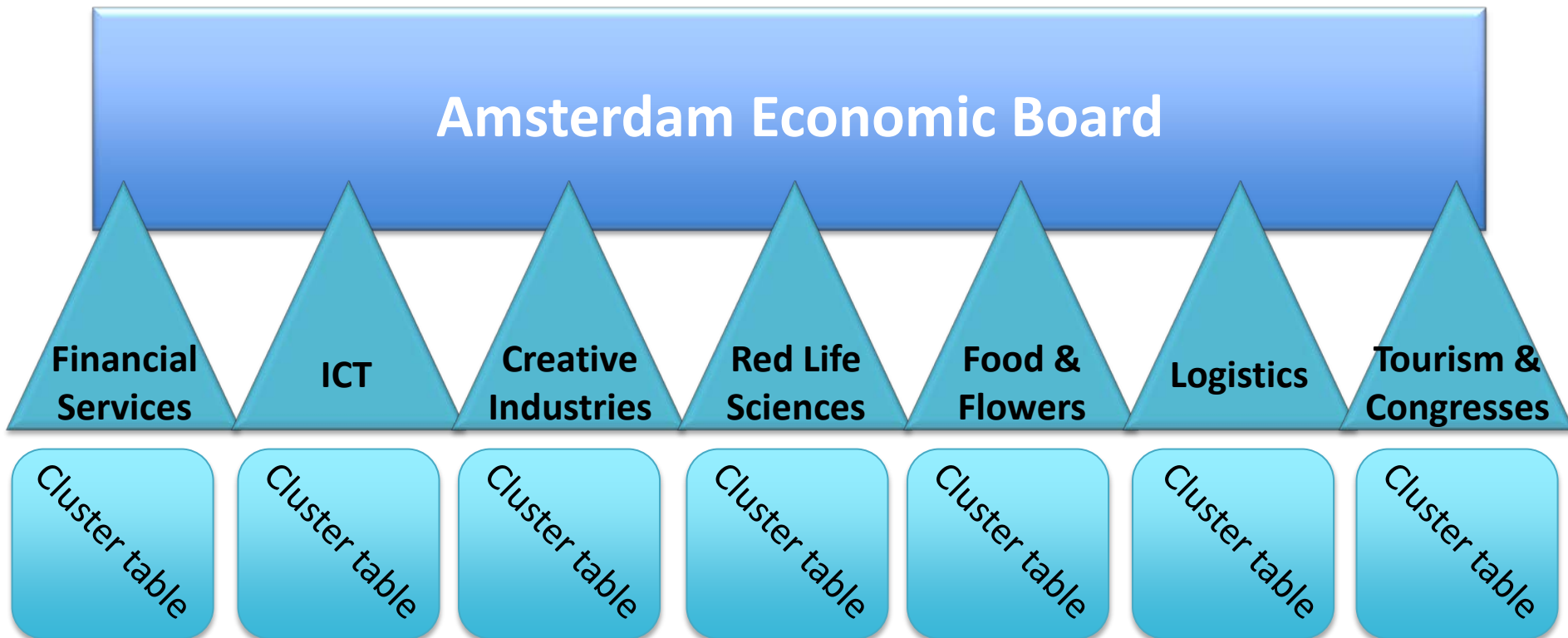
Chairman Mayor of Amsterdam

Amsterdam Economic Board

Industry 9 members

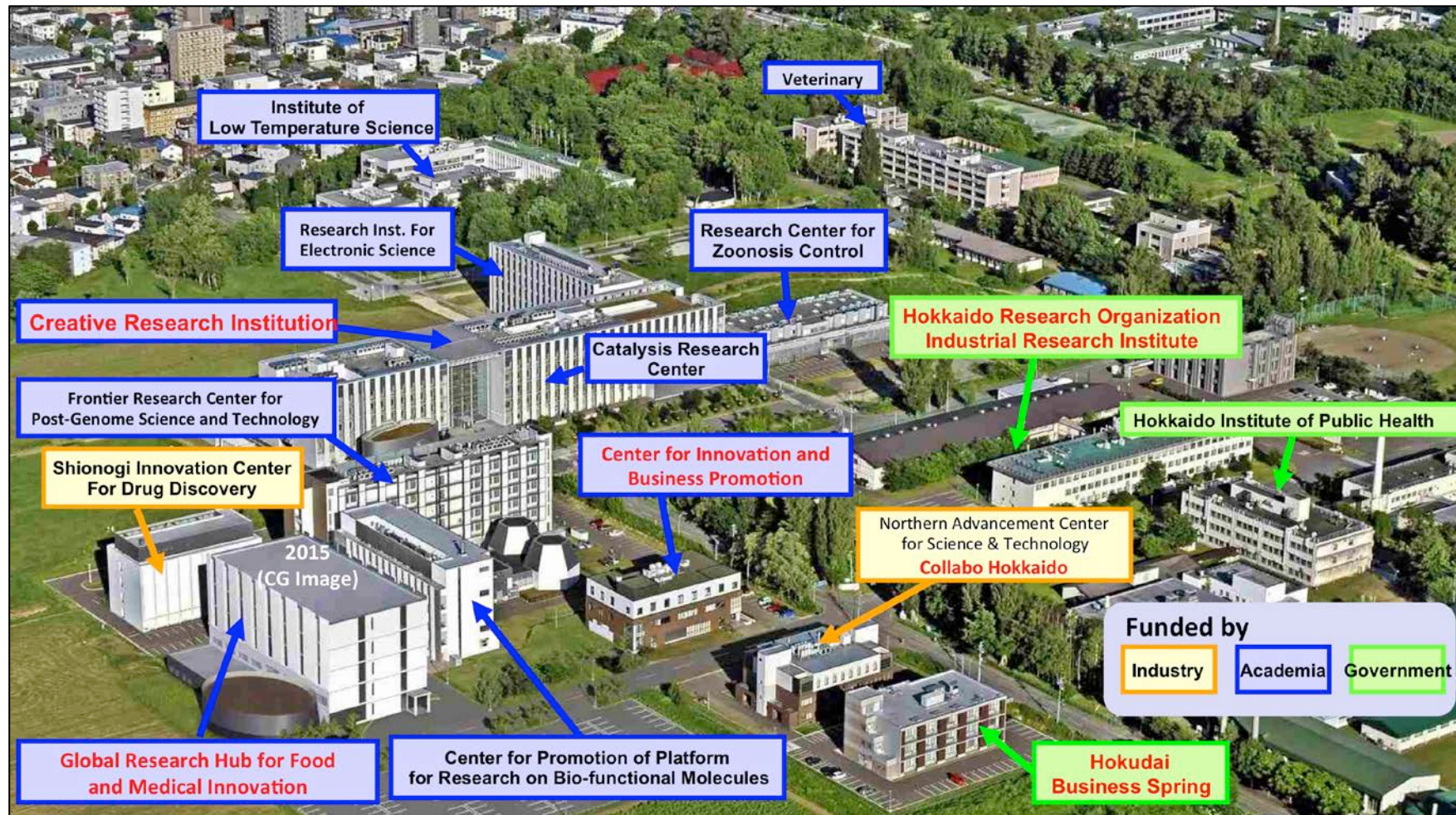
Knowledge institutions 5 members

Government 4 members (local government)



Hokkaido University – North Campus

Cooperation between University (red), public institutions (blue) and private companies (orange)



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New Business

Research and Business Park Project Promotion Council

12 organizations (secretariat: NOASTEC)

Academy, Companies, Government (National, Regional, Local)

Business

Hokudai Business Spring

(Hokkaido Branch of Organization for Small and Medium Enterprises and Regional Innovation)

Production

“Collabo Hokkaido” (managed by “NOASTEC”, a Regional Foundation)
Hokkaido Prefectural Research Institute (Hokkaido research organization)
National Institute of Advanced Industrial Science and Technology (AIST)

Development

Creative Research Institution (CRIS)
Shionogi Innovation Center for Drug Discovery (Private company), etc.

