RESEARCH DRIVEN CLUSTERS

OVERVIEW ON RDC POLICIES, METHODS OF CHARACTERIZATION AND EXAMPLES OF BEST PRACTICES

Report funded by the TRANSREG NCP Project

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PART I

1. Introduction

This Report, promoted under the EC FP7 Regions of Knowledge Programme, is the result of an comprehensive research conducted in the framework of the EC funded **TransReg NCP project,** and of a mapping exercise in which the National **Contact Points** (NCPs) have actively participated. The mapping exercise, carried out in the 27 EU Member States, in the two candidate countries (Croatia and Turkey) as well as in the associated countries to FP7, was constituted by a two-step sampling approach: a questionnaire and the selection of 20 best practices from all over Europe.

The main goal of this report is to effectively contribute to the general understanding of the concept and functioning of Research Driven Clusters (RDC). It introduces a **background analysis** providing a depth investigation into the relationships between **European, national and regional policies,** and then continues by introducing a framework for a **common definition of RDC.** Some conclusions are also put forward to provide suggestions for a favourable **creation, development and implementation of RDCs,** and in doing so a **set of criteria and recommendations** directly involved in the development of clusters' strategies are also considered. From the early stage development, the report goes to describe ways in which **developed RDCs** can most effectively contribute to the research and technological development (RTD) capacity of European regions, and introduces **criteria for the exploitation of existing RTD potentials**. It then considers the ideal successful **RDCs characterization methodology** and highlights RDCs main characteristics by introducing several models (i.e. the value chain model).

In conclusion, the report provides a set of **recommendations** needed in order to develop and sustain successful RDCs, and proposes measures addressed to the three policy levels: EU, national and regional. It finally introduces a **list of** 20 **best practices in Europe**.

2. Background

The growing importance of R&D for the economy was recognised by the Lisbon European Council on March 2000, by setting for the EU a new and very ambitious strategic goal for the decade: *to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*. In order to achieve this goal, a great emphasis has been put on education, research and innovation, i.e. the triangle of knowledge. At present the development of the knowledge-based economy puts more and more an increasing emphasis on the need to produce innovation and apply new knowledge: clusters (including Research Clusters), which are generally considered as regional concentrations of specialise companies and research institutions linked through multiple linkages and spill-overs, provide a favourable environment encouraging innovation. They enable open innovation, the creation of new ideas in networks cooperating companies and research institutions, and ultimately the capture of the benefits of globalisation.

2.1 Multi level policy governance

Many actors are usually involved in the formulation and implementation of research cluster policies, requiring efficient coordination mechanisms to be well established: we must, therefore, concentrate on the **multi-level policy governance** role in making cluster policy interventions more efficient. As a matter of fact, interdependency of EU, MS, regions and players grows alongside the progress of globalisation; it follows that all of the basic factors that facilitate successful R&D and innovation can be affected by efficient and well-directed policies carried out by the EU, its Member States and European regions. By combining and networking R&D resources of the MS, together with a co-ordination from the EU, improved quality, productivity and competitiveness can be achieved across European regions.

Research clusters specific policies can be differentiated according to their governance structure: the governance structure is defined by a set of responsibilities allocated to different levels and institutions within the process of formulating policy. At the top level, EU and national ministries are inclined to formulate general strategies, often defining budget targets and setting up new European and government bodies. Within this context, specific programmes outline concrete actions for implementation. The programmes then include a number of specific project initiatives that apply the tools provided for a specific region or sector.

It can be emphasized that even if the EU has continuously raised the incentives and supports investment into the research area, efforts have also to be made at national level by focusing on improving the framework conditions and capabilities of RDCs, and at regional level by focusing on the integration of R&D/innovation into regional development strategies and agendas. The undeniable fact is that EU Member States need to commit themselves more intensively into European decisions and joint efforts regarding regional policy. Cluster policies should aim at encouraging regions to tackle the issues of competition and cohesion by reducing the existing barriers and by giving incentives to qualified players in the field.

There is growing evidence that a multi level policy governance helps in creating and developing RDCs: in Europe we have many good examples of mixed "*top-down*" and "*bottom-up*" approaches, as shown in the paragraphs that follow.

2.2 European research cluster policy

The current role of the European Commission in supporting the development of research clusters in Europe can be categorised as follows:

- **to complement** national and regional cluster policies by further removing barriers to trade, investment and migration within Europe. Some EU policies, starting from the Single Market programme, have shaped the context for research clusters development indirectly by shaping the overall European business and innovation context; on the other hand, other EU policies affect research clusters development directly through European programmes or through the support of national and regional research cluster policy efforts;

- to **motivate** and **strengthen** regional and national cluster policies, by developing and promoting a strategic approach to cluster policy in Europe;

- to **support** the creation of regional and national clusters by enabling better exploitation of research for innovation. The EC has recently started launching policies that are directly targeted to the creation and development of research clusters: different parts of the Commission offer relevant programmes and initiatives in support of clusters that could in future be further aligned to regional and national cluster policies so as to maximise their potential impact. These European initiatives in support of clusters are, of course, complementary to national and regional efforts;

- to **stimulate** the development of cross-border research clusters and the emergence of strong pan-European research cluster.

A list of European reference and background policy documents is provided in Chapter 6 of this report: here we just provide an overview of the most recent initiatives, starting from the **Lisbon European Council on March 2000**, whereby research, development and innovation activities were naturally positioned as central elements of the development of the European Research Area (ERA), a series of EU policy documents have directly or indirectly influenced the implementation and development of research clusters in Europe.

Then another important step to be taken into account is the **Hampton Court Summit** (October 2005), which shaped the setting up of the **Aho high-level Expert Group**[1] that recommended a higher share of Structural Funds to be allocated to R&D and innovation than the previous official EU plans. Following the **EC COM(2006) 502 final** "*Putting knowledge into practice: A broad-based innovation strategy for the EU*", the European Council then invited the EC "*to prepare an analysis on how to promote the trans-national dimension of clusters in Europe*" and, as a result, the **ENTR** (Expert and stakeholder consultation Group) was created, bringing together expertise on clusters and cluster policy development from public authorities, firms, regional organisations and industrial associations.

With the publication of a **Green Paper** (2007) on future perspectives for the ERA, the EC has launched a complementary debate on the fragmentation of research activities in Europe. The vision outlined in the Green Paper suggests that, in order to strengthen its competitive position, Europe should pool its forces by developing regional specialisations and also by allowing research driven clusters of global excellence to emerge. The Green Paper suggested that further concentration and specialisation of research efforts are needed, and that this cannot be pursued effectively without a better integration of the

[1] Aho Group (2006). *Creating an Innovative Europe*. EC, Bruxelles

science base with private R&D in new and existing clusters: research clusters could be among the main levers to foster EU competitiveness in the knowledge-based economy.

Three main EU policies/instruments provide financial assistance for the creation, development or improvement of research clusters. These are:

1. **Seventh Framework Programme (7°FP)**
2. **Competitiveness and Innovation Programme (CIP)**
3. **Structural Funds**

The main objectives of the above three programmes are close to each other:

- to strengthen cooperation between businesses, R&D institutes and higher education institutions by supporting the creation of regional and trans-regional clusters;
- to support R&D activities also by enabling SMEs to access R&D services;
- to support regional cross-border and trans-national initiatives that aim at strengthening R&D collaboration and capacity building in priority areas of EU research policy;
- to strengthen R&D capacity building (i.e. infrastructure and human capital).

The **Seventh Framework Programme** (2007-2013) partly builds on the achievements of its predecessor towards the creation of ERA and it includes, among others, special elements aimed at supporting R&D activities in regions and in developing research-driven regional clusters. These actions aim at facilitating networking between regional authorities, enterprises and research entities at European level, but also at supporting R&D for the benefit of SMEs, at enhancing the research potential of European regions (**Regions of Knowledge**), and stimulating the realisation of the full research potential of convergence and outermost regions (**Research potential**). The **"Regions of Knowledge"** initiative aims at strengthening the research potential and competitiveness of EU regions, in particular by encouraging and supporting the development and trans-national networking of regional research-driven clusters. The initiative aims at increasing the level of research investment in Europe as part of the objective of devoting 3% of GDP to research, also through the definition of joint action plans.

In the new programming period of **Structural Funds** (2007–2013), the volume of funding that will be channelled into R&D is very significant: out of the €308 billion will be available to regional growth agendas and to further support the knowledge-economy related priorities of the Lisbon strategy. Some €46.2bn (about 15%) of the funds will be made available to RDI, sustainable development and other activities in the regions under the 'Regional competitiveness and employment' objective. In addition, €7.4bn (2.4%) will be available for cross-border, trans-national and 10 inter-regional co-operation under the 'European territorial cooperation' objective.

The objective of the **Competitiveness and Innovation Framework Programme - CIP** (2007–2013) is to fortify European innovation capacity, through support to SMEs, innovation networks, the dissemination of good policy practices and R&D results and the transfer of technology and knowledge. The programme is built on three segments: promotion of entrepreneurship/innovation, environmental/energy-efficient technologies and a better use of ICT.

2.3 National and regional research cluster policies

Ongoing European policies are complementary to national and regional efforts to build strong clusters in Europe. Several rationales for national government policy action can be pointed out:

- to create favourable framework conditions;
- to stimulate interactions and knowledge exchange among the various actors by acting as a facilitator and moderator;
- to remove informational deficiencies by providing strategic information through foresight studies, strategic cluster studies and evaluation and disseminating information;
- to set up competitive cluster development programmes and projects for joint industry–academia research centres, or platforms based on public–private partnerships;
- to enhance Human Resources and knowledge flows.

