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# Knowledge, Place and Economy

## *Smart Specialization and the Triple Helix framework in Amsterdam and Sapporo*

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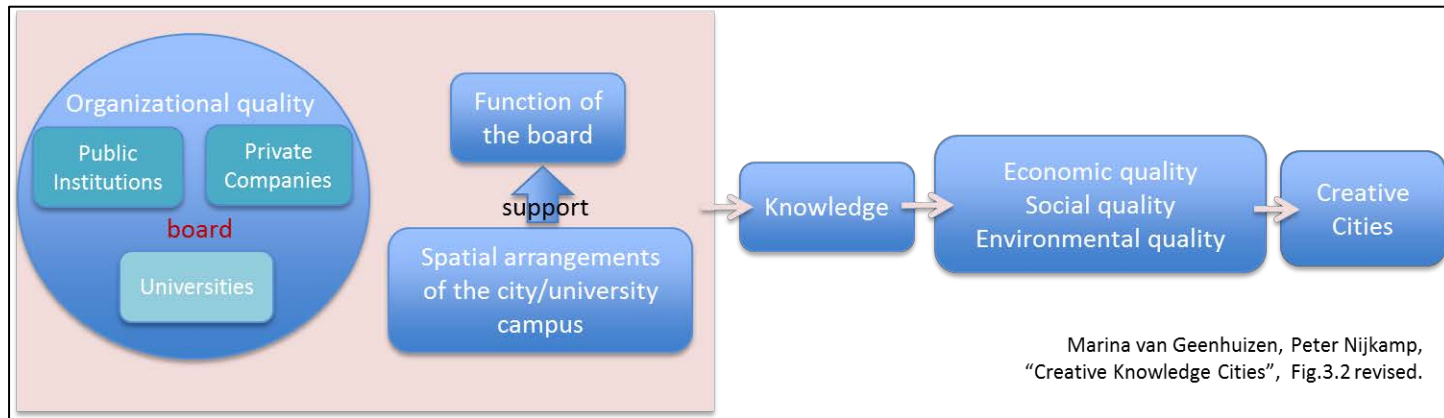
International Symposium on the Creation of Sustainable Campuses 2013 – [Hokkaido University](#)

## 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**.



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**.

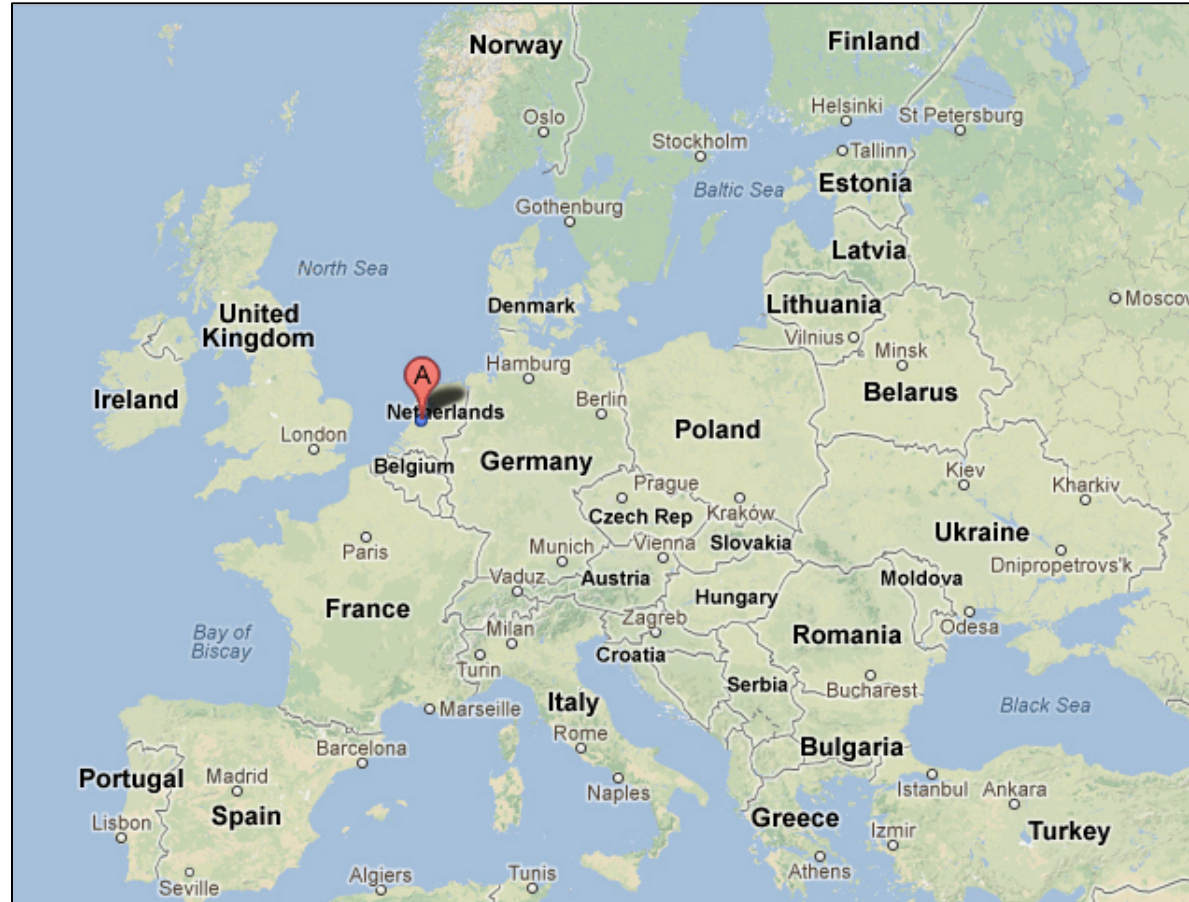
Today only **46%** of this pool works in the **business sector**, which is much lower than in Europe's main economic competitors:  
69 % in China,  
**73% in Japan**,  
80% in the United States.