Basic Research

Creative Research Institution (CRIS) [in collaboration]
Frontier Research Center for Post-Genome Science and Technology

Based on notes by Prof. Araiso, CIBP, Hokkaido University

Sapporo and Amsterdam *Territorial and economic aspects*

	City of Sapporo	Amsterdam Metropolitan Area
Area	Hokkaido Prefecture 83,500 km² City of Sapporo 1,120 km²	the Netherlands 41,500 km² Amsterdam Metropolitan Area 1,800 km² City of Amsterdam 220 km²
Population	Hokkaido Prefecture 5.5 million City of Sapporo 1.9 million	Amsterdam Metropolitan Area 2.4 million City of Amsterdam 0.8 million
Population density	Hokkaido Prefecture 70 people/km² City of Sapporo 1,700 people/km²	Amsterdam Metropolitan Area 1,300 people/km² City of Amsterdam 3,600 people/km²
Economy	Hokkaido Prefecture: agriculture, fishery, food production, tourism services City of Sapporo: - whole and retail sale, care service, tourism service, food production - Local and regional based economy - Isolated from central industry of Japan	Amsterdam Metropolitan Area: - business services, financial services, whole sale, care service - Global economy based - Center of the European economy
GDP	Japan: 4.700.000 million EUR (2012) Hokkaido Prefecture: 140.000 million EUR (2009) City of Sapporo: 48.000 million EUR (2009)	the Netherlands: 602.000 million EUR (2011) Amsterdam Metropolitan Area: 91.000 million EUR (2011)
Knowledge centers	- Hokkaido University is the largest university in Hokkaido Prefecture	- There is another comparable research university - There are colleges and universities of applied science - Other important Universities at very short distance (Leiden, Utrecht, Rotterdam or The Hague)

Hokkaido University and VU-Amsterdam *Academic aspects*

	Hokkaido University	VU University Amsterdam
Facts and figures	12 faculties, 3 institutes 18,000 students, 4000 staffs	12 faculties, 14 institutes 22,500 students, 4400 staffs
Organization and knowledge transfer	Creative Research Institution (CRIS) - Interdisciplinary research institute as liaison center Center for Innovation and Business Promotion (CIBP) - Matching of researchers and companies - Coordinating collaborative projects - Running incubator - Technology Transfer - Creating new industry - Licensing and managing intellectual properties	Technical Transfer Office (TTO): - Support for subsidies application - Advisory for university's research strategy - Organizing small projects among researchers and companies - Matching of researchers and companies - Promotion for internship - Reach international market - Generating spin-offs
Policy	- Difficulties to implement a strategy and a common vision involving private partners .	- The importance of Triple Helix is stressed in Strategic Plan 2011-2015 to exploit new financial resources
Physical infrastructure	- North Campus actually oriented to Triple Helix development - All facilities are owned by national government	- New campus is under development with 30 years strategic plan - Multifunctional(future) campus: - promoting interdisciplinary research, Triple Helix, and social interaction; - Compact and flexible(Future) campus: - sharing excess facilities and reorganizing working places - The university owns the facilities - Previous experiences to concentrate academic and entrepreneurial activities in specific locations (like the Science Park) didn't achieve the expected results

