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Why are cluster policies created and how do they work?

A comparison between Austria, France, Japan and Sweden

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Why cluster policies?

- Birth of cluster policies in the 1980s:
  - Shift from neoclassical (exogenous growth) to endogenous growth models; knowledge matters, institutions matter
  - Shift from mass-production to post-mass-production; regions matter
  - From comparative to competitive advantage of nations

→Looking into successful regions: Emilia Romagna, Sillicon Valley,…

Why cluster policies? (2)

- In the 1990s:
  - Growing popularity of the concept
  - Study conditions under which spontaneous clusters emerged to reproduce them
  - Willingness to create policy-driven clusters
  - Combining regional, science & technology and industrial policy

Why cluster policies? (3)

- To build policy-driven clusters by fostering interaction and cooperation between local actors
- To transform agglomerations of non-connected actors to areas in which actors innovate together
- To create vibrant, dynamic regions, increase competitiveness of individual actors and of the region as a whole

Cluster policies: looking inside

- How do they differ between countries/regions?
- What are their objectives?
- What kind of policy tools (measures) support them?
- What are the implementation structures of cluster policies?
- What are cluster evaluation methods?

COMPARISON OF CLUSTER POLICIES (and PROGRAMMES) OF FOUR COUNTRIES: AUSTRIA, FRANCE, JAPAN & SWEDEN

Focus: Early 2000s (surge in cluster policies in the world)

Austria

- Situation of the industry and industry-related policies in the 1990s
  - Low R&D intensity of the enterprise sector
  - Low level of entrepreneurship
  - Fragmented science base (no critical mass in selected scientific fields)
  - Promotion of the cooperation culture within the enterprise sector and between scientific research and industrial innovation

Austria

Priorities of the industrial policy: **competitiveness at the international level, key technologies, innovation and research.**

Several terms are used to designate clusters: cluster, network, economic complex, centre of excellence.

Cluster programmes:

- Sectoral programmes: LISA, FIT-IT
- Programmes with a regional focus: COMET, COIN

Austria: sectoral programmes

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
LISA	Min. of Economics and Min. of Science and Research	Continuous	?	Austria Economic service	1) Development of Life Sciences 2) Creation of new companies in the field of life science	1) Support new businesses through the support in creation of a business plan. 2) Developing links between different actors in life sciences.
FIT-IT	Min. of Transport, Innovation and Technology and Min. of Economics	2001-	Around € 50 million	Austrian Research Promotion Agency and EUTEMA (Techno. Consulting firm)	1) Promotion of considerable further developments in information technology (IT) 2) Development of fundamentally new IT up to a complete prototype at the location Austria	1) Thematic concentration and creation of clusters 2) Promotion of cooperation between the research and industry. 3) Improving performance of Austrian researchers.

Austria: programmes with regional focus

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
COMET	Min. of Transport, Innovation and Technology and Min. of Economics	2006-2017	For individual projects: from €0.45 million / year to €5 million/ year	Austrian Research Promotion Agency	1) Development of long term cooperation between science and industry 2) Building the strengths of Austrian research by integrating international research expertise. 3) Strengthening Austria as a research location	1) Prepare Austrian research actors for international competition 2) Establish a number of centres which will achieve international visibility through top-level research 3) Integrate researchers and companies of international renown 4) Strengthen human resources in Research and innovation
COIN	Min. of Transport, Innovation and Technology and Min. of Economics	2007-	Unknown	Austrian Research Promotion Agency	1) Fostering innovation and R&D 2) Promoting cooperation and networks between different actors	

France

- Situation of the industry and industry-related policies:
  - Weakness of innovation (1,9% of the GDP for R&D and innovation)
  - Weakness of public aid to innovation
  - 80% of public aid for a few industries (defence, nuclear, aerospace)
  - Little aid to new technologies (ICT, nano-technology, biotechnology)

Years 2000: a significant renewal of the industrial policy. Clusters created within this process.

France

Priorities of the industrial policy: **competitiveness through innovation, high technology, promoting partnerships, regional focus.**

"Clusters will use synergies and innovative joint projects to give their member companies a chance to be national and international leaders in their fields."

