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tactics

Better cluster policies and tools for implementation

Impact evaluation of cluster-based policies



For its covers, TACTICS series of publications gets inspiration from several works of art or uses digital pictures recalling the positivist and optimistic vision of pictorial movements flourished between the XIX and XX century. Each image can be given an interpretation according to the main message of the publication. The works were chosen because their subject and the use of the light and the colours can be easily associated with the idea of innovation, movement and progress embodied by the clusters.

Cover credits: Paul Klee "Ancient Sound Abstract on Black", 1925. Kunstmuseum, Basel.

Evaluating cluster-based policies requires putting together many different elements in order to see the general picture. The cover delivers the idea of a process which has combined different forces/squares/colours that together create a powerful frame.

This publication is released with no commercial purposes. The cover image, inspired by the above-mentioned work, has been freely reworked by the authors.

Impact evaluation of cluster-based policies

A practical guide for evaluation – targeting policy makers and other cluster stakeholders

WHAT IS TACTICS?

TACTICS (*Transnational Alliance of Clusters Towards Improved Co-operation Support*) aims at supporting and further expanding the European Cluster Alliance, and contributes to the development of better cluster policies and practical tools for implementation in Europe. The project is one of the three INNO-Nets within the PRO INNO Europe initiative under the Commission's Competitiveness and Innovation Programme from DG Enterprise and Industry.

TACTICS, coordinated by **OSEO**, the French national organisation supporting SMEs and mid-caps development, brings together seven of Europe's leading national and regional innovation and cluster policy organizations – namely **VINNOVA** (SE), **TMG Upper Austria** (AT), **Manchester Metropolitan University** (UK), **IWT Flanders' Innovation Agency** (BE), **Veneto Innovazione** (IT), and **PARP** (PL). The partners, committed to improving policy cooperation and with a track record of experience with clusters, have been assisted by a Reflection Group of external cluster policy experts.

Six task forces discussed actual or proposed policy actions, coming up with concrete policy recommendations on the following topics relevant to cluster policy: fostering international cluster cooperation, channelling RDI funding through excellent clusters, fostering user-driven innovation through clusters, supporting cluster marketing and branding, evaluating impact of cluster-based policies, using excellent clusters to address emerging industries (including innovative services).

TACTICS claims that cluster initiatives can

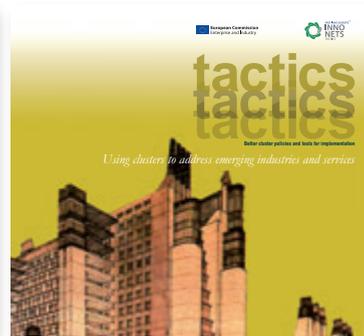
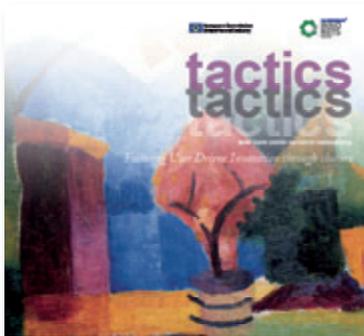
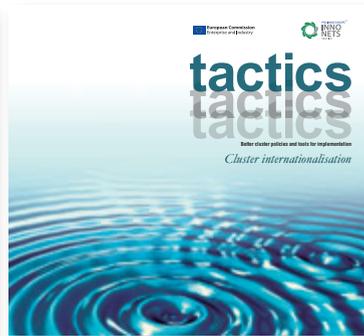
- improve the performance of the innovation support system
- leverage the renewal of European industry
- engage SMEs in research and innovation support programmes
- play an important role within smart specialization strategies
- gain competitive advantage by internationalising, boosting their visibility and attractiveness, and involving users in innovation processes.