Sapporo and Amsterdam *The Triple Helix framework*

	Research and Business Park Project Promotion Council (RBPPPC)	Amsterdam Economic Board (AEB)
Organization	- North Campus triggered RBPPPC foundation - Physical infrastructure oriented organization - RBPPPC was led by certain local private company - HU motivated by budget application for CRIS construction to participate in RBPPPC - 12 local organizations involved - One of the participating organizations is assigned secretariat task - No Human resources	- AEB is led by municipality of Amsterdam - Public-private collaboration oriented since AIM and AKN - VU is a member of executive board - Multinational companies involved - AEB itself is the board and the secretariat of the framework - AEB has its own human resources
Strategy	- 4 strategic guidelines are taken now: Creating high added-value industry utilizing local food. Developing medical and pharmaceutical industry. Combining food industry and medical industry. “Green innovation” for post carbon society. - No systematic common rule to promote projects	- Common agenda has been set to promote 7 priority clusters - AEB is conducting systematic project evaluation and coordinating Triple Helix projects for competitive funds application (mostly European Union funds)
Funding	- No RBPPPC's own budget for project implementation - All the projects funded by national government (MEXT) - Half of the operational cost (92,000 EUR/year) covered by one participating organization	- No AEB's own funds for project implementation - Project budget (40 - 50 M EUR in total) covered by external funds - Operational (4.5 M EUR/year) and project budget shared by 3 sectors.

3. Smart Specialization

The concept of *smart specialization* has been recently developed at theoretical level (2008) but quickly adopted as a key-concept for the **regional development and innovation policies** in the EU and integrated in the **Innovation Union** strategies within the **Horizon 2020** programs.

This new key concept for the Regional Innovation Policies 2014-2020 (RIS3) aims to:

- increase the **focus** in a very short number of thematic priorities;
- support “**bottom-up**” innovative processes;
- encourage **experimentation** and strategic flexibility;
- promote a bigger involvement of **regional stakeholders** in the **planning** process (including the definition of a “**common vision**” for the future of the region, the **evaluation** of the strategy and the **monitoring** process);
- be supported by **monitoring systems** based on precise indicators.

Each region should develop **place and practice-based innovation processes** through an **entrepreneurial process of discovery** (including universities or public institutions as creators of “market-oriented” knowledge), supported by the **region’s distinctive industry structures and knowledge** and focused on the **creation of unique assets and capabilities**, based on its **own strengths**.

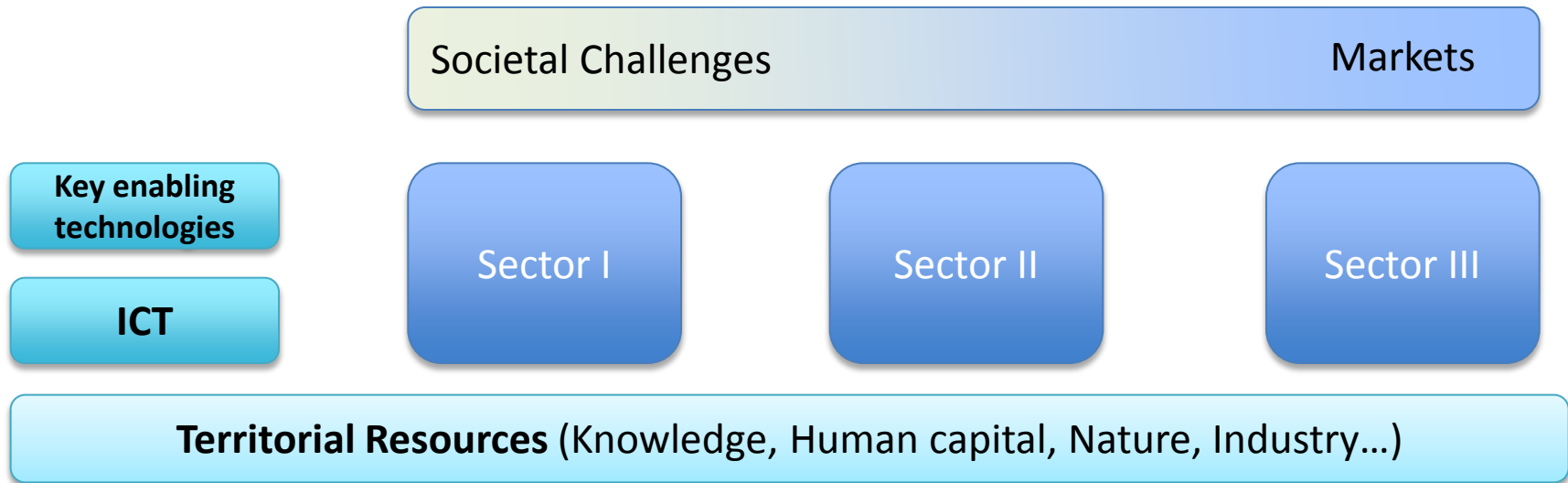
These strategies should follow a **broad concept of innovation** (including design, creative industries or business models) and **concentrate knowledge resources linked to a limited number of priorities**.