RDCs can clearly display an important potential to stimulate RTD activities at the regional level and increase the competitiveness of regional economies: highly trained workforce and research and development (R&D) are among the key conditions for innovation and economic success of a country, a region or a cluster. At the same time, RDCs represents a response to the growing local demand for R&D organisations to contribute more directly with the business and the public administration sectors, by contributing to the creation of public-private partnerships at local level and by creating a bridge among R&D actors, regional administrations and the business community.

The above are just few considerations to understand the reason why there is a constant increase of their numbers even in regions that did not traditionally possess a strong R&D base. This increase is due also to the fact that, in recent years, EU regions have taken a more and more central political role as a basic spatial unit of technological and economic development and innovation in Europe. We must stress the fact that RDCs are by their nature regionally based and as such EU Regions clearly have an important role in defining any policy for clusters creation and development. However, we must also bear in mind that EU regions still differ from each other in terms of resources (human, social, technological and financial capital) and other factors in terms of development, innovation and competitiveness.

The following table summarises the interaction of cluster policies and activities at national and regional level:

	Strategy	Programme	Initiative
National ministries	Define	Define Review	Review
National agencies, regional governments	Provide input	Define based on strategy Initiate Manage	Initiate Manage Participate
Local governments	Provide input	Provide input	Initiate Manage Participate
Universities	Provide input	Provide input	Initiate Manage Participate
Trade associations, Chambers of commerce	Provide input	Provide input	Initiate Manage Participate
Companies	Provide input	Provide input	Initiate Participate
Consultants, cluster organisations			Manage Participate

Source: Innovation clusters in Europe, DG Enterprise and Industry Report (2007), page 19

Types and contents of research cluster policy vary considerably from country to country. Typically, policies aimed at the creation, development and sustainability of RDCs are not explicitly called cluster research policies, and they are part of broader strategies aiming at regional and business development. This makes advisable not to define cluster policies in a strict and uniform way: they could in general be described as policy mixes to support the development of regional systems.

The questionnaire exercise conducted in the framework of the TRANSREG NCP project has provided some basic information about the running of EU national policies and programmes. The survey findings seem to prove that most European countries are currently active in developing and implementing cluster policies, either at national or at regional level, and as part of their national policy to respond to the Lisbon objectives. According to the examined questionnaire, countries like Austria, Italy, Germany, Denmark, Finland, France, Hungary, Malta, Norway, Poland, Rumania, Serbia and Turkey envisage supporting research clusters through specific research cluster policies.

The *best practice* chapter that follows in Part II of this report recalls these differences, and provides also an overview about the implementation of regional policies in some EU countries.

3. Common definition of Research Driven Cluster (RDC)

There is huge diversity among types of research clusters: they differ in terms of their stage of development (cluster life cycle), some are networks of only SMEs, some are organized around key research and development organisations, and yet others have customer or technological market needs to sustain their prosperity. In all cases, research clusters may embody the characteristics of the modern innovation process, and can be considered as reduced scale innovation systems. Their specific nature, including their spatial coverage, differs according to technology, market conditions, and other factors that influence the geographic extent and relative strength of linkages.

It should not be forgotten that research clusters display different characteristics than **economic clusters**. The main difference relies on the fact that economic clusters concentrates in building up vertically and horizontally related economic partnerships in a certain industrial sector, while the research clusters have their main focus on research and technological development. At the same time, we should not consider them the equivalent of **Science Parks** that are complementary to them. Their presence constitutes an additional asset for the development of clusters and for the exchange of knowledge that can sustain it.

Nevertheless, we can broadly distinguish three types of **research cluster**:

1. a first type deals with ***triple helix relationships*** between industry, research and local public authorities or government agencies (i.e. regional development agencies; science and technology agencies). These can be defined as **research driven clusters, as the definition taken into account under the Regions of Knowledge Programme**;
2. a second type focuses on R&D co-operation between companies and research organisations;
3. a third type encourages co-operation among companies, regardless their legal entity.

Research Driven Clusters (RDC) can be defined as "*clusters that rely predominantly on research and development as a source of innovativeness and competitiveness, and relatively less on other sources"*. They usually differ from standard technological and innovation clusters by the fact that they have a stronger science/research base, and by their ability to generate a greater frequency of innovative enterprises which are able to commercialise and exploit research. In a RDC higher education institutions and research centres play a key role.

Such a cluster is often based on a partnership between businesses, public research organisations and the public/semi-public bodies, the so-called **triple helix model**: the public sector, the business community and the higher education institutions. Intermediaries (i.e. funding and venture capital organisations) can facilitate the interaction between these three key groups. They often develop in the proximity of universities or other public/private research organizations, fostering the exchange of knowledge and human resources. **We must stress the fact that in the frame of the Regions of Knowledge Programme RDCs always have to be defined as triple helix clusters!**

They are either spontaneous/bottom-up based informal networks, or publicly supported by top-down initiatives, or a mix of these. We can, therefore, identify two main **Research Clusters** typologies:

a) spontaneous *bottom up activities*, those which have started from few regional stakeholders wishing to address a well identified need or opportunity through sharing knowledge and experiences in an informal network. A bottom-up approach is essential for a well-functioning RDC, whereby local stakeholders should identify strengths and key players of the region, enhance the regional knowledge-base, find external complementary expertise and agree on a strategic agenda. It is also important to make determined efforts to drive the RDC agenda across the government and administrative sectors. In this context, the need of strategic co-ordination between different players and between national and regional levels becomes evident;

b) *top down* ones refer to those born thanks to a strategy initiated by national ministries or local authorities in order to facilitate stakeholders to work together.

Other ways to classify research clusters can be based on:

- their sectored focus (some are very sectored focused, others are multi- sectored);

- their aims, whereby some clusters can be built to strengthen the trade capacities of their members and others to create or exploit new knowledge. Different aims can be achieved through a renewed portfolio of activities, such as market research, research activities or integration of technologies in other products;

- their openness;

- their geographical coverage.

4. Research Driven Clusters in practice

During the 1990s, many countries of the European Union started to establish national and regional cluster oriented measures to strengthen the industry's ability to innovate and increase national competitiveness. Within the scope of establishing innovation supporting instruments and building networks between industry, R&D centres - together with the academia- have played a significant role and had a huge impact on the success of such activities. Cluster policies and initiatives have since been considered as an adequate and effective instrument to concentrate resources, and a major mean to accelerate the transfer of knowledge and know-how.

Because RDCs are often developed on a shared vision and consensus building among key local actors - meaning that the critical issue is the quality and intensity of the collaboration between its members and stakeholders - in the chapters that follow we propose some basic policy recommendations followed by a brief description of a RDC life-cycle and recommended criteria for recognition of well-developed RDCs.

Starting by the fact that clusters are not static, we first introduce a typical **research clusters lifecycle model** composed by **five stages:**

1. Pre- and emergence phase
RDCs do not emerge spontaneously, but rely on certain background and starting factors, such as an economic and policy driven processes.

2. Setting up phase
In this phase structures, networking and a specialist labour market develop.

3. Growing phase
Growth is triggered by many internal and external factors, such as growing demand for research, development of products, services supplied by the cluster or the development of new market segments.

4. Sustainability phase
During this phase, externalities exert a stabilising influence on the firms in the cluster. Here the provision of international cooperation frameworks and agreements can play a major role, as well as issues of funding.

5. Adaptation or exhaustion
Whether the clusters mutate to a new one depends on their adaptive abilities as response to internal and external challenges: this has to be supported by positive demand conditions for new ideas, studies, research and products, and competition advantages in price and quality.

4.1 Models for creating successful RDCs

Before developing RDCs strategies and actions, local stakeholders should **benchmark** their regional capabilities and needs. Attention should be also given to issues relevant to their functioning, such as their initial organisation, their objectives and development paths, funding, further sustainability and transferability.

We now introduce a **model** which presents the **main aspects** needed for the **creation** and **initial management of research clusters**. The setting up process varies substantially according to the purpose and the circumstances under which the involved organisations are supposed to cooperate. Nevertheless, the following set of activities might be considered, mainly because the involvement of the whole chain can be critical for the success of the cluster planning and development:

a. Pre-analysis phase
b. Preparation of framework/internal organisation
c. Financing
d. Launching
e. Co-operation projects
f. Marketing and PR
g. Internationalisation

a. Pre-analysis phase

Surveys of the region's economic and industrial structure and of the market sector are necessary to provide a clear picture of the strengths and weaknesses, and also to determine where supporting measures could be most beneficial. These surveys can involve: a research to get a first overview, region and company's visits, multilateral talks between actors, elaboration of questionnaires and survey for the local community, etc.