TACTICS RESULTS

TACTICS gives a fresh outlook on trends in cluster policy and provides a toolbox to policy makers and practitioners on how to better use clusters for economic development, through a set of documents:

- **Key messages and practical recommendations from the TACTICS project** highlights three key messages for policy makers with recommendations on concrete actions and implementation. The document is based on cluster trends in Europe and conclusions from TACTICS' six task forces.
- **Cluster internationalisation**
The handbook provides a practical guide, illustrated with tools and case studies, for policy makers and cluster managers to address the "Why?" for internationalisation and to progress through the ten steps of the Internationalisation Journey.
- **Cluster marketing and branding**
The handbook examines different cases of cluster branding strategies with a view to draw useful recommendations for policy makers, bringing about concrete suggestions for the improvement of cluster policies.
- **Impact evaluation of cluster-based policies**
The guide suggests concrete steps for setting up an evaluation process of cluster-based policies. The document, targeting policy makers and other cluster stakeholders, is a practical guide supported and explained by several cases.
- **Fostering User-Driven Innovation through clusters**
The guide provides practical advices for cluster organizations to support their member companies with the implementation of User-Driven Innovation and recommendations to policy makers to develop and implement appropriate policies.
- **Channelling RDI funding through clusters**
The paper proposes a focus on the capacity of clusters/cluster organisations to attract and manage RDI funding, including new activities, actors and the role within smart specialisation strategies. It also provides TACTICS' contribution to the State Aid rules consultation for clusters.
- **Using clusters to address emerging industries and services**
The paper tackles the issue of using clusters to catalyse emergence of new industries and renewal/upgrade of well-established ones. The document summarizes case examples and discussions held with participation of TACTICS partners and external experts.
- **Where the cluster winds are blowing in Europe**
The paper includes contributions from about 30 European regional and national policy making organisations, and highlights the trends in the use of clusters as a tool for innovation and economic growth, today and in the future.

You can download TACTICS publications at: www.ECA-TACTICS.eu



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consortium



Table of contents

Who knows nothing must believe everything.
Marie von Ebner-Eschenbach

EXECUTIVE SUMMARY	7
INTRODUCTION	11
1. THEORY OF IMPACT ANALYSES OF CLUSTERS ON THE COMPETITIVENESS AND PERFORMANCE OF REGIONS	13
1.1 Overlapping impact dimensions	14
1.2 Formative and summative evaluation	15
1.3 Counterfactual and theory-based impact evaluation	17
2. PRACTICAL EXPERIENCES AND INPUTS RECEIVED THROUGH CALL FOR CASES	23
2.1 Defining and evaluating cluster strategies	24
2.2 Evaluation purpose and communication, causality	29
3. OVERVIEW OF CASES AND INDICATORS USED	35
4. CONCLUSIONS/RECOMMENDATIONS	45
4.1 Conclusions	45
4.2 Recommendations	46
4.3 Nine Steps - Checklist	49
A. ANNEXES	53
ANNEX I ECPG Recommendations on Raising the Excellence of Clusters and Cluster Organisations	53
ANNEX II Case Examples	56
B. REFERENCES	112
C. LINKOLOGY	114
D. GLOSSARY OF KEY TERMS	116
E. TACTICS CONSORTIUM	118
F. REFLECTION GROUP MEMBERS	119
G. EXTERNAL CONTRIBUTIONS	120

6

In this report, the following definitions for clusters, cluster initiatives, cluster organisations, and cluster policies are used:

- **Clusters** are geographical proximate groups of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities.
- **Cluster initiatives** are organised efforts to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community.
- **Cluster organisations** are specialised institutions responsible for managing cluster initiatives. These institutions take on various legal forms.
- **Cluster policies** are programmes or other organised efforts taken by government to increase the growth and competitiveness of clusters in its constituency.

A more detailed glossary of key terms can be found under section D. Glossary of key terms.

Executive Summary

7

As generally recognized and mentioned in several documents¹, clusters provide fertile environments for companies to thrive – which drives innovation, regional development and competitiveness. For these reasons, a large number of countries and regions have embraced the concept of clusters and work to develop clusters through initiatives, programmes or cluster-specific innovation policy. **Various approaches are used both to develop cluster strategies and programmes as well as to evaluate the impact of cluster-related policies and investments.**

Policy makers expect that supporting cluster organisations / cluster initiatives improve regional competitiveness.

BUT HOW CAN THIS BE PROVEN?

Public investments can be targeted both at cluster organisations (which facilitate cooperation and provide services to member companies and research actors of the cluster), and at cooperative RDI projects (between various actors within the cluster).

As such, evaluations of cluster-related policies and investments can encompass many aspects:

- **Cluster Management level (= the performance of cluster organisations)**
- **Project level (= the results of particular cooperative RDI projects)**
- **Cluster policy/programme level (= the overall impact of public investments in cluster-based policies and programmes)**

Therefore, both qualitative and quantitative indicators on the specific target group can be analysed and statistical data (standard-defined) on clusters and regional framework conditions may also be used.