*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.**



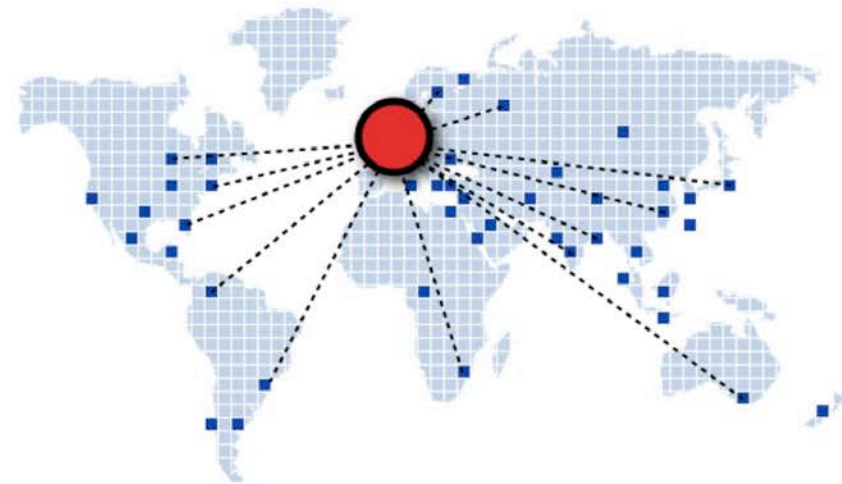
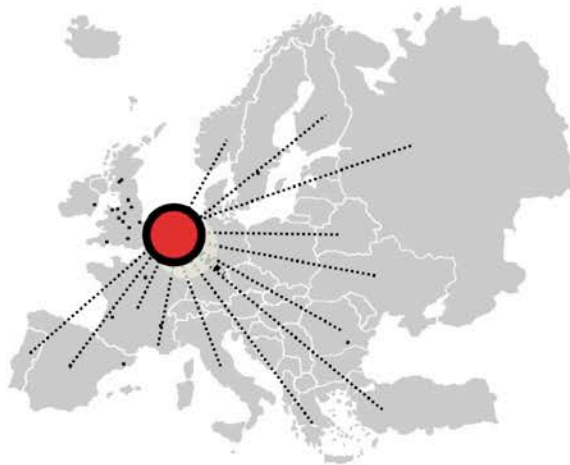
The **Amsterdam Metropolitan Area (AMA)** is located in the **center of the Netherlands**.