In this phase, the following aspects/activities should be comprised:

- study of the economy and national/regional cluster policies in use;

- analysis of economic strengths and weaknesses, and of the availability of natural resources/other local assets;

- survey on the labour market specialisation;

- knowledge and definition of relevant industries/organisations to be incorporated, or to act as external (to be achieved with questionnaires, up-to-date statistics, surveys);

- analysis of companies/research bodies and organisations, of their strengths and value chains;

- a value chain analysis with a focus on innovation, serving for the purpose of defining the key activity areas, and the detailed measures which should be supported. The main tool for this analysis is usually a questionnaire sent to all companies plus face-to-face interviews. The following national/local actors should be considered and their contribution analysed:

- ❑ Regions - Technology transfer organisations
- ❑ Policy makers - Trade associations
- ❑ Financial institutions - R&D-centres
- ❑ Trade unions - Academia
- ❑ Industry associations

b. Preparation of framework / internal organisation

The research cluster needs an ideological framework to exist and act within. Therefore, the definition and correlation with other policies, and especially the implementation in the regional strategy, are to be clearly defined. In this phase, a definition of short-term, mid-term and long-term objectives, tasks and activities must be put into place, such as the definition of the responsible body/legal entity, the establishment of a project team and advisory/governance board, and the information and communication strategies.

c. Financing

At initial stage RDCs should have sufficient budget to conduct significant projects without seeking separate funding: well-funded clusters are more likely to pursue certain objectives, including spin-off promotion, technical training and infrastructure projects. Often a cluster is initially planned and co-funded by the regional authorities, but afterwards it should be self-sustainable.

d. Launching

It is generally sensible that the cluster activities are started soon after the launch event.

e. Co-operation projects

From the beginning, first concrete and visible projects should be identified: of course in our specific case the type of projects can deal specifically with the area of R&D, but also production, logistics, qualification, others. Moreover, clusters should initiate, foster and support cooperation among companies, universities, public bodies and R&D organisations.

f. Marketing and PR

Marketing and PR can strengthen the involvement of the existing participants and also attract new members to join the cluster. These activities should, therefore, be carried out on a regular basis.

g. Internationalisation

RCDs should support their members during internationalisation activities, and be opened for further international expansion. Access to international events, participation in international projects and the setting up of network activities are just some of the actions to be considered.

4.2 Methods to characterise developed RDCs

In our particular case, we can further characterize **Research Driven Clusters** by their **triple helix model.** In fact, in an ideal situation:

- the ***public sector*** should be present and create the right type of environment allowing them to grow, by putting the right type of governance into place and properly managing the institutional framework. It also has to foster or endorse the cluster vision, contribute to the marketing of the area, and meet RDcs stakeholders' needs and expectations. According to the type of RDC, the public sector can either be the initiator or the engine;

- the ***private sector*** has to be the driving force by introducing innovative products and services into global markets;

- universities, public/private research centres, R&D/innovation organisations (the ***research sector***) have to become enablers and provide quality infrastructures and facilities.

Other main RDC's characteristics are listed below:

- ✓ a *strong research and science base*: they rely on quality research infrastructure and laboratories as well as on high level talents. Public and private funding must be available to ensure optimal use of the infrastructure and to motivate or attract talents and skills;

- ✓ an *entrepreneurial culture*: to help regions to create growth and jobs, this can only be achieved if researchers and people have a strong entrepreneurial and innovation culture;

- ✓ a capacity to *generate growth* and to *increase the inclusion of SMEs* (spin off/out);

- ✓ a *skilled workforce* to help transform research results into new products and services;

- ✓ *availability of finance,* because no successful RDC can be developed without a strong financial value chain. This chain needs to be composed by many factors, such as of research funding mechanisms, repayable advanced tools to help the development of new ideas, capital funds, banks and guarantee providers, others;

- ✓ *value added business support services*: they provide added value support services, such as testing facilities, incubation spaces, mentoring, IPR;

- ✓ a *good location*: they are often attractive to the research centres of multinational enterprises because able to combine the science based environment with a good quality of life and transport infrastructures;

- ✓ developed *formal and informal networks*;

- ✓ provision of *international co-operation frameworks* to help stakeholders remain competitive.

The following "**value chain"** model provides a set of criteria to assess how successful a RDC is, and it is composed by three major parts:

A. the RTD environment
B. the RDC instruments
C. the RDC outputs

complemented by a series of **pre-requisites** and **assets**:

- Social/Capital environnements (i.e. entrepreneurial culture);
- Human Capital (i.e. highly skilled talents and workforce development);
- Infrastructure (i.e. transport and industrial attitudes in the region);
- Financial Capital;
- Technological Capital (i.e. research assets)

A. The RTD environment

This part is composed by actions that RDCs are required to carry out from their early development stage:

- awareness: for example aimed at researchers and university senior managers that have indeed to be convinced of their ability to contribute to the creation of business and the commercialisation of research leading to the growth of regional RDCs;

- investments, whereby public, private and higher education institutions need to invest in RDT infrastructures and facilities. Due to the fact that investments in such assets are becoming increasingly expensive, RDC stakeholders have to consider new forms of Public-Private Partnerships and joint ventures;

- market driven and applied research activities - this issue can be tackled through support schemes aiming, for example, at providing assistance to SMEs.

B. Value Chain: RDC instruments

This central component includes 5 instruments facilitating the innovation process:

- networking or clustering processes, through which competitive and collaborative research projects and programmes are defined and implemented;

- protection of IPR to protect scientists research results;

- promotion of skills, education and training to provide the right type of human capital;

- entrepreneurial training and culture to bring research ideas and new results to markets;

- access to funding sources.

B. Value Chain: RDC outputs

The last part of the chain deals with outputs, such as spin off/spin out formations, commercialisation of research results, or increased market shares. The most dynamic RDCs are able to attract different types of investors, and are able to create a good business environment which helps to reduce the risk related to the commercialisation of research results and market introduction of new products and services. They can also improve the R&D absorption capacity of SMEs. To be successful, RDCs have to speed up the "research idea to market" process, and the market needs into research projects.

5. Further recommendations

The following recommendations are addressed to the different levels of policy governance (EU, National and Regional), to regional/local stakeholders and to RDCs' key players.

Even if the facilitation of networking is among the most popular instruments used by the European Commission in support of clusters, to make a real contribution to addressing this challenge a **more strategic approach to trans-national cooperation** seems to be necessary in order to achieve the bundling of complementary policies at all levels. At the level of cooperation between different regional and national cluster policy initiatives, the potential barriers for trans-national cooperation at policy or programme level are still well known, even though interesting ideas for joint initiatives have been developed and are currently being further tested. What may be necessary now are clear policy targets to be achieved through trans-national cooperation at programme level. At the practical level of clusters cooperation, more concrete targets and priorities should be set, together with more clearly defined horizontal actions.

Since one of the target areas of several EU policies (research, industrial, enterprise, innovation) is the *region,* there are good reasons to seek synergies and efficient joint measures. In fact, even if these policy sectors have common objectives and fields of action, as well as a common policy base linked to the Lisbon strategy, there are still too many differences in approaches. There are also good grounds to launch horizontal exploratory actions to **promote synergies among European funding programmes and instruments**. In our particular case, there is a need for a targeted approach in the allocation of EU funding that recognises the development stage and the performance of RDCs. To this end, at EU level specific measures (FP7, CIP) should aim at the sustainability and excellence of RDC, and at strengthening their global connectivity and funding at a global scale, while other measures, such as Structural Funds, should focus more and more on the development of new RDCs and on closing the gap between EU regions. The EU could also act more as a facilitator to the transfer of knowledge between RDCs: through experts' outplacement schemes, the EU could further amplify the transfer of experts between industry and academia, at international scale.

National and regional measures have to be better connected to EU actions and to an international operating environment. At the same time, regional stakeholders must find new ways to develop synergies between the different EU instruments (Structural Funds, FP7, CIP). Any public support to RDCs development should be based on evidence of a SWOT analysis at national/local level in order to identify possible starting points for public intervention, and to demonstrate its appropriateness to local conditions and capabilities. However, in many EU Member States the links between national and regional strategies arising from the regions' own needs are yet insufficient. A special challenge would be the creation of strategy processes and policy platforms that bring together all the relevant public and private parties involved in policy making and RTD at both national and regional level.

Other important recommendations **from a more operational and practical point of view are related to the need to develop and use evaluation and foresight activities** (benchmarking). Evaluation and foresight should focus on the entire RDC, not just on individual organisations, the former providing knowledge on development needs and views on how to improve RDCs' focus and co-operation, the latter providing information on priority settings. More **investments and highly trained people** are also needed as a key to the success, while further regional or local education and qualification is necessary with respect to the scientific and technological needs.

To conclude, the table that follows resumes some of the criteria for success and failure of RDCs:

Reasons for success	Reasons for failure
Concentration on existing strong different clusters set in good business environment	Isolated clusters
Focus on activating clusters rather than creating them	Lack of broad consensus
Clusters as a part of a broader strategy and based on a shared conceptual framework	Weak frameworks
Developing strategic linkages	Lacking of strong networks
A sufficient operational budget	Lack of sufficient budgets
Government funding in the beginning necessary	Problems with sustainability
Building social capital and creating trust	Neglected brand building
Defining strategy and vision	Lack of short term and long-term strategies

8. List of EU background documents

Aho Group (2006). *Creating an Innovative Europe*. Report of the independent Aho Expert Group on R&D and innovation. EC, Brussels.

Center for Strategy and Competitiveness (2007) *European Cluster Memorandum – Promoting European Innovation through Cluster: An Agenda for Policy Actio*n. Stockholm, School of Economics

CLOE (2007). *Cluster Management Guide – Guidelines for the Development and Management of Cluster Initiatives*.

European Commission (2008*) Innovation clusters in Europe – A statistical analysis and overview of current policy support*

European Commission (2007). *Regional Research Intensive Clusters and Science Parks.*

European Commission COM(2007) 474 final "*Competitive European Regions through research and innovation*".

European Commission (2006a). *Regions for economic growth: Innovating through EU regional policy*.