The primary issue related to this TACTICS task force has been:

- **to understand what policy makers most need**
- **to better support evidence-based policy making in the future**

¹ Commission Communication “Towards world-class clusters in the European Union” COM(2008)652, Commission Staff Working Document “The concept of clusters and cluster policies and their role for competitiveness and innovation: Main statistical results and lessons learned” SEC(2008)2637, “Promoting cluster excellence – Measuring and benchmarking the quality of cluster organisations and performance of clusters” Köcker G.M., Rosted J., 2010 VDI/VDE Innovation + Technik GmbH, FORA.

8

The following KEY messages arose in several workshops with TACTICS partners, the Reflection Group members and external experts.

Key messages from the TACTICS group and Reflection Group members towards impact evaluation:

- **Evaluation methodology depends on which target group is asking for results!**
- **Evaluation has to be effective and beneficial to the different target groups!**
- **Evaluation indicators have to show results in an easy and understandable way!**
- **Evaluation is effective the better the target group, their respective targets and the corresponding indicators are!**

Following basic policy recommendations (in short) should be considered accordingly in the planning phase of preparation and commissioning of cluster evaluations.

(You can find the full version in section 4.2 Recommendations.)

- **Recommendation I**

Consider in advance the involvement and role of the principal, parties, stakeholders and external experts:

Impact assessment includes a broad range of parties and stakeholders and therefore it should be embedded in a collective process of policy learning considering actors' incentives, bias and partiality.

- **Recommendation II**

Define the boundaries of the analysis – set clear objectives and realistic expectations:

The definitions of the boundaries of the cluster and its periphery are essential for the specification of levels of analysis, the survey design and the selection of interview partners.

- **Recommendation III**

Support qualitative analysis with quantitative arguments

As impacts are context specific and should include both intended and unintended effects, their analysis and discussion requires an individual approach. Mechanistic approaches are largely inadequate. The required methodologies should reflect a mix of quantitative and qualitative analytical approaches.

-
- **Recommendation IV**
Allocate adequate resources and funding for impact assessment
Pay attention to a reasonable balance between policy intervention (funding) and the costs that are spent for the evaluation.
 - **Recommendation V**
Start impact analysis in the phase of agenda setting and policy formulation, and not with measuring long-term effects in the remote future
According to the available data (qualitative /quantitative), impact analysis should be understood as a continuously accompanying exercise.

Nine Steps - Checklist

The nine steps for policy makers to set up an evaluation process of cluster-related policies were composed after consideration of the workshop results, task force key messages and policy recommendations. (You can find the full version in section 5.3 Nine Steps - Checklist).

Table 1: Nine steps - Evaluation process

1. Identifying the evaluation focus

WHAT?

(What kind of support do we evaluate?)

2. Definition of the evaluation perspective

WHY?

3. Consider when do we need to evaluate what?

WHEN?

4. Define the subject(s) of evaluation

WHO?

5. Set up an accepted evaluation team

WHICH TEAM?

6. Methodology, policy and impact evaluation exercise

HOW?

7. Conclusions and recommendations

LESSONS LEARNED?

8. Policy reaction and adaptation

BENEFIT FROM THE RESULT?

9. Implications on monitoring and future evaluations

DATE FOR NEXT EVALUATION?

Introduction

Purpose

This report is a practical framework for impact evaluation of cluster based policies targeting policy makers and other cluster stakeholders. It is supported and explained by case studies, and helps to develop the next generation of cluster policies.

It gives support for

- a. Learning on methodologies and case examples on evaluation of cluster related policies
- b. Involving all levels (companies, cluster organisations and policy makers) affected by the evaluation process
- c. Benchmarking with other regions
- d. Developing evaluation methodologies
- e. Providing good interpretation of and response to evaluation results.

Target group/beneficiaries

All relevant levels are addressed from the operational level of Cluster Managers up to the level of policy makers who decide on strategic core areas and public financial support in forthcoming regional, national or European programmes.