Cluster programme:

- Based on applications
- Main focus: Innovation and R&D
- 71 competitiveness clusters, 16 of which already are or should become world-class clusters.

France: key points

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
Competiti-veness clusters (Pôles de compétitivité)	Min. of Economy	2004-	€ 1.5 billion for 3 years	DGE, Oséo, AII, ANR, DRIRE	1) Develop competitiveness of the French economy through increased innovation. 2) Boost local technological and creative industries 3) Attract businesses to France thanks to a higher international profile 4) Stimulate growth and employment.	1) Develop partnerships between the various stakeholders, based on their complementary skills 2) Develop R&D projects that can benefit from public funding 3) Improve environment for innovation 4) Encourage development of technology partnerships with partners abroad 5)Attract investors to France

Japan

- Situation of the industry and industry-related policies:
  - 1990s: the lost decade (burst of the economic bubble, deflation, problems in the financial system)
  - Hollowing-out of the industry
  - Many SMEs left without work

Restructuring of the SME-related policy measures

New Basic Law for SMEs (from protecting the weak to encouraging the strong)

Japan

Priorities of the industrial policy: **competitiveness, structural reform, innovation, new business development.**

"The industrial cluster project aims at creating industrial clusters that have three main properties: 1) chain reaction of innovations – a wave of innovations spreading all through Japan; 2) optimization of industries and strengthening their tolerance to changing environment; 3) brand – building for accelerating formation of international clusters or enhancing their quality."

- **Cluster programme:**
- Based on applications
- Main focus: Industry-government academia partnerships, new business development, innovation
- 19 clusters selected at the beginning of the programme.

Japan: key points

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
Industrial Cluster Project	METI	2001-2020	€ 400 million / year	RBETIs and private sector Project promotion organisations	1) Develop the business environment to promote innovation 2) Creation of new businesses 3) Synergistic effects with local industry promotion	1) Promote innovation by "new fusion" of industry, academia and government 2) Promote industry-government – academia collaboration system 3) Support launching businesses, support new business development 4) Promote management innovation

Sweden

- Situation of the industry and industry-related policies:
  - relatively slow growth with regional economic imbalances;
  - large public deficit

Policy reformulation: 1) creating an increased coordination of growth and research policies through a reorganisation of the R&D funding; 2) stimulating regional economic growth – regional growth agreements.

Sweden

Priorities of the industrial policy: **economic growth, regional development, innovation, sustainable development.**

"Promote regional sustainable growth through the development of internationally competitive research and innovation environments, within specific areas."

Cluster programmes:

- 3 programmes: Vinnväxt, Visanu, Regional Cluster Programme
- Main focus: Innovation, internationalisation, sustainable development

Sweden: key points

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
Vinnväxt	Min. of Enterprise	2001-	€ 7.7 million / year	Vinnova	1) Build powerful innovation systems; 2) Create innovation systems that will be able to fully compete on the international innovation arena	1) Build the infrastructure of the innovation systems 2) Support the development of the innovation system 3) Improve the specialisation of staff 4) Improve conditions for knowledge spill-over

Sweden: key points (2)

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
Visanu	Min. of Enterprise and Min. of Foreign affairs	2003-2005	Total budget € 7.7 million	Vinnova, ISA and Nutek	1) Create good conditions for innovation systems and clusters 2) Support spreading of knowledge 3) Support international marketing of innovation systems and clusters	1) Mobilise actors and resources in a region, along the particular needs and interests of that specific region 2) Create new knowledge based on the experiences of existing clusters and spread that knowledge to other clusters and national authorities 3) Develop tools to analyse and evaluate clusters in Sweden 4) Promote the image of Sweden and Swedish regions to generate investments in clusters

Sweden: key points (3)

Programme name	Initiator	Time horizon	Budget	Implem. agency	Strategic objectives	Specific objectives
Regional Cluster Programme	Min. of Enterprise	2005-2010	Total budget € 7.7 million	Nutek	1) Improve cooperation and relations 2) Support innovation and renewal 3) Attract external actors 4)Internationalisation 5) Growth and profitability	1) Focus on widening the use of existing R&D institutions 2) Improve cooperation of existing R&D institutions within the Triple Helix 3) Promote commercial cooperation such as export promoting actions and strategy analysis 4) Promote cluster expansion with activities concerning establishment promoting, spinoffs, marketing and increase of member companies.