European Commission (2005a). *European Innovation Scoreboard 2005: Comparative analysis of innovation performance*.

European Commission COM (2005) 118 final. *Building the ERA of knowledge for growth*.

European Commission COM(2003) 58. *The role of the universities in the Europe of knowledge*.

European Commission COM(2003) 226. *Investing in research. An action plan for Europe*.

European Commission (2003). Final Report of the Expert Group on *Enterprise Clusters and Networks*

European Commission (2002). *Regional Clusters in Europe* - Observatory of European SMEs, No. 3

PART II

1. Examples of good-practices in EU

A. Pan-European Clusters funded by EC programmes

1. CLOE – Clusters linked over Europe

Description:
CLOE – Clusters Linked Over Europe - is a co-operation project between fifteen European regions set up with the aims of sharing experience, establishing close co-operation and learning from each other in the area of cluster management. The objectives of CLOE are to enable those regions with a common interest in cluster-building techniques and in the fostering of cluster relationships to (i) to meet and jointly develop processes and methodologies for the establishment and management of clusters and networks, and (ii) to develop business opportunities for companies within and between the clusters. CLOE activities have been highly recognised by European Commission and thus the network was selected to be one of the pilot projects under DG Regio's newly created "Regions for economic change" initiative. Under this pilot action CLOE will expand to seven new regions mainly from new EU Member States.

Partners:
The cluster consists of the cooperation between the following **15 regions**:

1) Karlsruhe (Germany)
2) Lyon (France)
3) Värmland (Sweden)
4) Upper Austria (Austria)
5) Tartu (Estonia)
6) Timisoara (Romania)
7) Kaliningrad (Russia).
8) Nottingham (UK)
9) Banska Bystrica (Slovakia)
10) Ostrava (Czech Republic)
11) West Pannon (Hungary)
12) Sofia (Bulgaria)
13) Vilnius (Lithuania)
14) Kranj (Slovenia)
15) Maribor (Slovenia)

Budget: 2.300.000 €
Duration: 48 Months, Start Date: 01.07.2004

Further information is available at: http://www.clusterforum.org/index.php

2. Innofit – Innovation benefits Europe *(Coordinating country: Netherlands)*

Description:
Many European countries have difficulties to "turn knowledge into money": there is still a "European gap" between the exceptional knowledge resources and realizing benefit from those. inno-fit.eu obiective is to promote the capabilities of European "Regions of Knowledge" programme by transferring knowledge into products and services with a demand from markets fuelling economic growth. For a long time, demand has been

taken as outside the reach of activities of managers, entrepreneurs or regional policy makers. This is particularly true for SMEs - only a handful has sufficient resources to carry out marketing and business development. Europe has a renowned tradition – like the Italian industrial district in fashion - in SME collaboration to tap into existing R & T knowledge and resources: this cluster initiative will, therefore, try to transform them into new profitable business opportunities going along with additional economic growth and jobs.

INNOFIT consists of the following **6 partners from Netherlands, Czech Republic, Germany and Italy**:

1) Stichting Cetim – Center for Technology and innovation management - Netherlands
2) Stichting Living Lab – Netherlands
3) Czech Space Office – Czech Republic
4) Bavaria e.V. , ARGE Luftfahrt, Raumfahrt, Satellitennavigation in Bayern – Germany
5) Gruenderregio M e.V. – Germany
6) Associazione Esoce Net* European Society of Concurrent Engineering Net – Italy

Budget: 914.981 €
Duration: 30 months, Start Date: 01.02.2008

Further information is available at: http://www.inno-fit.eu/

3. CReATE – Creating a joint research agenda for ICT innovation in the creative industries across Europe (*Coordinating country: Germany*)

Description:
CReATE is based on the cooperation of highly innovative clusters in the creative industries. With the objective to bring the benefits of research to SMEs, the largest group in those clusters, the project facilitates an "open innovation" approach. It incentives and enables a more systematic use of the innovation potential of information & communication technologies (ICT), key for developing internationally competitive products and services. To strengthen the research potential of EU regions, and to increase related investments from EU, national & regional funds, CReATE targets to position regional capabilities in the most promising international technology and market development perspectives. Prospective tools and a focus on the trans-regional dimension complement the traditional tools to lay the ground for self-sustaining economic success.
Thus, CReATE promotes synergies between regional, national, EU & research policies, and facilitates intra- and trans-regional cooperation and knowledge exchange between cluster development agencies, researchers, SMEs and MNEs. To optimise outcomes, the Consortium Members have working relationships already proven successful, and can add European value with their complementary contributions. They bring in-depth knowledge of creative industries, practical cluster development and the underlying theories, and of providing strategic economic and policy intelligence in general.

CReATE consists of the following **7 partners from Germany, Italy, France and United Kingdom**:

1) MFG Medien- und Filmgesellschaft Baden-Württemberg mbH – Germany
2) Steinbeis GmbH & Co. KG für Technologietransfer – Germany
3) CSP – Innovazione nelle ICT S.C.A.R.L – Italy
4) Regione Piemonte – Italy
5) Politecnico di Torino – Italy
6) Pole de Competitività Imaginove – France
7) Advantage West Midlands – United Kingdom

Budget: 984.239 €

Duration: 32 months, Start Date: 01.03.2008

Further information is available at: http://www.lets-create.eu

4. TOUREG – Competitiveness and knowledge in the tourist sector; improving the competitiveness and strategic position through the establishment of a platform for the generation and transmission of knowledge (*Coordinating country: Spain*)

Description:
The strategic objective of TOUREG is to establish a platform for developing a competitive tourist industry based on the generation and application of knowledge revolving around a new international research-driven cluster in the tourist industry. From this angle, the projects general objectives are to adapt and to strengthen the R&D+I public policies, the specific or related ones to the tourism sector, to establish an itinerary for the generation and transfer of R&D+I knowledge in the tourist sector, to promote, diversify and specialize in R&D+I activity in the tourist industry and to facilitate the establishment of a platform for the generation of knowledge in the tourist industry. All of them in order to promote the competitiveness in the tourism sector with the collaboration of public bodies, research institutions and enterprises.

The cluster consists of the following **12 partners from Spain, Greece, Bulgaria, Portugal, Romania and Sweden**:

1) Govern de les Illes Balears. Dirección General de Investigación, Desarrollo Tecnológico e Innovación - Spain
2) Gestió de la Innovació Tecnologica Consultors S.L. – Spain
3) Fundación Illes Balears D'Innovació Tecnológica – Spain
4) Foundation for Research and Technology Hellas – Greece
5) Technical University of Crete – Greece
6) Applied Research and Communications Fund – Bulgaria
7) Agencia Regional da Energia e Ambiente da Regiao Autonoma da Madeira – Portugal
8) Expedita – Arquitectura e Gestao de Sistemas de Informatcao, Lda. – Portugal
9) Polo Cientifico e Tecnologico Da Meadeira Madeira Tecnopolo SA – Portugal
10) CG-GC Intelligent Technology – Romania
11) Project Management Consultion – Sweden
12) Centre of Distance – Spanning Technology-Lulea University – Sweden

Budget: 979.198 €
Duration: 30 months, Start Date: 01.01.2008

Further information is available at:
http://www.madeiratecnopolo.pt/index.php?option=com_content&task=view&id=47&Itemid=61&lang=en#Toureg

5. REDICT – Regional economic development by ICT/ New media clusters (*Coordinating country: Netherlands*)

Description:
This project brings together 6 regions and clusters (17 partners) which share a strong R&D presence in the field of ICT and New media, with the sense that this position has to be exploited for maximal economic and social benefit. They see that the factors that influence the transfer of knowledge to SMEs are complex and often badly understood and want to exchange experiences and best practices to better understand these factors and

to make use of them to boost compositeness and economic performance. ICT/New media has been a driver for scientific and economic change in the past. The impact of ICT and new media technologies for the acceleration for productivity growth is commonly recognized. In comparison with other sectors the ICT/New media sector is quite R&D intensive; however a further increase in R&D investments will be crucial for future competitiveness. This project will contribute to the favourable conditions to achieve thie above.

The cluster consists of the following **17 partners from Netherlands, Germany, Denmark, France, Romania and Ireland**

1) Gemeente Amsterdam – Netherlands
2) Universiteit van Amsterdam - Netherlands
3) Stichting Academisch Rekencentrum Amsterdam (SARA) – Netherlands
4) Vicarious Perception Technologies BV – Netherlands
5) Amsterdam Innovation Motor – Netherlands
6) Technische Universität Berlin – Germany
7) TSB Technologiestiftung Innovationszentrum Berlin – Germany
8) Berlin Government Senate Department for Economics, Technology and Women's issues – Germany
9) Crossroads Copenhagen – Denmark
10) CAP Digital Paris Region – France
11) Groupe des Ecoles des Telecommunications – France
12) Agence Régionale de développement Paris Ile-de-France – France
13) Centrul National de Management Programe – Romania
14) Universitatea Politehnica Bucuresti – Romania
15) Beia Consult International SRL – Romania
16) The National Digital Research Ltd. – Ireland
17) Dublin City University – Ireland

Budget: 800.000 €
Duration: 24 months, Start Date: 01.01.2008

Further information is available at: http://www.redict.eu/

6. CITT – Centrope ICT technology transfer project (*Coordinating country: Austria*)

Description:

The co-operation within the Central European region called Centrope - bordering regions of Austria, Czech Republic, Hungary and Slovakia - should trigger challenges and broaden the circle of experts to build a region that will become a model for European integration process. The project CITT triggers challenges in the ICT sector by providing a strategy to improve technology transfer between the business and research communities within the Centrope region in order to support its growth.
The project's backgrounds are several key elements in the area of research driven sectors which weaken a knowledge driven economy:
- Lack of relevant information and awareness on the side of policy makers especially on a regional level and therefore limited commitment and/or engagement to implement new policy tools.
- Centralised system which often do not reflect regional specification.
- Barriers in the interaction between business and academia.
In order to overcome national, institutional and mental problems linked to technology transfer in the area of digital technologies, it is the aim of the project to demonstrate their viability in best practice examples and offering a strategy within defined regional limits which should, however, be able to be up scaled to the benefit of the entire Union.