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)

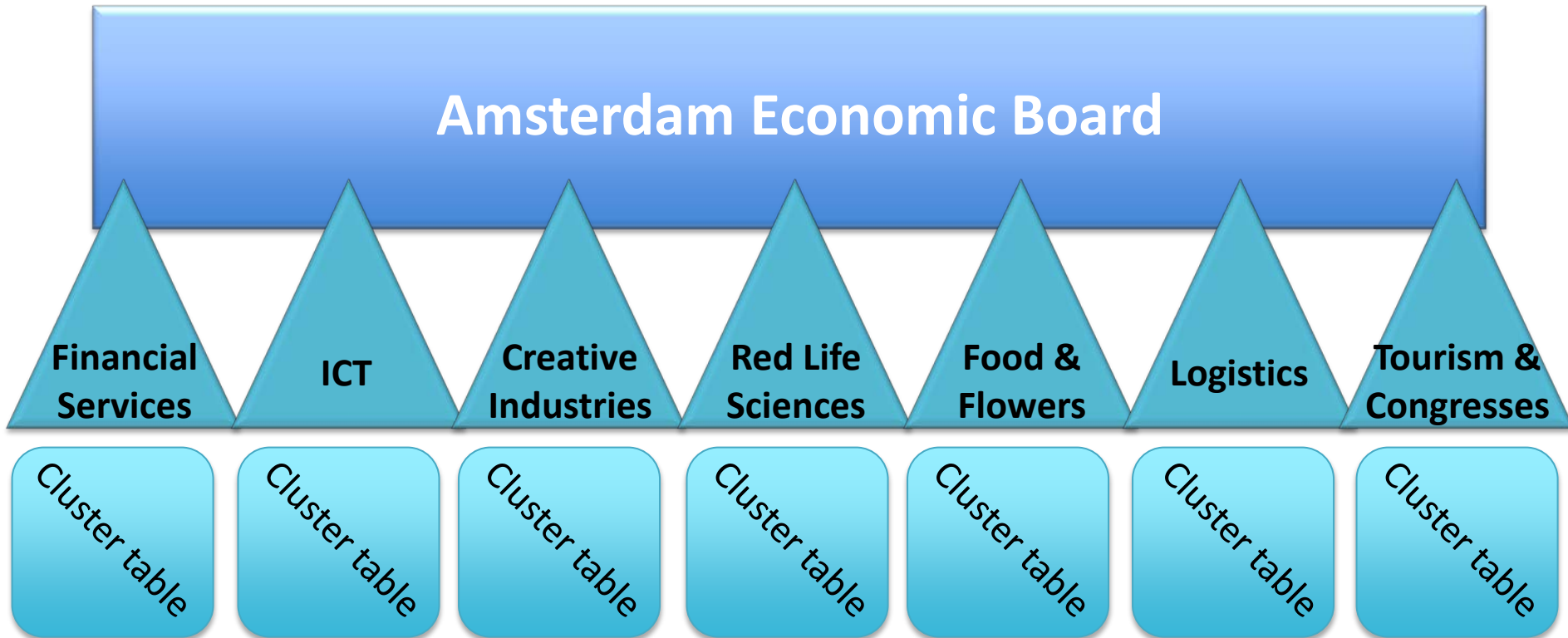
*Amsterdam Economic Board*

**Chairman** Mayor of Amsterdam

**Industry** 9 members

**Knowledge institutions** 5 members

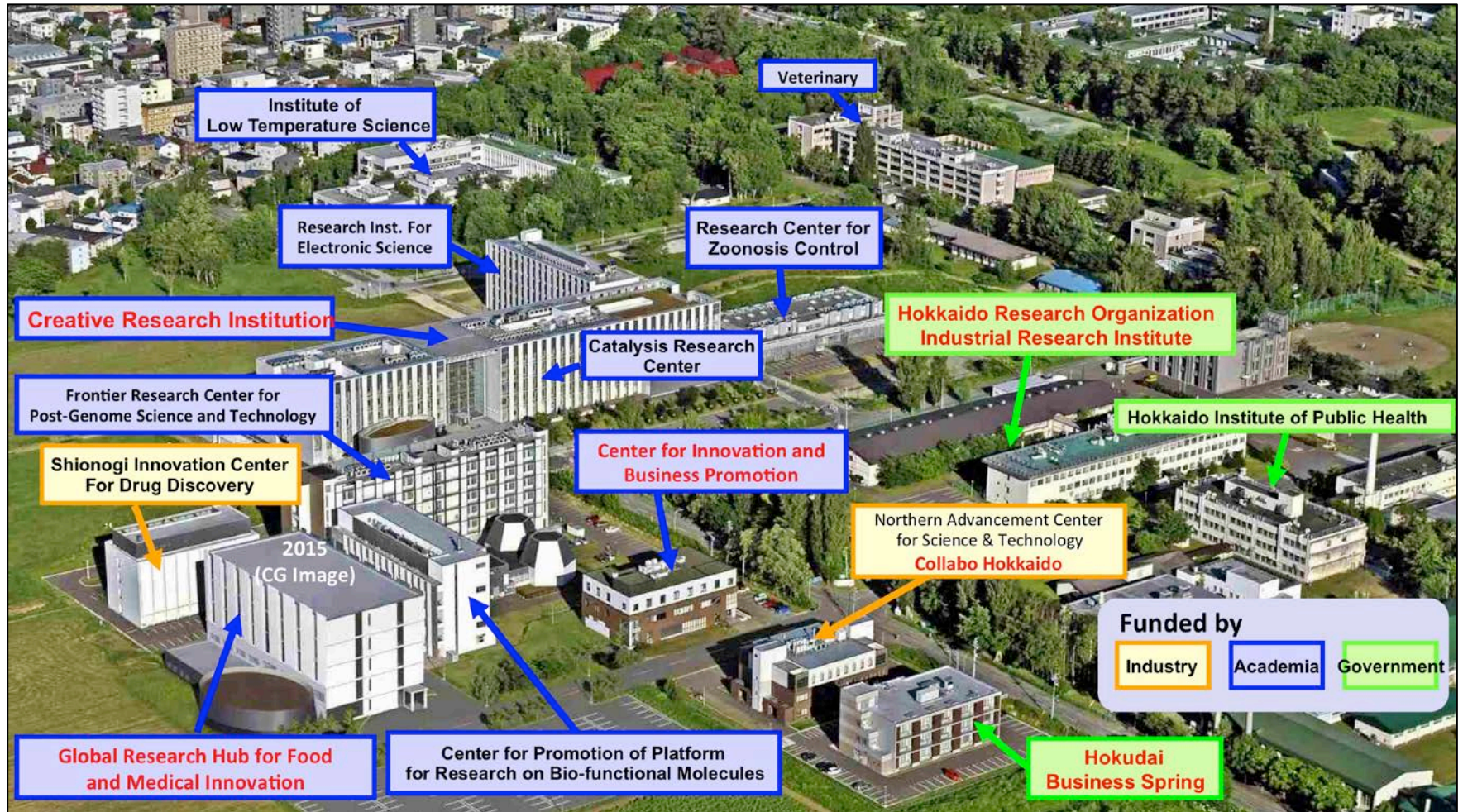
**Government** 4 members (local government)





## 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
<b>Area</b>	Hokkaido Prefecture <b>83,500 km<sup>2</sup></b> City of Sapporo <b>1,120 km<sup>2</sup></b>	the Netherlands <b>41,500 km<sup>2</sup></b> Amsterdam Metropolitan Area <b>1,800 km<sup>2</sup></b> City of Amsterdam <b>220 km<sup>2</sup></b>
<b>Population</b>	Hokkaido Prefecture 5.5 million City of Sapporo 1.9 million	Amsterdam Metropolitan Area 2.4 million City of Amsterdam 0.8 million
<b>Population density</b>	Hokkaido Prefecture <b>70 people/km<sup>2</sup></b> City of Sapporo <b>1,700 people/km<sup>2</sup></b>	Amsterdam Metropolitan Area <b>1,300 people/km<sup>2</sup></b> City of Amsterdam <b>3,600 people/km<sup>2</sup></b>
<b>Economy</b>	Hokkaido Prefecture: <b>agriculture, fishery, food production, tourism services</b>  City of Sapporo: <b>- whole and retail sale, care service, tourism service, food production</b>  <b>- Local and regional based economy</b> <b>- Isolated from central industry of Japan</b>	Amsterdam Metropolitan Area: <b>- business services, financial services, whole sale, care service</b>  <b>- Global economy based</b> <b>- Center of the European economy</b>
<b>GDP</b>	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)
<b>Knowledge centers</b>	- Hokkaido University is the <b>largest university</b> in Hokkaido Prefecture	- There is <b>another comparable research university</b> - There are colleges and universities of applied science - <b>Other important Universities</b> at very short distance (Leiden, Utrecht, Rotterdam or The Hague)