Ministries in charge of cluster policies and programmes

- Ministries of Economy, Industry
- Ministries of Education, Science, Technology
- Ministries of Transport
- Ministries of Foreign affairs

Budget

- France and Japan: large budget (around half a billion euro/year)

- Austria and Sweden: less than 100 million for the total duration of each programme

Strategic objectives

Austria	France	Japan	Sweden
<u>COMET</u> 1) Develop long term cooperation between science and industry; 2) Strengthen Austrian research by integrating international research expertise; 3) Strengthen Austria as a research location <u>COIN</u> 1) Foster innovation and R&D; 2) Promote cooperation and networks between different actors	1) Develop competitiveness of the French economy through increased innovation; 2) Boost local technological and creative industries; 3) Attract businesses to France thanks to higher int. profile 4) Stimulate growth and employment.	1) Develop business environment to promote innovation; 2) Create new businesses; 3) Create synergy with the local industry promotion	<u>VINNVÄXT</u> 1) Build powerful innovation systems; 2) Build world-class innovation systems. <u>Regional Cluster Programme</u> 1) Improve cooperation and relations; 2) Support innovation and renewal; 3) Attract external actors; 4) Enhance internationalization; 5) Enhance growth and profitability.

Strategic objectives

- Common points: innovation, R&D, attractiveness as a location, cooperation, growth.

- Different: create new businesses, synergy with the local industry support measures (Japan)

Policy tools (measures and instruments)

- Horizontal: improve the overall conditions in industries which would in turn enhance competitiveness;
- Vertical: focus on specific areas/sectors/industries
- Three fields of policy measures targeting clusters (OECD survey):
  - Support for network formation
  - Support for business activities
  - Promotion of collaboration with related organizations
- Families of instruments
  - Engage actors
  - Provide collective services (improve capacity, skills and competitiveness in general)
  - Promote collaborative research

Austria: Programme LISA

Policy tools

- Supporting researchers in the field of innovative ideas
- Providing support for registering patents
- Supporting the creation of new companies
- Financing R&D projects in Life Sciences
- Providing intermediation services with investors
- Supporting the creation of a business plan, market research and analysis
- Supporting vocational training in the field of business administration for natural scientists, engineers and physicians working in Life Sciences.

Austria: Programme FIT-IT

Policy tools

- Supporting cooperation between research and industry
- Supporting thematic concentration
- Supporting education and training of qualified researchers
- Intensifying ambitious cooperative research projects
- Supporting networks between researchers.

Austria: Programme COMET

Policy tools

- Supporting the new culture of co-operation between science and industry to achieve joint strategic top-level research
- Supporting bundling of players by using thematic synergies, thereby preparing involved players for increasing international competition,
- Supporting the establishment of a number of centres, which achieve international visibility through top-level research as well as by integrating researchers and companies of international renown
- Supporting strengthening human resources
- Supporting the transfer of expertise to industry
- Creating attractive career opportunities for research staff in science and industry.

Policy tools: France

Tool	Amount for three years
Financing the management structures of clusters	33 million EUR
Financing R&D projects	600 million EUR
Financing R&D projects through government agencies	567 Million EUR
Fiscal exonerations	300 million EUR
Total	**1,5 billion EUR**