Simultaneously, the project will identify relevant players in ICT industry and R&D which so far have not been categorised in this way. A database containing such information will represent a unique resource valuable to (Central) Europe's economy. The project partners will provide solutions for improved technology transfer between the research and business communities as well as for mentoring and coaching of the research and business communities (based on mutual approach).
Thus, the project tries to overcome increased competition for the same resources in the globalised economy: creating of a strategy for a cross-border ICT network will provide support for a dynamic development of the region as the national borders are loosing their significance.

The cluster consists of the following **6 partners from Austria, Czech Republic, Slovakia and Hungary**

1) Wiener Wirtschaftsförderungsfonds /Vienna Business Agency – Austria
2) Alaris Informationsmanagement Gesellschaft mbH – Austria
3) Michael Novak Cecounsult – Austria
4) VIP Park CZ SRO – Czech Republic
5) Zdruzenie Biterap – Slovakia
6) Pannon Gazdasagi Halozat Egyesuelet / Pannon Business Network – Hungary

Budget: 825.000 €
Duration: 24 months, Start Date: 01.01.2008

Further information is available under: http://www.vite.at/index.php?id=1354

7. RAF-REGIONS – Bringing the benefits of research to agrofood SMEs of the regions of Central Macedonia, Puglia and Pazardijk (*Coordinating country: Greece*)

Description:

The overarching objective of RAF- REGIONS is to increase the overall capacity of the Regions of Central Macedonia (Greece), Puglia (Italy) and Pazardjik (Bulgaria) in enhancing science and technology based economic development, focusing on the AgroFood Sector.
The specific project objectives are:
-to support the development and operation of innovative Research-driven Clusters in the AgroFood sector of the Regions of Central Macedonia, Puglia and Pazardjik
-to enable the Regions to attract more and better RTD investments, to enhance their capacity to participate in FP7 and CIP and to mobilise national, regional and private sector financial possibilities
-to promote synergies between regional and research policies at each participating Region and to produce regional research strategies for the AgroFood sector
-to foster transnational cooperation in the AgroFood sector between the project partners
-to assist the AgroFood sector SMEs of the participating Regions in becoming more competitive

The cluster consists of the following **12 partners from Greece, Austria, Italy and Bulgaria**

1) Federation of Industries of Northern Greece – Greece
2) Region of Central Macedonia – Greece
3) Institute of Agrobiotechnology – Centre for Research and Technology Hellas – Greece
4) Euroconsultants S.A – Austria

5) Innova S.P.A – Italy
6) Distretto Agroalimentare Regionale SCRL – Italy
7) Consiglio Nazionale Delle Ricerche – Italy
8) Apulia Region – Italy
9) Bulgarian Association of the Food and Drink Industry – Bulgaria
10) Euroconsultants Bulgaria SA AD - Bulgaria
11) Pazardjik District Administration – Bulgaria
12) Agricultural University Plovdiv – Bulgaria

Budget: 879.396 €
Duration: 30 months, Start Date: 01.02.2008

8. BRIDGE2GEO – Bridging innovation-driven GIS research and development to create a GEO-Society (*Austria*)
Description
The partner regions will intensify their collaboration in the Georgraphic Information System (GIS)-sector and elaborate an Action Plan targeting at "new sectors". Strategic networks in domains such as Renewable Energy, Security, Health, Trade and Tourism shall be built including key scientists in these fields.
Building on earlier joint actions, the project partners of both regions pursue an open innovation approach and will actively combine GIS-knowhow with domain-specific research agendas. "Learning their language" becomes the key for successful integration of GIS in the targeted industrial sectors. New strategies, communication and business models will be elaborated via the challenging "GIS 2.0 window" to promote implementation of GI-services. Special regard will be given to the European GMES initiative. In BRIDGE2GEO the regions strengthen their structural support of RTD activities intensifying the role of RTD in EU economic development. Impacts of BRIDGE2GEO can be identified on three levels:
1.intra-cluster (science – industry – regional policy);
2. intra-regional (coherent research policies, development of "USPs" in both research and industry, complementing measures within regional structural funds);
3. transnational (structures & instruments for sustainable co-operation & improvement of market access).
BRIDGE2GEO will promote synergies between regional and research policies of the two regions. Through intensive involvement of the regional development agencies RTD strategies will be integrated into the economic development strategies as a basis for more focused use of the Structural Funds for R&D activities..

The cluster consists of the following **15 partners from Austria and Germany:**

1) Centre for GeoInformatics (Z_GIS) University of Salzburg - Austria
2) GIS-Cluster Salzburg - Austria
3) Salzburg Research Forschungsgesellschaft - Austria
4) BTGIS Benndorf Technologie für Geoinformationssysteme - Austria
5) ARC researchstudio iSPACE - Austria
6) Innovations- und Technologie Transfer Gesellschaft
7) RWTH Aachen - Department of Geography - Germany
8) Rheinische Friedrich-Wilhelms-Universität Bonn, Geographisches Institut - Germany
9) Fraunhofer-Institut für Intelligente Analyse und Informationssysteme IAIS - Germany
10) Wirtschaftsförderung Rhein-Sieg-Kreis - Germany
11) Amt für Wirtschaftsförderung der Stadt Bonn - Germany
12) WhereGroup GmbH & Co. KG - Germany
13) Latlon - Germany
14) Interactive Instruments - Germany
15) Lutum & Tappert DV-Beratung Gmbh - Germany

Budget: 649.000 €
Duration: 24 months, Start Date: 01.01.2008

Further information is available at: http://bridge2geo.info/?page_id=5

9. STARNETREGIO – STARing a trans-regional network of REGIOnal research-driven clusters (*Coordinating country: Italy*)

Description:
The competitive advantage of the EU in the maritime industry sector has to be sustained and depends mainly on the sector's performance, its flexibility and continuation of competitiveness. In this regard, shipbuilding and port equipment are important and strategic industry in a number of EU member states and for the European Community as a whole. RTD investment for boosting the sector is needed and has to focus on the development of critical and dynamic technologies both for products and production processes, helping the maritime industry compete successfully in global markets and benefit from the exploitation of the so called "motorways of the sea". The STARNETregio project has been conceived to increase the overall capacity of regional players in the regions Friuli Venezia Giulia (Italy), Slovenia and the County of Rijeka (Croatia) to invest in RTD and carry out research activities concerning the marine industry, in specific the shipbuilding and port equipment, intended to strengthen and develop the sector.

The cluster consists of the following **12 partners from Italy, Croatia and Slovenia:**

1) Consorzio per l'area di ricerca scientifica e tecnologica di Trieste – Italy
2) Innova S.P.A – Italy
3) Informest – Service and Documentation Center for International Economic Cooperation – Italy
4) Fincantieri- Cantieri Navali Italiani Spa – Italy
5) Consorzio per l'alta ricerca navale – Italy
6) Regionalna Razvojna Agencija Porin D.O.O. – Croatia
7) Megaflex – Cijevni Sustavi D.O.O – Croatia
8) Teri-Crotek D.O.O – Croatia
9) Faculty of Marittime Studies, University of Rijeka – Croatia
10) Luka Koper, Port and Logistic System, D.D. – Slovenia
11) Public Agency for Technologiy of the Republic of Slovenia – Slovenia
12) University of Ljubljana – Faculty of Maritime Studies and Transport - Slovenia

Budget: 799.297 €
Duration: 30 months, Start Date: 15.01.2008

Further information is available at:
http://www.area.trieste.it/opencms/opencms/area/it/press/comunicati_stampa/Starnet.html

10. BRIDGE-BSR - Bridging life science research and SMEs in the Baltic Sea region putting cluster policies into practice for the benefit of SMEs (*Coordinating country: Denmark*)

Description:
There is a broad gap in cross-border efforts to support SME based innovation beyond the interests from the single regions in the Baltic Sea area: BRIDGE-BSR aim is to develop tools to overcome the gap within life sciences/biotechnology in BSR, named ScanBalt

BioRegion. BRIDGE-BSR will identify regional bottlenecks in ScanBalt BioRegion for bringing the benefits of academic research to SME's, develop a regional innovation agenda, promote mentoring, use of best practices and bench marks plus initiative pilot activities. BRIDGE-BSR builds on analysis of regional cluster innovation strategies for bridging Academia and SME's.