In other words:

Cluster stakeholders responsible for

- a. Measuring the impact of public investments in cluster-based policies
- b. Designing & establishing cluster-based policies (strategic and financial support)
- c. Justifying effective use and impact of received support and related funding

Description of the Theme and Key Issues

The topic of evaluation of cluster excellence is both highly relevant and interesting, and highly challenging. Over the last years, much work has been done to provide an overall understanding of the different perspectives and approaches to evaluate cluster excellence, and develop new frameworks for fact-based cluster policy.

These efforts produced among others the reports *“The use of data and analysis as a tool for cluster policy”*, *“Towards Fact-based Cluster Policies – learnings from the pilot study on life science clusters in the Baltic Sea Region”* and an EU workshop on *“Promoting cluster excellence – measuring and benchmarking cluster performance and quality of cluster organisations”*.

The **European Cluster Policy Group (ECPG)** developed recommendations on the topic “Raising the Excellence of Clusters and Cluster Organisations” as part of its consolidated set of policy recommendations (2010). The set of these recommendations is included in the download version as Annex I.

Following on the recommendations of the ECPG the European Cluster Excellence Initiative (ECEI) has been making progress on frameworks and indicators for evaluating cluster management excellence.

Thus, **the TACTICS task force focused on evaluating the impact of public cluster-related policies and investments – and how this relates to regional competitiveness.**

Methodology

This guide gathers inputs from TACTICS project partners and Reflection Group members on various questions regarding impact evaluation of cluster related policies and investments. The summary is based on the case examples received from various regional and national agencies working in the field (the original cases are included in the download version of the guide as Annex II), and results from discussions during the workshop in Linz in March 2011, the full Reflection Group meetings in Stockholm in Sept. 2011 and Brussels in March 2012.

The involvement of external expertise from Joanneum Research/Graz (AT) gave support to understanding the theoretical and methodological approaches of impact analyses of clusters on the competitiveness and performance of regions.

Structure

This practical guide consists of four main sections.

The first part reflects relevant dimensions of impact analyses of clusters on the competitiveness and performance of regions and provides a short review of relevant methodological approaches and instruments (qualitative/quantitative) of impact analyses.

The second part provides practical experiences mainly from TACTICS Consortium and Reflection Group members.

The third part intends to structure the practical cases received by TACTICS, Reflection Group and ECA-members. It gives the reader an overview on the cases available in the on-line version and summarizes the indicators in use.

The fourth part finally contains basic policy recommendations to be considered and a NINE-STEPS checklist for setting an evaluation process for cluster related policies.

1. Theory of Impact analyses of clusters on the competitiveness and performance of regions

Facts in a Nutshell

The idea is both simple and adaptable as well as ambitious and poorly defined. It is not possible to provide one single theory of clusters in a spatial context, nor is it possible to provide a single conceptual reference for the regional context. Various policies may be designed to influence the collective behaviour of organisations, promote the emergence of networks, innovation systems and commercial renewal. The underlying concepts of production, firm-level innovation and R&D or innovation networks, industrial agglomerations, sectorial and regional innovation systems are overlapping.

Policy makers expect that clusters positively affect the factors defining regional competitiveness. They do this via the following routes:

- *Technology spillovers among regional players (science-industry linkages, co-petition),*
- *Productivity gains, an increased international visibility,*
- *A decrease of transaction costs of horizontal and vertical (along the value chain) co-operations,*
- *The creation of more efficient sectorial labour markets and knowledge transfer via heads,*
- *Fostering of economies of agglomeration (Jacobs J. (1969))*

The stimulation and promotion of clusters cannot be clearly differentiated from previous policy approaches at the regional level. Cluster policy measures usually build on and are (still) accompanied by standard RDI-policy measures and a long tradition of network-orient-

ed measures, multi-actor measures, transfer activities and similar. The specific policy objectives and target systems of cluster and network oriented policy approaches remain fuzzy in most cases.

Differentiating phases of the cluster life cycle (emergence, growth, sustainment, decline) is one of the challenges of cluster identification. Their challenges of development as well as their economic characteristics change from one stage to the next. The boundaries between these different phases (e.g. development (growth) and maturity (sustainment)) are often not clear. For larger clusters, it can be expected that parts of the cluster are still in an earlier stage while others show patterns of interaction characteristic of the mature stage of cluster development. In cases of successful policy learning several policy cycles (cluster policy programmes) could accompany overlapping phases of structural change of regional clusters.