Policy tools: Japan

Field	Measures	Instruments
Support for network formation	Network formation (formation of collaboration ground) Budget: 10.3 billion yen /year	1) Establishing organisation that promotes cluster formation, networking with related organisations (base organisation 2) Dispatching coordinators to participating companies and universities 3) Information transmission by web site and mail magazine 4) Holding industry-academia collaboration exchange, joint meeting for announcing the results, symposium and seminar 5) Developing database of companies, researchers and supporters
Support for business activities	Support for R&D (development of collaboration activities) Budget: 41,3 billion yen / year	1) Promotion and collaboration of R&D by public fund (projects of regional bureaus of METI, New Energy and Industrial Technology Development Organisation, National Institute of Advanced Industrial Science and Technology, and other ministries) 2) Promoting utilisation of research results (meeting for announcing the results, technology matching, dispatch of specialists, etc.) 3) Support for protection and strategic use of intellectual property (establishment of regional intellectual property strategy head quarters, etc.)
	Strengthening incubation function (support for starting business) Budget: 5.2 billion yen / year	1) Developing incubation facilities 2) Fostering incubation managers 3) Network formation between incubation organisations and incubation managers
	Support for market cultivating (commercialisation of products developed)	1) Holding business matching meetings and exhibition of products 2) Collaboration with trading firms 3) Establishing distribution system 4) Market cultivation through coordinator 5) Support for cross-industrial collaboration business 6) Promoting trade and interchange with overseas markets (local-to-local industrial exchange project, etc.)
Promotion of collaboration with related organisations	Collaboration with financing institutions (management support)	1) Collaboration with local financial institutions (holding of Industrial Cluster Support Finance Conference, bridge loan and low-interest lean by business collaboration, establishment of venture fund) 2) Establishing local venture capital 3) Holding meetings for announcing business plans
	Fostering human resources	Fostering highly specialised human resources (manufacturing personnel, technology management specialists, judging personnel, etc.)

Sweden: Programme Vinnväxt

Policy tools

Category 1: Focusing on innovation and R&D

- Providing financial support for R&D projects
- Supporting research activities
- Supporting research development strategies

Category 2: Focusing on the infrastructure and new business creation

- Building of the infrastructure of the innovation systems
- Support for new companies
- Support for venture capital

Category 3: Focusing on human resources and engaging actors

- Building specialized work force
- Improving conditions for know-how
- Supporting seminars and training.

Sweden: Programme Visanu

Policy tools

Category 1: Process support

- Provide financial support for the development of process leadership and learning
- Generate cooperation and mutual trust among companies in a certain region. To mobilize actors and resources

Category 2: Support to the spreading of knowledge:

- Support key public and private stakeholders to develop knowledge and competence about innovation systems and clusters
- Create new knowledge based on the experiences of existing clusters and to spread it to other clusters and national authorities.
- Extend the usage of existing information
- Develop tools to analyse and evaluate clusters in Sweden.

Category 3: Creation of conditions for clusters to be marketed internationally

- Support promotion of the image of Sweden and Swedish clusters to generate investments in clusters.

Sweden: Regional Cluster Programme (Nutek)

Policy tools

- Support networking between SMEs, R&D institutions and public actors
- Support commercial cooperation such as export promoting actions and strategy analysis
- Support cluster expansion with activities concerning establishment promoting, spinoffs and marketing

Implementation

- Different levels of government (local, regional, national and in some cases supra-national) can support cluster policies

- The role of the private sector is also very important.

- According to the OECD (2007) central level co-ordination is becoming increasingly important.

- The articulation national/regional institutions is dependent on the institutional frameworks.