## Hokkaido University and VU-Amsterdam *Academic aspects*

	Hokkaido University	VU University Amsterdam
<b>Facts and figures</b>	12 faculties, 3 institutes 18,000 students, 4000 staffs	12 faculties, 14 institutes 22,500 students, 4400 staffs
<b>Organization and knowledge transfer</b>	<p><b>Creative Research Institution (CRIS)</b></p> <ul style="list-style-type: none"> <li>- Interdisciplinary research institute as liaison center</li> </ul> <p><b>Center for Innovation and Business Promotion (CIBP)</b></p> <ul style="list-style-type: none"> <li>- Matching of researchers and companies</li> <li>- Coordinating collaborative projects</li> <li>- Running incubator</li> <li>- Technology Transfer</li> <li>- Creating new industry</li> <li>- Licensing and managing intellectual properties</li> </ul>	<p><b>Technical Transfer Office (TTO):</b></p> <ul style="list-style-type: none"> <li>- Support for subsidies application</li> <li>- Advisory for university's research strategy</li> <li>- Organizing small projects among researchers and companies</li> <li>- Matching of researchers and companies</li> <li>- Promotion for internship</li> <li>- Reach international market</li> <li>- Generating spin-offs</li> </ul>
<b>Policy</b>	<ul style="list-style-type: none"> <li>- Difficulties to implement a <b>strategy</b> and a <b>common vision</b> involving <b>private partners</b>.</li> </ul>	<ul style="list-style-type: none"> <li>- The importance of Triple Helix is stressed in <b>Strategic Plan 2011-2015</b> to exploit new financial resources</li> </ul>
<b>Physical infrastructure</b>	<ul style="list-style-type: none"> <li>- <b>North Campus actually oriented to Triple Helix development</b></li> <li>- <b>All facilities are owned by national government</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b>New campus is under development</b> with 30 years strategic plan</li> <li>- Multifunctional(future) campus: <ul style="list-style-type: none"> <li>- promoting interdisciplinary research, Triple Helix, and social interaction;</li> </ul> </li> <li>- Compact and flexible(Future) campus: <ul style="list-style-type: none"> <li>- sharing excess facilities and reorganizing working places</li> </ul> </li> <li>- <b>The university owns the facilities</b></li> <li>- <b>Previous experiences to concentrate academic and entrepreneurial activities in specific locations</b> (like the Science Park) <b>didn't achieve the expected results</b></li> </ul>

## Sapporo and Amsterdam *The Triple Helix framework*

	Research and Business Park Project Promotion Council (RBPPPC)	Amsterdam Economic Board (AEB)
<b>Organization</b>	<ul style="list-style-type: none"> <li>- North Campus triggered RBPPPC foundation</li> <li>- <b>Physical infrastructure oriented organization</b></li> <li>- RBPPPC was led by certain local private company</li> <li>- HU motivated by budget application for CRIS construction to participate in RBPPPC</li> <li>- <b>12 local organizations</b> involved</li> <li>- One of the participating organizations is assigned secretariat task</li> <li>- No Human resources</li> </ul>	<ul style="list-style-type: none"> <li>- AEB is <b>led by municipality of Amsterdam</b></li> <li>- Public-private collaboration oriented since AIM and AKN</li> <li>- <b>VU is a member of executive board</b></li> <li>- <b>Multinational companies</b> involved</li> <li>- AEB itself is the board and the secretariat of the framework</li> <li>- AEB has its own human resources</li> </ul>
<b>Strategy</b>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- <b>No systematic common rule to promote projects</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b>Common agenda</b> has been set to promote <b>7 priority clusters</b></li> <li>- AEB is conducting <b>systematic project evaluation</b> and coordinating Triple Helix projects for competitive funds application (mostly European Union funds)</li> </ul>
<b>Funding</b>	<ul style="list-style-type: none"> <li>- No RBPPPC's own budget for project implementation</li> <li>- All the <b>projects funded by national government</b> (MEXT)</li> <li>- Half of the operational cost (92,000 EUR/year) covered by <b>one participating organization</b></li> </ul>	<ul style="list-style-type: none"> <li>- No AEB's own funds for project implementation</li> <li>- Project budget (40 - 50 M EUR in total) covered by <b>external funds</b></li> <li>- Operational (4.5 M EUR/year) and project <b>budget shared by 3 sectors.</b></li> </ul>