Clusters are expected to exert a positive impact on the territorial economy. Policy expectations of clusters are positive, high and sometimes unrealistic. However, it has to be considered that clusters could also have negative impacts on regional competitiveness performance, for example:

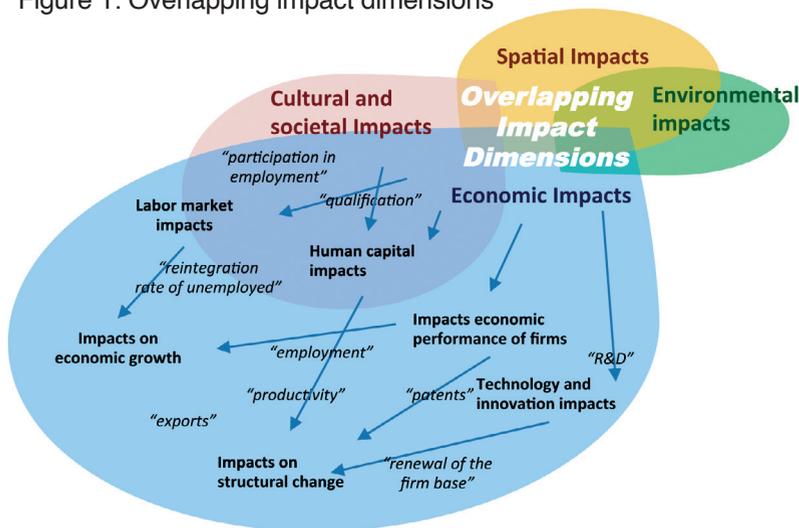
- The re-allocation and shortages of key territorial resources during the growth phase
- Increasing income disparities
- Specialization and thus the vulnerability to external shocks and globalisation
- Negative selection processes (crowding out or policy initiated distortions), and lock-in effects.

14 1.1 OVERLAPPING IMPACT DIMENSIONS

Impacts are defined as a multidimensional vector (technological, socio-economic, cultural/social, environmental, spatial) based on multidimensional inputs (activities, context). Analogously to science and technology clusters could show different types of impacts on regional competitiveness (see OECD 2009).

It can be expected that the role of clusters and the multidimensional set of cluster impacts on regional competitiveness changes in accordance with the cluster life cycle.

Figure 1: Overlapping impact dimensions



Source: Joanneum Research

In the past impact analyses of cluster policies mainly concentrated on regional growth and employment, whereas recent debates focus on how clusters influence the regional innovation ecosystem, knowledge creation, organisational learning and the broader context or regional structural change.

However, an exhaustive analysis of impacts along the functional chain of effects and spin-off activities would be doomed to failure or get lost. Any impact analyses needs to focus on selected impact dimensions.

As impacts are context specific and their analysis and discussion requires an individual approach, mechanistic approaches are largely inadequate. This is probably the main reason why case studies are gaining in importance as a valuable approach to discuss and learn more about impacts.

Today, cluster policy programmes are well established and as a result the need to evaluate them has increased. European countries and regions have launched a wide range of cluster initiatives in recent years. However, the impact of cluster policies on the development of clusters and hence on the competitiveness and performance of regions is difficult to assess.

The results of available case studies indicate a number of challenges that may limit the potential impact of cluster policies (DG Enterprise & Industry, 2007) For example:

- Cluster efforts have often grown out of small and medium sized enterprise (SME) policies and thus they tend to focus on SMEs and start-ups. However, a low presence of large companies may

limit the economic impact of clusters. **All types of companies need to engage in the cluster.**

- Government programmes are often limited to the provision of financial incentives. This financial support is crucial, but it does not explicitly lead to higher competitiveness and innovation in the cluster.
- In Europe, **the integration of cluster initiatives at the regional level is by no means exhausted.** However, there is insufficient dialogue concerning cross-cutting policies to strengthen regions and cluster-specific efforts.
- **There is a bias towards promoting high-technology clusters to the exclusion of other industry and service sectors.**
- Some initiatives focus on emerging clusters where only a few firms and research institutions are involved. The boundaries between network promotion and conventional multi-actor programmes become blurred in such cases. Such efforts should be part of an overall cluster strategy, but not the main element of the policy.