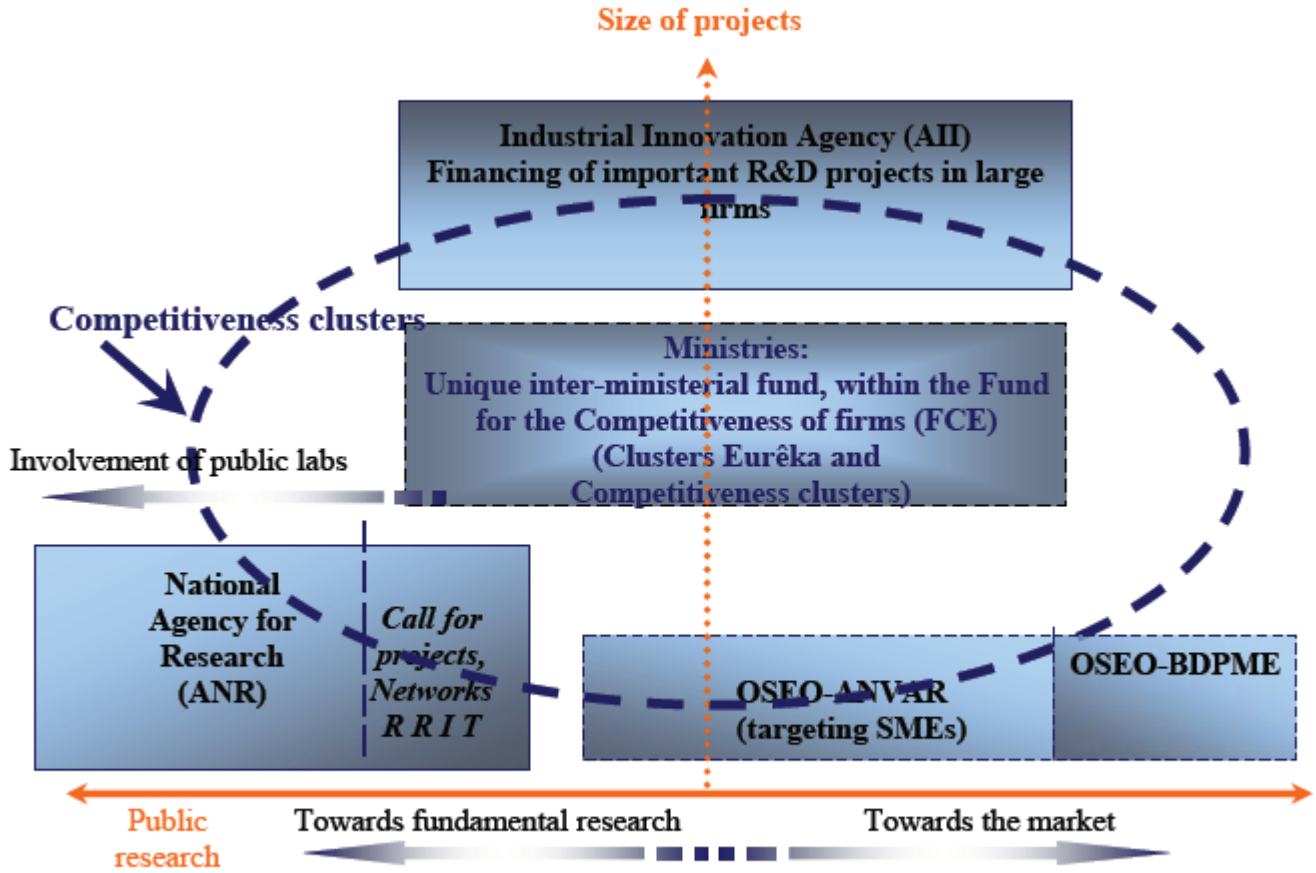
Austria

Programme name	Initiator	Implementing agencies
LISA	Min. of Economics and Min. of Science and Research	Austria Economic service
FIT-IT	Min. of Transport, Innovation and Technology and Min. of Economics	Austrian Research Promotion Agency and EUTEMA
COMET	Min. of Transport, Innovation and Technology and Min. of Economics	Austrian Research Promotion Agency
COIN	Min. of Transport, Innovation and Technology and Min. of Economics	Austrian Research Promotion Agency

France

Programme name	Initiator	Implementing agencies
Competitiveness clusters	Ministry of Economy, Finance and Industry & Ministry of Interior	DGE (Part of the Ministry of Economy, Finance and Industry) Oséo-ANVAR (support to SMEs) AII (support to industrial R&D) ANR (support to fundamental research and public-private knowledge transfer) DRIRE (support at the regional level)

Implementing agencies in France (the national level)