The cluster consists of the following **8 partners from Denmark, Poland, Germany, Estonia, Latvia and Finland:**

1) SCANBALT FMBA – Denmark
2) Medicon Valley Academy – Denmark
3) IPPT-PAN – Poland
4) Biocon Valley GmbH – Germany
5) Steinbeis Forschungs- und Entwicklungszentren GmbH, SFZ – Germany
6) Eesti Biotehnoloogia Liit – Estonia
7) Association of Biotechnology – Latvia
8) Oulo Innovation Ltd. – Finland

Budget: 679.983 €
Duration: 33 months, Start Date: 01.01.2008

Further information is available at: http://bridge2geo.info/?page_id=5

11. RENERG EUREG – Renewable energy resources – a solution for sustainable development of two European Regions (*Coordinating country: Romania*)

Description:
The main objective of this project is to enhance the capacity of CENTRU and Lusatia regions and of its stakeholders in planning and using the local and regional renewable resources as a solution for a sustainable economic development, in the context of the new knowledge-based economy, by promoting the innovation and strong connections between research and economic environment as a regional policy. The consortium is an association of two research clusters from Brandenburg-Germany and CENTRU region of Romania, representing local and regional authorities, research institutes and companies with activities in the field of renewable energies. The project will develop five work packages to bring the benefits of research close to the business environment by developing strong links between research institutions, local authorities and companies and to strengthen the regional stakeholders research and innovation capacity and technology transfer.

The cluster consists of the following **11 partners from Romania and Germany:**

1) Agentia pentru dezvoltare regionalia Centru – Romania
2) Universitatea Transilvania Din Brasov – Romania
3) SC Finex SRL – Romania
4) Camera de Comert, Industries Si Agrucultura Sibiu – Romania
5) Centrul de Tehnologii, Inventica Si Business – Romania
6) Cosiliul Judetean Alba - Romania
7) Centrum für Energietechnologie Brandenburg GmbH – Germany
8) Hoogen Bodensanierung GmbH – Germany
9) IBA Fuerst-Pueckler-Land GmbH – Germany
10) Schradenbiogas GmbH & Co KG – Germany
11) Regionale Planungsgemeinschaft Lausitz Spreewald – Germany

Budget: 295.000 €
Duration: 36 months, Start Date: 01.01.2008

12. BeLCAR - Bench Learning in Cluster management for the Automotive sector in European Regions *(Coordinating country: Germany)*

Description:
BeLCAR's main focus is analysis and strengthening of the innovation paths within the automotive clusters and also building an inter-regional network of automotive clusters for joint activities in order to enable lessons learned to be transferred to other European regions and to promote innovation diffusion to other sectors, clusters and regions. The overarching goal of the BeLCAR project is to improve the performance and innovativeness of automotive clusters in Europe by strengthening regional innovation systems and optimizing resources for supporting activities and structures. The objective is to establish a European platform to improve product, process and organisational innovation in and across regional automotive clusters.

The cluster consists of the following **12 partners from Germany, United Kingdom, Austria, Spain, Hungary, Greece, Italy:**

1) Wirtschaftsförderung Region Stuttgart GmbH (WRS) – Germany
2) Kompetenzzentrum Virtuelle Realität und Kooperatives Engineering w.V. – Virtual Dimension Center (VDC) – Germany
3) East of England Development Agency (EEDA) – United Kingdom
4) Cranfield University – United Kingdom
5) Clusterland Oberösterreich GmbH – Austria
6) Centro Lombardo per lo Sviluppo Tecnologico e Produttivo dell'Artigianato e delle Piccole Imprese (CESTEC) – Italy
7) Centre d'Innovatcio i Desenvolupament Empresarial (CIDEM) – Spain
8) West-Transdanubian Regional Development Agency – Pannon Automotive Cluster Division (PANAC) – Hungary
9) Logotech SA - Greece

Budget: 987840 €
Duration: 2005-2008

Further information is available at: http://www.europe-innova.org

13. NetBioClue - NETworking activity for BIOtechnology CLUsters in Europe' Co-ordination action (*Coordinating country: Italy*)

Description:
NetBioClue aims to support networking, collaboration and the transfer of knowledge among innovation stakeholders and actors in the biotechnology for health sector in Europe The overarching goal of NetBioClue is to promote closer co-operation among actors within clusters in order to address the specific needs of the biotech sector at different stages of development, through transnational learning and increased global competitiveness. The project addresses all types of innovation including technological and organisational innovation. The objective is to network different players, promoting co-operation, and encouraging trans-national learning and global competitiveness. Networking among the clusters will be strengthened and new approaches in the promotion of innovative activities at European level, with a special focus on

entrepreneurial innovation in the sector, will be applied.

The cluster consists of the following **14 partners from Italy, United Kingdom, France, Germany, Denmark, Czech Republik, Hungary:**

1) Chamber of Commerce of Milan (CCIAA) - Italy
2) Polytechnic of Milan School of Management (MIP) - Italy
3) Bioindustry Park Canavese (BipCA) - Italy
4) East region biotech Initiative (ERBI) – United Kingdom
5) Senexis (Sen) – United Kingdom
6) University of Dundee (CEM) – United Kingdom
7) Chambre de Commerce de l'Essonne (CCIE) - France
8) Genoptics (Geno) - France
9) Heidelberg Technology Park (HT PD) - Germany
10) Munich Gruender Regio (Gr-m) - Germany
11) Biotech Valley (BioV) - Sweden
12) East Jutland Innovation (EJI) - Denmark
13) South Moravian Innovation Centre (JIC) - Czech Republic
14) South Great Plain Regional Development Agency (SGP RDA) - Hungary

Budget: 1000000 €
Duration: 2005-2008

Further Information is available at:
http://www.europe-innova.org/index.jsp?type=page&lg=en&classificationId=5019&classificationName=NetBioClue&cid=5105

14. mClusters

Description:
The mClusters project will be centred on local but globally connected innovation clusters in order to achieve greater benefits from Information and Communications Technology (ICT). The project brings together groups of advanced users of information society technology with experts from academia, industry and supporting institutions to foster the exchange of best practice in the creation of new applications, and to diffuse related knowledge. The project aims to create synergies among regional as well as pan-European projects through strategic matching and collaboration between investors, high-tech firms, and technology specialists at universities and public R&D centres.

This exchange of knowledge will enable the mClusters project to resolve some of the complexities of governance among stakeholders, strategic business alliances and innovative public-private partnerships. It will derive local, regional and European policy lessons, and communicate them to a variety of audiences including business enterprises and investor groups.

The overarching goal of the mClusters project is to encourage co-operation among leading and developing European industry clusters within the wireless information and communications technology sector to establish a foundation for new projects, new firms, inward investment and commercialisation of existing resources. It is envisaged that this will promote regional innovation, development and growth, in line with the ambitions set out in the Lisbon Objectives.

The cluster consists of the following **15 partners from Denmark, Finland, United Kingdom, Spain, Italy, Germany, Estonia, Sweden, France**

1) Interlace-Invent, Denmark
2) Mermaid Ventures, Denmark
3) Pöyry Telecom OY, Finland
4) Westminster City Council, United Kingdom
5) Fundació Privade Tecnocamous Mataro, Spain
6) Oresund IT Academy, Denmark/Sweden
7) Politecnico di Torinop, Italy
8) Sant Cugat Obert Spain
9) Fraunhofer-Gesellschaft, Germany
10) BDA Estonia OÜ, Estonia
11) Fondazione Torino Wireless, Italy
12) Västervik Framat AB, Sweden
13) SAP Labs France, France
14) TinyTronic SL, Spain
15) EdHEC/Theseues International Management Institue, France

Budget : 997790 €
Duration: 2005-2008

Further information is available at:
http://www.livinglabs-europe.com/documents/mclusters/Factsheet%20mClusters.pdf

15. **ENCADRE- The Applications Cluster Platform**

Description:
Encadre is an informal European Platform to support the creation of a market strategy in the field of space and Galileo derived applications. Innovation itself is driven by close collaboration between industry, intermediaries and policy makers in the leading European regional hubs. Space technologies have received a renaissance with the advent of Galileo, Europe's own global navigation satellite system (GNSS) planned to be operable in 2010/11. To prepare Europe to win a fair share of the markets related to Galileo applications and services a major effort is needed that goes beyond single regional cluster activities. Various initiatives seeking to develop and integrate GNSS applications have already started across Europe; these should be coordinated to enable plans for further strategic marketing.
The ENCADRE network numbers 16 clusters in the field of satellite and space technologies based applications. The network started a number of actions to raise awareness among companies, entrepreneurs and users on the opportunities offered by existing space and satellite technologies, e.g. GPS II, Galileo/EGNOS, to develop hundreds of new applications in a wide array of existing and new markets.

The platform consists of the following **22 partners from Czech Republic, Germany, Netherlands, Spain, France, Poland, United Kingdom, Italy, Belgium:**

1) ESA
2) ISI, Integral Satcom Initiative
3) EURISY
4) Czech Space Office, Czech Republic
5) GrunderRegio M, Germany
6) Cluster Bavaria/Munich, Germany
7) Wirtschaftsförderung Region Stuttgart GmbH, Germany
8) Eureka Group, Germany
9) CESAH Hessen and Partner, Germany
10) MST Aerospace GmbH, Germany
11) Center for Technology Management (CeTIM), Netherlands
12) Barcelona Activa, Spain
13) CNES-Toulouse, France

14) Team Cote d'Azur, Regional Development Economic Agency, France
15) Industrial Research Institute for Automation and Measurements (PIAP) - Satellite Technology Applications Division (STAD), Poland
16) Location & Timing Knowledge Transfer Network, United Kingdom
17) Region East Midlands, United Kingdom
18) FILAS, Italy
19) ESOCENET, Italy
20) Teledisnet, Belgium
21) EBN, Belgium
22) Bruspace, Belgium

Duration: since 2006

Further information about this cluster is available at: http://www.europe-innova.org

B. National Clusters

1. Cluster Culinology *(Norway)*

Description:
The main objective is to strengthen the knowledge platform and capacity for innovation in the field of gastronomy and culinary differentiation for the benefit of Norwegian food production. The food cluster in Rogaland has deep historic roots in the production of agricultural-based food and seafood. In addition to a strong production side, the district has an acknowledged culinary environment and a well-established network in which industry, R&D institutions and the public authorities are working in close collaboration to develop the industry. NCE Culinology functions as a professional catalyst and its success is measured on its ability to increase the level of innovation and upgrade the professional and market-oriented skills within and between operators in the food and meal industry cluster. The objective is to further develop the quality of raw material production, specialise processing and increase value creation per investment factor.