### 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**.

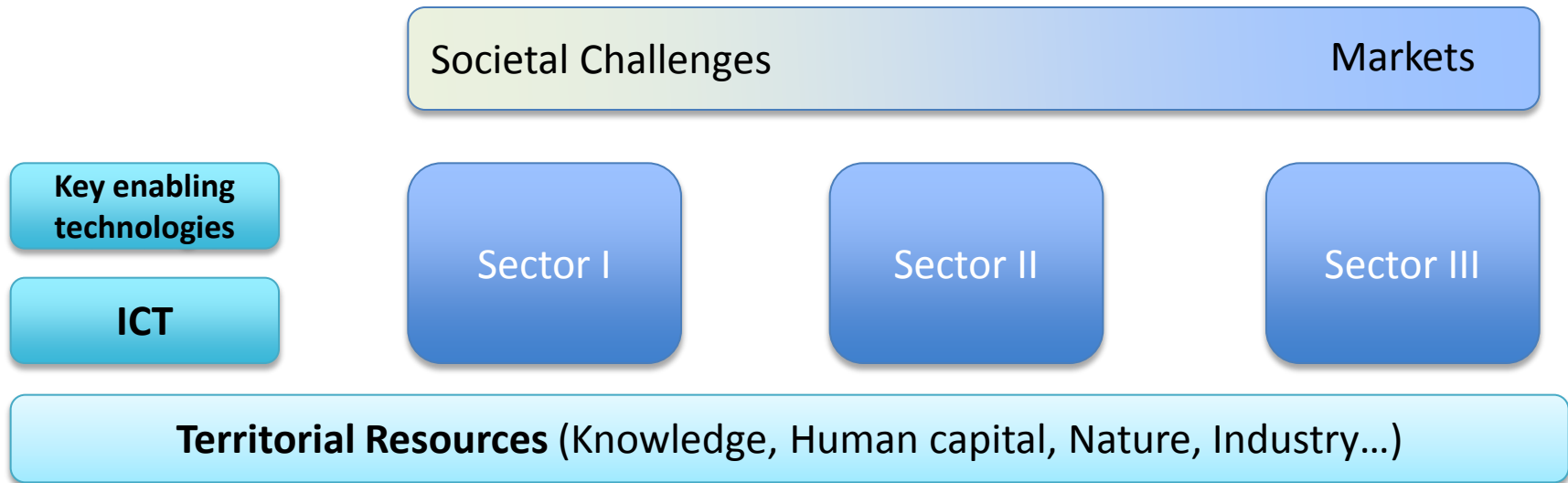
These strategies should follow a **broad concept of innovation** (including design, creative industries or business models) and **concentrate knowledge resources linked to a limited number of priorities**.

### 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

	<b>AEB</b>	<b>RBPPPC</b>
<b>Key priorities</b>	7 priority clusters	From a wide range of high-tech sectors like life science to focus on food sector.
<b>Key enabling technologies</b>	Unclear.	Food and medical technologies applied to primary sector, health or tourism.
<b>Entrepreneurial discovery</b>	<ul style="list-style-type: none"> <li>- "Cluster table" selects projects with commercial potential for each priority cluster</li> <li>- Steering committee evaluates before decision to support from the Board.</li> </ul>	Not defined (selection of project topics much based on the orientation of the University).
<b>Collaborative leadership</b>	Local government, private companies and knowledge centers represented in the Board.	<ul style="list-style-type: none"> <li>- No shared leadership formally established.</li> <li>- Financial support for projects is from national government.</li> <li>- Local government is starting to take an initiative for collaborative projects.</li> </ul>
<b>Shared vision</b>	Strategic plan decided by the Board, with the participation of all the members (local government, private companies and knowledge centers).	Strategies combined to the ongoing projects organized by the university.
<b>Monitoring</b>	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**.