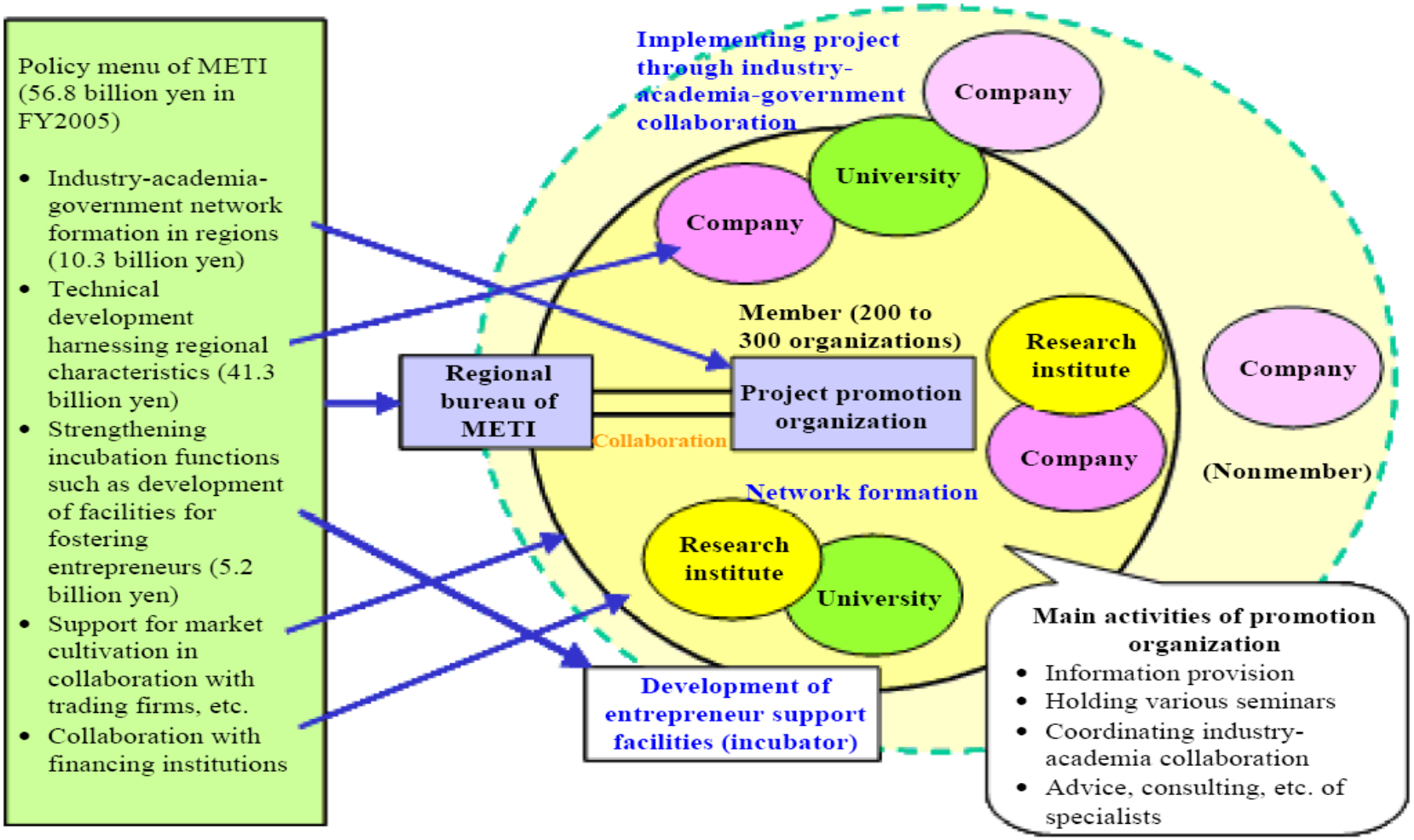


Source : Direction Générale des Entreprises (DGE)

Japan

Programme name	Initiator	Implementing agencies
Industrial Cluster Project	METI	Regional Bureaus of METI (RBETIs) and private sector Project promotion organisations

Japan: implementing structure



Sweden

Programme name	Initiator	Implementing agencies
Vinnväxt	Vinnova (under the Ministry of Enterprise)	Vinnova
Visanu	Min. of Enterprise and Min. of Foreign affairs	Vinnova, ISA and Nutek
Regional Cluster Programme	Min. of Enterprise	Nutek

Cluster evaluation

- Different levels of evaluation:
  - National level
  - Regional level
  - Cluster level

France

- 2 levels of evaluation:
  - Evaluation of national measures targeting competitiveness clusters (relevance/coherence, implementation; effectiveness)
  - Evaluation of each competitiveness cluster (strategy, scope, management and governance, involvement of SMEs, R&D projects, university-industry links, network effect, commercial visibility, international development, HR management and training, sustainable development)