1.2 FORMATIVE AND SUMMATIVE EVALUATION

As shown in Figure 2 below the evaluation tasks can be grouped into two approaches (Raines P., 2002b).

The formative evaluation

addresses the efficiency of cluster policies. It analyses how policy converts its inputs into activities and outputs and its conclusions are mainly used to improve the administration of policy.

The summative evaluation

deals with effectiveness concerns of policies. More precisely, the summative evaluation measures **whether the policy actions had a significant effect on its target groups (results) and on the wider economy (impacts).**

Two basic processes are involved here outside the policy agency and its delivery operations:

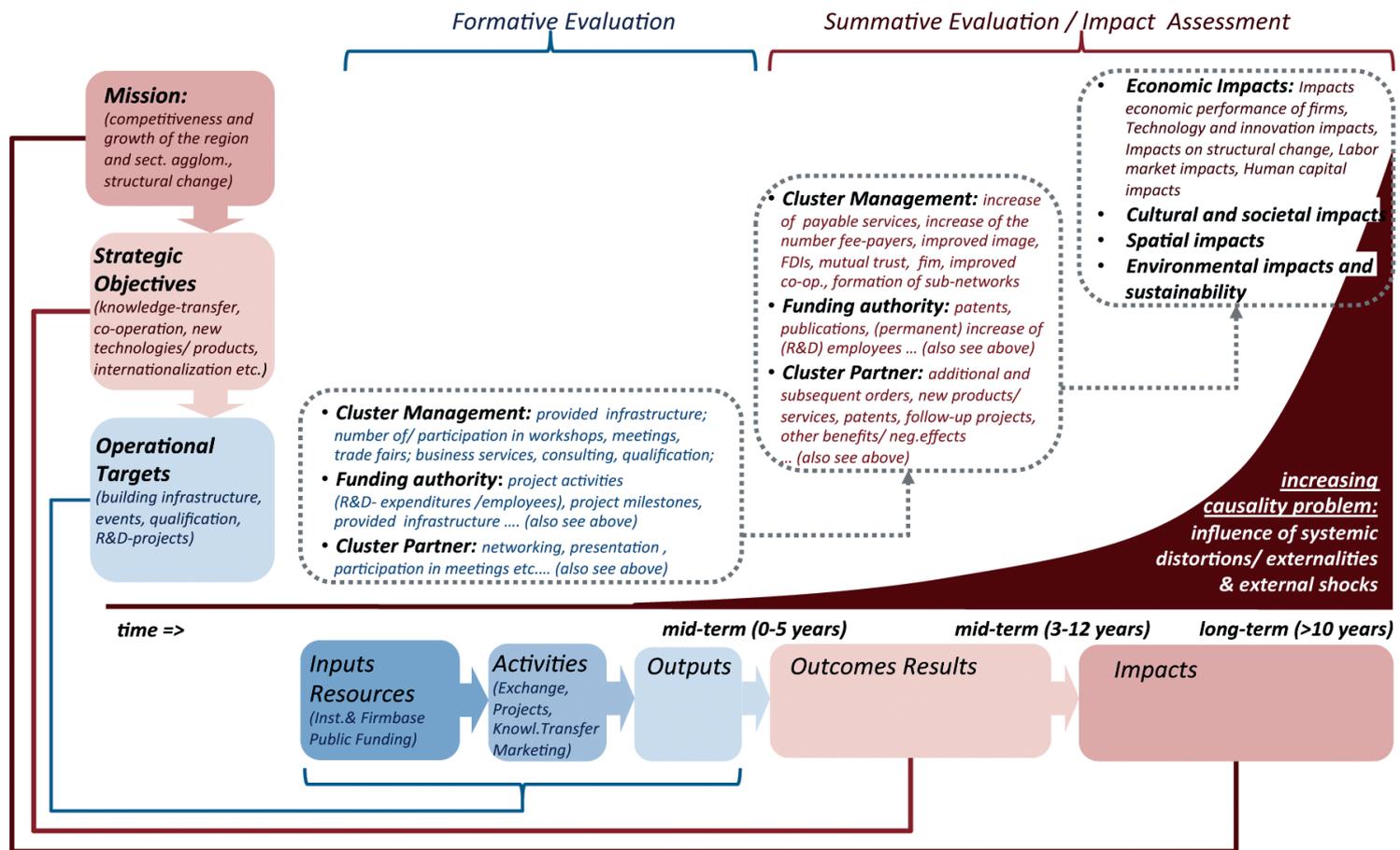
- the transformation of outputs into results, and
- the transformation of results/outcomes into impacts.