Innovation:

- **localised interaction** between market forces, knowledge centres and governmental institutions (**entrepreneurial discovery**)
- ensures **differentiation and uniqueness** in the regional specialization, based on the resources and capacities available in the **territory**.

Increase the **scale and scope** of production, generate **spill-overs** from a specific specialization pattern and from the **related variety** between interconnected sectors or clusters should be the main results to achieve.

The strategic identification of possible inter-cluster or inter-sectorial relations and connections, in order to generate spill-overs based on “**Key Enabling Technologies**” (with impact on different sectors and potential to be developed at local level) or **Information and Communication Technologies**, should follow the identification of priority sectors.



This strategy should consider the **societal and environmental contemporary challenges** (employment, climate change, aging societies) and to be flexible enough to allow **experimentation, creativity and adjustment to changing conditions**.

**AEB (Amsterdam)
and RBPPPC (Sapporo)**
according to the
Smart Specialization concept

	AEB	RBPPPC
Key priorities	7 priority clusters	From a wide range of high-tech sectors like life science to focus on food sector.
Key enabling technologies	Unclear.	Food and medical technologies applied to primary sector, health or tourism.
Entrepreneurial discovery	- “Cluster table” selects projects with commercial potential for each priority cluster - Steering committee evaluates before decision to support from the Board.	Not defined (selection of project topics much based on the orientation of the University).
Collaborative leadership	Local government, private companies and knowledge centers represented in the Board.	- No shared leadership formally established. - Financial support for projects is from national government. - Local government is starting to take an initiative for collaborative projects.
Shared vision	Strategic plan decided by the Board, with the participation of all the members (local government, private companies and knowledge centers).	Strategies combined to the on-going projects organized by the university.
Monitoring	Clear and measurable objectives to be evaluated by all the members.	Broad objectives, difficult to evaluate.

4. Discussion

The structure of the **Amsterdam Economic Board** is clearly oriented for a **collaborative leadership** among local governments, knowledge centres and companies.

The strategic objectives and the performance of the Board can be collectively **monitored and evaluated** by all the partners.

The creation of the “Clusters Tables” creates a possibility for the emergence of “**bottom-up**” projects and proposals, following the “**top-down**” guidelines defined by the Board.

The existence of **large companies** operating in the city favours their integration in AEB.

The impact of AEB’s initiatives in local **SMEs** is an interesting aspect to evaluate in the future.

The same applies to the priority clusters that were defined:

7 clusters is not exactly a “**limited number of priorities**”

and this creates problems for the definition of “key-enabling technologies”.

Despite the initial leadership by a local company, **RBPPPC** is still dependent on the role of the University.

The **entrepreneurial structure** of the region of Hokkaido, dominated by **small companies** with a strong importance of the **primary sector**, might affect negatively the the continuity of RBPPPC.

The development of an **entrepreneurial processes of discovery** or the existence of a **common vision** and a **collective process monitoring and evaluation** require the involvement of private sector.

Positive focus on the agro-food production,
developing **key-enabling technologies related to life science,**
with potential **impacts on different activities**
(food production, health care, medical products or tourism).

Recent initiatives developed by the **City of Sapporo** aiming to **increase collaboration** with knowledge centres also provide positive impacts.

As the only one nation-wide research university in the region holding core knowledge and creativities, with an historical orientation to “**practical learning**” and having adequate **human resources** and organizations (such as CIBP and CRIS) to promote the match between researchers’ seeds and companies’ needs, **Hokkaido University** seems an adequate organization to take the lead of RBPPPC in the future.

Nevertheless, its success also depends on the **involvement of the local private sector**.