Japan

1) Plan-Do-Check-Action system by METI every year

2) evaluation by an external committee (Industrial Cluster Study Group)

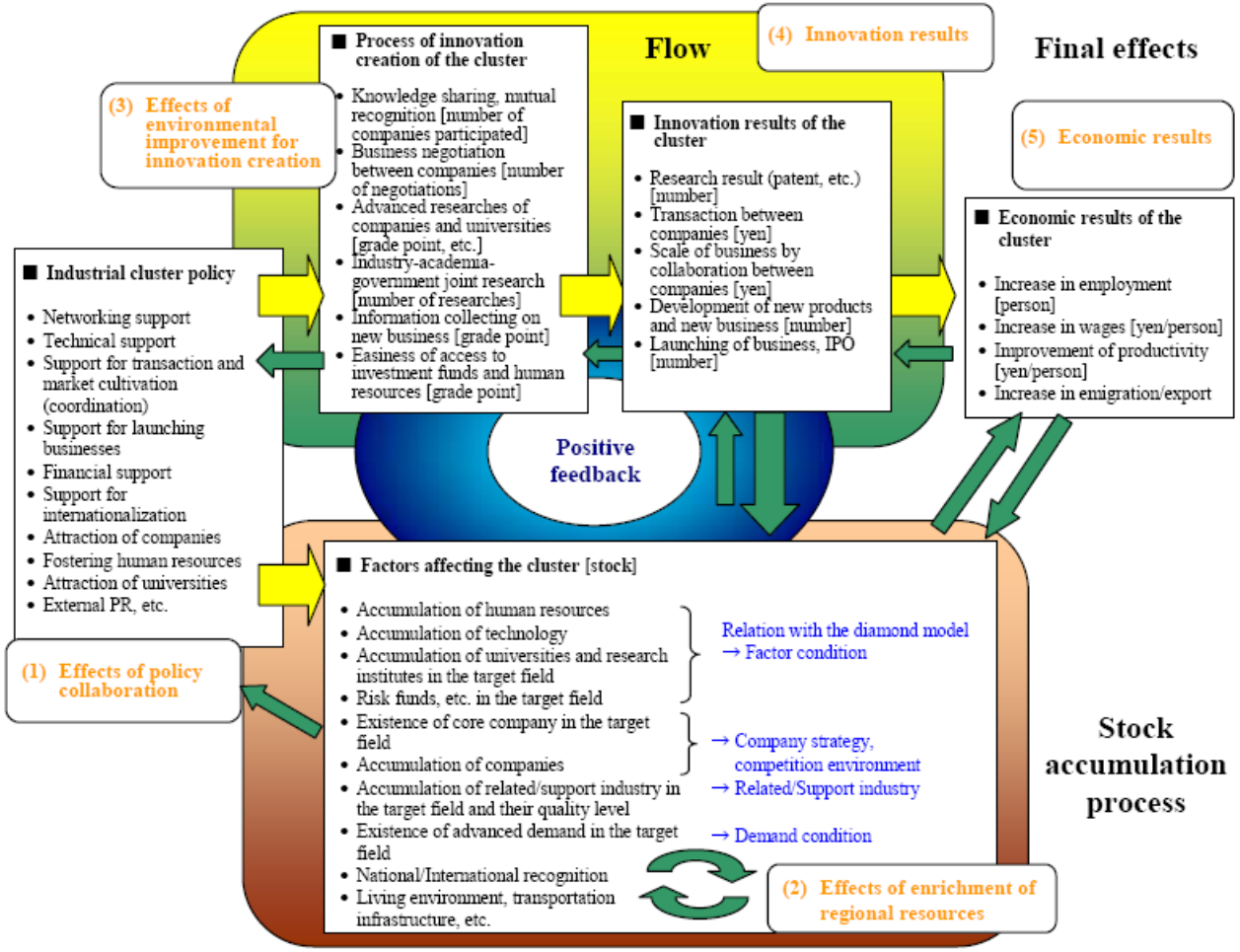
Japan: public evaluation

- PDCA

Assessment of individual project plans and of the project as a whole

  - Project follow-up surveys (twice a year)
  - Monitoring survey (once a year)
  - Assessment of the overall total plan
  - Introduction of external assessment (indicators: project participation, policy satisfaction, improvement of the environment, innovation achievement, economic results, …)
  - Reflection on assessment results

Japan: external assessment



Source: Mitsubishi Research Institute, Inc.