The Cluster consists of the following **28 Partners**:

1) Bioforsk
2) Biomarin Vekst
3) EWOS Innovation
4) Fatland
5) Norwegian Agricultural Purchasing and Marketing Co-
6) Op for Rogaland and Agder
7) Finny Sirevaag
8) Fiskå Mølle
9) Fjordkjøkken
10) County Governor in Rogaland
11) County Agriculture and Forestry Office
12) Culinary Institute of Norway
13) Holmens
14) Marine Harvest Norway
15) Norconserv
16) Norwegian School of Veterinary Science, section for
17) small livestock research
18) Nortura
19) Prima Jæren
20) Rogaland Farmers' Union
21) Rogaland County Council
22) Rogaland Science Park
23) Greater Stavanger Economic Development
24) Skretting
25) Sparebank 1 SR-bank
26) TINE
27) University of Stavanger
28) The Professional Forum for Food and Beverage

Budget : 100 MNOK
Duration: 10 years

2. Cluster Lyonbiopôle (*France*)

Description:
A global center of excellence in vaccines and diagnostics, Lyonbiopôle, accredited as a world competitive cluster by the French State on July 12th 2005 aims to gain a comprehensive understanding of human and animal infectious diseases. This expertise ranges from diagnostics and prevention to treatment, with the development of innovative delivery systems. The main strength of this "healthcare shield" specialized in infectious diseases is that it incorporates the entire chain of activity, from identification of a virus to protection of the populations at risk. This integrated approach aims to build a "healthcare shield" in order to protect populations against these diseases.
Lyonbiopôle's strengths are based on the following points:

1) the cluster is focused on infectious diseases
2) it meets healthcare and economic challenges
3) it is active in dynamic markets
4) it is led by firms with the involvement of all major stakeholders within the cluster's scope of action
5) it is strongly supported by the French State and Greater Lyon alongside Grenoble, the Rhône-Alpes Region and the Rhône and Isère General Councils

The cluster consists of **45 Partners**:
Major corporations: 4 partners

- sanofi pasteur
- Merial
- BD
- bioMérieux
- Transgene
- Protein'eXpert
- EUSAPharma
- genOway
- Flamel Technologies
- Expertise in polymer chemistry
- Genopoïetic
- Innovative cancer treatments
- IFR Biosciences Laboratory
- Ecole Normale Supérieure Graduate School
- Claude Bernard Lyon 1 University
- WHO
- Jean Mérieux Biosafety Level 4 Laboratory
- French National Institute for Medical and Healthcare Research (Inserm)
- French National Center for Scientific Research (CNRS)
- Lyon Civil Hospitals (HCL)
- French Nuclear Energy Agency (CEA)
- ESRF (European Synchrotron Radiation Facility)
- European Molecular Biology Laboratory (EMBL) NanoBio
- Joseph Fourier Grenoble 1 University
- Grenoble University Hospital
- Ministry of the Economy
- Finance and Industry
- The Regional Department of Industry
- Research and Environmental Affairs (DRIRE)
- The French National Research Agency (ANR)
- Greater Lyon Rhône-Alpes Region
- Grenoble Alpes Métropole
- Rhône Department General Council
- Isère General Council
- Aderly
- Créalys
- Grain

- Lyon Chamber of Commerce and Industry
- ARIST-CRCI
- Arteb
- Rhône-Alpes Génopole
- Gerland Technopôle
- Cancéropôle Lyon Rhône-Alpes (CLARA)
- ERAI
- AEPI
- Adebag
- BioVision

Budget: 370 Mio €
Duration: since 2005

Further information is available at: http://www.lyonbiopole.com/home-1-2.html

3. Cluster Life Science (*Poland*)

Description:
In October 2006 The Life Science Cluster in Krakow has been established as a collaborative project of 32 institutions representing business, science and healthcare with active support, guidance and facilitation by local government. The mission of the Cluster Life Science is:
1. to create and sustain The Life Science Network to enable effective global connectivity and optimisation of existing potential of individuals and organisations,
2. to support innovation and to encourage effective commercialization of results of research in the Life Science field,
3. to develop the resources and competences in the Life Science Sector in order to effectively explore current existing and future opportunities related to development of a knowledge based economy.
The idea to form and sustain a commercially viable cluster dedicated to "life science" has been developed on understanding and recognition of the already existing potential of both the Polish life science industry and research & development sector.

The cluster consists of the following 49 **partners**:

- 5th Clinical Military Hospital in Krakow
- Agricultural University in Krakow
- APIPOL-FARMA Co Ltd.
- APIPOL-KRAKOW Ltd. The Apiarian Company, BARWA Ltd.
- BioCentrum Ltd.
- Biofuturo Czeslaw Meus Ltd.
- Biospekt
- BioTe21 Adam Master
- Business Mobility International
- Centre of Oncology, Maria Sklodowska-Curie Memorial Institute, Krakow Branch
- Centrum HTA
- ChemTech-ProSynTech
- DIAGNOSTYKA Ltd.
- EcoPlant Householding
- Foundation for Orthopaedics and Traumatology Development of Krakow
- Institute of Biotechnology
- Sera and Vaccines BIOMED S.A.
- Institute of Catalysis and Surface Chemistry PAS
- Institute of Pharmacology Polish Academy of Science
- Jagiellonian Centre of Innovation Ltd.
- Jagiellonian University

- Jan Bobr Memorial Centre for Microbiological and Vaccine Research Ltd.
- Krakow City Hall
- Krakow Technology Park Ltd
- Ludwik Rydygier Memorial Specialized Hospital in Krakow
- LUX MED Medical Clinics
- Malopolska Voivodeship
- MDS Pharma Services Poland Ltd.
- Medical Technology Transfer Center & Technology Park Ltd.
- MicroBioLab Ltd.
- MODERN DIAGNOSTICS ACADEMY
- MRI Tech
- National Research Institute of Animal Production
- NoLabel
- Oil and Gas Institute
- Pliva Krakow, Barr Group
- PNO Consultants Ltd.
- SCANMED Medical Diagnostic and Therapeutic Centre
- SELVITA Ltd.
- St. John Grande Hospital
- Targi w Krakowie Ltd.
- The Babinski Memorial Specialized Hospital in Krakow
- The Complex of Schools of Chemistry the name of Maria Sklodowska-Curie
- The H. Niewodniczanski Institute of Nuclear Physics PAS
- The John Paul II Memorial Hospital in Krakow
- The Marshall Office of Malopolska Voivodeship
- The University Hospital in Krakow
- Trigendo Ltd.
- University Childrens's Hospital of Krakow

Duration: since 2006

Further information is available at:
http://www.lifescience.pl/content.php?component=com_publisher&section_id=1

4. RoboCluster *(Denmark)*

Description:
RoboCluster is a growth initiative for the robotics and automation industry in Southern Denmark. The object is to maintain and further expand the robotics sector by generating and ensuring optimal conditions for innovation in new as well as existing enterprises and to motivate highly-educated employees to stay in the region.
This is done by creating knowledge sharing networks between suppliers, producers and educational and science institutions in the field of robotics and automation. Knowledge, ideas and projects are collected, shared and discussed in the networks with the purpose of finding solutions for technical innovation, business development or scientific research. The aim is to pave the way for suppliers and producers in the field of robotics and automation technology in the region to become acknowledged and respected both nationally and internationally. By combining the efforts in the region and encouraging an ongoing collaboration between the players of the industry, a unique platform is created, leading to innovation, development and competition.

RoboCluster consists of the following **53 partners from Denmark and Sweden:**
University of Southern Denmark, Denmark
The Maersk Mc-Kinney Moller Institute, University of Southern Denmark
Mads Clausen Institute, University of Southern Denmark

Faculty of Engineering, University of Southern Denmark
Odense Technical College
Risø National Laboratory
Danish Institute of Agricultural Sciences
Danish Technological Institute
Designskolen Kolding
Rustfri Stålindustris Kompetencecenter
Development Center Aarslev
Syddansk Venture
Viden til Vækst - Knowledge for Growth
Region Syddanmark, Denmark
Ministry of Science Technology and Innovation
Invest in Denmark
Invest in Funen
Danish Board of Technology
Odense Trade Council
Væksthus Syddanmark
ABB A/S
AVN Automation A/S
AVS Danmark ApS
Bila A/S
Daniit A/S
DanRob A/S
Dansk Styringsteknik A/S
Egatec A/S
Giben Scandinavia A/S
Ideal-line
Jorgensen Engineering A/S
Kjærgaard A/S
KTL Turn-Key A/S
mh Martin Hansen A/S
Migatronic Automatin A/S
Morsø Industri-Teknik
Motoman Robotics Europ AB
Neros Automation A/S
Novotek Planning Systems A/S
P. Ellegaard A/S
PJD A/S
PMN INDUSTRI A/S
Richter Hansen A/S
RoboTool A/S
Scape Technologies A/S
Schneider Electric A/S
Simcon A/S
Teknologisk Institut
TriVision ApS
Unisensor A/S
Univeyor A/S
Flexlink Systems

KUKA Svetsanläggningar + Robotar AB

Further information is available at:http://www.robocluster.dk/english/index_html

2. Checklist for creating RCD

This checklist, embedded into the two main blocks “development” and “management”, provides a summary of the necessary steps for creating/developing a RDC.