Sweden

Vinnväxt

- Vinnväxt processes evaluated every three years by an international panel
- Vinnova carries out yearly follow-ups of the winners
- Specific ad hoc evaluation of specific issues: for instance on the impact of competition on winners

Visanu

- Each project evaluated (job creation, strengthening of the cluster, R&D and other projects, results)

Regional cluster programme

- Similar to Visanu

Conclusions and questions

- Policies emerged to respond to a problem in the economy/industry: Should cluster policies also be designed when everything goes well?
- Each cluster policy takes into account the economic situation and the challenges (context is important): Good or bad?
- How many clusters should be created/targeted in a country?
- A variety of policy tools: clear for the actors?
- A variety of implementing agencies: clear for the actors?

Conclusions and questions (2)

- Policies primarily focus on innovation: Is this good? Are all clusters innovation-focused? Should policy target only high-tech clusters?
- Budget sometimes rather low (Austria, Sweden) or very high (France, Japan). What should the optimum level be?
- Less attention paid to entrepreneurship (Japan as an exception): should entrepreneurship be more central in cluster policies?
- Should cluster policies also target more clearly FDI?

Thank you for your attention!

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From strategic to specific objectives (1)

STRATEGIC OBJECTIVES - AUSTRIA	SPECIFIC OBJECTIVES - AUSTRIA
COMET 1) Develop long term cooperation between science and industry; 2) Strengthen Austrian research by integrating international research expertise; 3) Strengthen Austria as a research location. COIN 1) Foster innovation and R&D; 2) Promote cooperation and networks between different actors.	COMET 1) Prepare Austrian research actors for international competition; 2) Establish a number of centres which will achieve international visibility through top-level research; 3) Integrate researchers and companies of international renown; 4) Strengthen human resources in research and innovation.

From strategic to specific objectives (2)

STRATEGIC OBJECTIVES - FRANCE	SPECIFIC OBJECTIVES - FRANCE
1) Develop competitiveness of the French economy through increased innovation;	1) Develop partnerships between the various stakeholders, based on their complementary skills;
2) Boost local technological and creative industries;	2) Develop R&D projects that can benefit from public funding;
3) Attract businesses to France thanks to higher int. profile	3) Improve environment for innovation;
4) Stimulate growth and employment.	4) Encourage development of technology partnerships with partners abroad;
	5) Attract investors to France.

From strategic to specific objectives (3)

STRATEGIC OBJECTIVES - JAPAN	SPECIFIC OBJECTIVES - JAPAN
1) Develop business environment to promote innovation; 2) Create new businesses; 3) Create synergy with the local industry promotion.	1) Promote innovation by “new fusion” of industry, academia and government; 2) Promote industry-government – academia collaboration system; 3) Support for launching businesses, support for new business development; 4) Promote management innovation.

From strategic to specific objectives (4)

STRATEGIC OBJECTIVES - SWEDEN	SPECIFIC OBJECTIVES - SWEDEN
VINNVÄXT 1) Build powerful innovation systems; 2) Build world-class innovation systems.	VINNVÄXT 1) Build the infrastructure of the innovation systems; 2) Support the development of the innovation system; 3) Improve the specialisation of staff; 4) Improve conditions for knowledge spill-over.
Regional Cluster Programme 1) Improve cooperation and relations; 2) Support innovation and renewal; 3) Attract external actors; 4) Enhance internationalization; 5) Enhance growth and profitability	Regional Cluster Programme 1) Mobilise actors and resources in a region, along the particular needs and interests of that specific region; 2) Create new knowledge based on the experiences of existing clusters and spread that knowledge to other clusters and national authorities; 3) Develop tools to analyse and evaluate clusters in Sweden; 4) Promote the image of Sweden and Swedish regions to generate investments in clusters.