Development of a RDC

- **Execution of a research / feasibility study**
  - Survey of the economy and cluster policies
  - Analysis of local economic strengths and weaknesses
  - Analysis of the stakeholders needs
  - Analysis of relevant R&D actors, universities, other actors
  - Definition of partnerships

- **Multilateral talks with actors**
- **Strategic positioning within the region**
- **Definition of objectives, tasks and activities**
- **Definition of research sector/s**
- **Definition of responsible body/legal entity**
- **Establishment of a project team**
- **Information and communication**
- **Establishment of governing/advisory board**
- **Financing**
- **Launching**

Management of RDC

- **Information and communication**

- Development of a communication platform
- Regular stakeholders visits
- Regular events (workshops, expert round tables, specialist events)
- Newsletter and network update
- Cluster's database development/updating
- Homepage development/updating contents

- **Staff training** (employees of cluster companies and project teams)

  - Advanced vocational training sessions
  - Workshops and seminars
  - Study trips for employees
  - Inter company learning

- **Co-operation**

  - Support to co-operation projects
  - Co-operation with special service providers
  - Setting up of special supporting schemes for co-operation projects

- **Marketing and PR**

  - Development of a regional/cluster identity
  - Creation of information and marketing materials
  - National and international PR through commercials, advertisements/articles
  - Measures to strengthen branch image
  - Lobbying

- **Internationalisation**

  - Access to international events
  - Participation in international projects
  - Set-up of network activities between different clusters

3. Criteria for RDC characterization

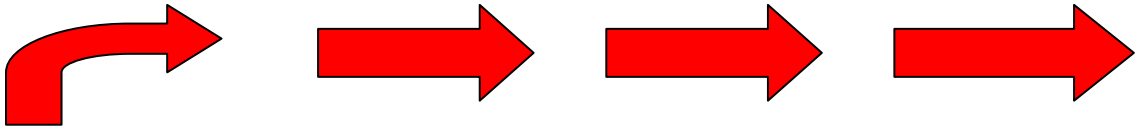
Methods / Indicators table

Dimension	Characteristic	Method / Indicator
1. Cluster structure		
Critical mass and internal Functional structure	***Critical mass***	Number and share of firms / employees in the sectors of the total number in the sectors (nation)
		Patent and bibliometric indicators
		National / world market share of the enterprises in cluster product / service area
	Existence of crucial links of a value-added chain	Sector input-output analysis
		Expert surveys (e.g. research and educational institutions)
	Completeness of the value-added chain	Benchmarking
Regional, supra-regional networking	***Quality of regional networking regarding intensity and effectiveness***	Network analysis
	Relationship of regional to supra-regional integration, support through complementary clusters, proximity to other agglomerations	Regional input-output analysis
	Intra-regional information flows, joint utilisation of research results	Actor survey, patent and bibliometrical analysis
	Dimensions of the cluster, Geographical concentration	Localisation coefficients, variation coefficients
2. Impact and results		
International competitiveness	***Growth potential***	Job and turnover growth in relation to regional/national level
		Productivity, shares of value added
		Trend analysis of future market development (market and branch trends)
	Supra-regional competitive situation	Export specialisation, comparative advantages and disadvantages in foreign trade
		Market shares, international direct investments
	Excellence in research	Regional patent analysis
		Bibliometric analysis
		Third party funding in universities
		Share of international researchers male/female
		Private and publicly funded
	Human capital	Ranking of universities,other educational institutions, faculties, numbers of students
		Forecast of demographic development

Source: Koschatzky, K./Lo, V. (2007): *Promoting regional networking and cluster formation in East Germany: a chance for setting up new regional growth regimes in an economically volatile environment.* In: International Journal of Entrepreneurship and Innovation Management, 7, 462-481. (page 40)

The “Value chain” model

Pre-requisites	Triple Helix		
Assets	**Public sector**	**Private sector**	**Intermediaries**
Human capital	Inter-institutional collaboration	Capacities	Quality Infrastructure
Technological capital	Governance	Critical mass	
Financial and equity collaboration	Leadership	Investment readiness	Capability
Social capital	Vision	Sound financial enterprises	Competences
Infrastructures	Attractiveness	Engagement in regional research agenda	



Instruments				
Networking Clustering	IPR Technological transfer	Education, skills, training, workforce, development	Entrepreneurial culture Added value support services	Access to funding

RTD		
Awareness; Investment readiness	Organizational, Private/Public/ Academic RTD infrastructures	Market driven; applied research activities

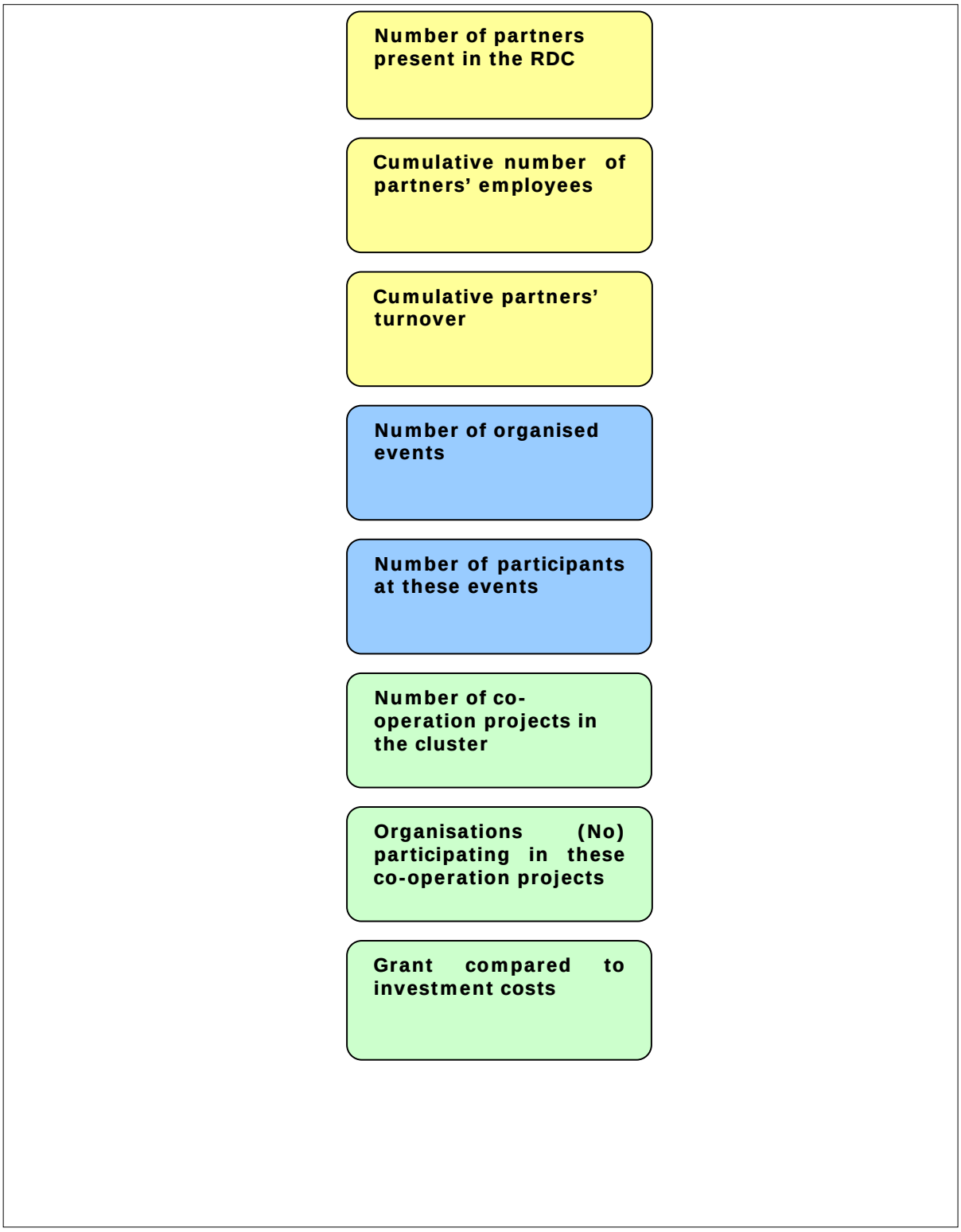
Outputs	
Spin offs./Spin outs/ Commercialization of research outcomes. Public knowledge	Market. Jobs. Income

Implementation		
Consensus building	Strategy design to support research intensive firms and commercialization of research results	Delivery mechanism of the strategy

Source: EURADA Round Table of Practitioners in Economic Development.

4. Benchmarking indicators

In order to carry out the evaluation of RDC activities at early and advances stage, measurable indicators should be determined in advance. The following indicators can be used as a basic benchmark to secure an evaluation of the quality of the structure and its processes.



Further indicators (cumulative/for the whole RDC):

Rate of involved SMEs

Number of RDC visits

Number of involved actors / institution

Rate of public funding in research projects

Rate of total public funding

Number of customer satisfaction analysis per year