The first typically concentrates on the individual beneficiaries of policies (for example, an individual project receives financial support), whereas the latter one mainly refers to spill-over effects.

The impact analysis of clusters can be clearly classified as a “summative“ evaluation instrument. Impact analyses use a range of methodologies to assess the net impacts of policies on final benefits. These analyses concentrate on the derivation of net from gross effects. In Figure 2 this issue is shown as the link between results and impacts, which could be represented by different sets of indicators corresponding to the level of analysis (data collection). **Data collection (qual./quant.) for impact assessment should implicitly start in early phases of policy intervention.**

The impact evaluation covers both intended and unintended effects. The aim is to quantify and explain the effects of policy interventions.

Figure 2: Formative and summative functions of evaluation



For policy makers to make informed decisions, **it is important to understand what works, why it works and who benefits from the intervention.** In order to answer these questions, it is essential to clarify which methods, under which circumstances should be used (European Commission, 2011a).

Due to the complexity of a cluster as a multi-actor, multi-action, multi-dimensional approach, discrepancies exist concerning the requirement profile, the depth of the analyses and the relevant time-scale. Thus, considerable diversity exists concerning the definition of the evaluation topic.

Recent studies of Fraunhofer ISI (Ossenkopf et al., 2004; Jappe-Heinz et al., 2008) or of VDI/VDE-IT (Kind et al 2011/2012) (among others) present, methodological approaches for cluster evaluation and discuss the main methodologies and indicators used for describing the cluster structure. Some cluster evaluations are performed by external evaluators and others are carried out as a part of a self-evaluation process.

However, after two decades of proactive cluster promotion, impact analyses are still a sore point in scientific research and policy. Although the extent to which cluster programmes are applied to technology policies is greater than ever, as yet no broadly accepted, uniform approach to their evaluation or impact assessment exists.

1.3 COUNTERFACTUAL AND THEORY-BASED IMPACT EVALUATION

The required methodologies for appraising intermediate and global

impacts contain more aggregative statistical/econometric approaches based on combinations of publicly available, objective data, and increasingly differentiated and customized survey data, as well as traditional analyses based on surveys and case studies. One can distinguish between two distinct sets of methods:

- **the counterfactual impact evaluation (CIE) and**
- **the theory-based impact evaluation (TBIE).**

CIE deals primarily with the quantification of effects and tries to answer the question: what would the outcome have been in the absence of the intervention?

TBIE attempts to explain the outcomes and their impacts. Hence, it aims to understand why an intervention produces intended and unintended effects (European Commission, 2011a).

While counterfactual methods quantify the results and show that a certain intervention works, the traditional TBIE helps to open up to the black-box and thus provides an answer as to why the intervention works (Strycznski, 2009).

The majority of cluster policy initiatives are small, are on a regional level and provide/obtain limited public funding. In order to reach a reasonable balance between policy intervention (public funding) and costs associated with policy evaluation and impacts assessment (e.g. data generation) policy makers and evaluators will often choose selected complementary approaches among a broad spectrum of methodologies.

Figure 3: Complementary Position of theory-based and counterfactual Impact Evaluation

OVERVIEW OF METHODS FOR „CLUSTER IMPACT EVALUATION“

Limitations/Remarks

- Consider reaction time and time lags
- Consider distorting effects and individual bias
- Consider representative sample

- It is difficult to identify comparable non-treated control-groups because of the fairly widespread occurrence of cluster initiatives and programmes and the implicit tendency of cluster initiatives to involve (pick) the winners.
- Crucial assumption for difference-in-differences is that selection bias is constant over time
- Crucial assumption for difference the availability of data for actors characteristics for treated and non treated (before and after)
- Impact analyses reducing impact to a single variable or (statistically significant) effect are misleading.

Relevance of the Method

- the difference of outcomes of the same units before and after intervention
- Could be used for quantitative and qualitative aspects (e.g. satisfaction)

- Difference in difference is a standard method where impacts are gained by subtracting the pre-intervention difference in outcomes between promoted and non-promoted subjects from the post-intervention difference
- Propensity score matching is a sophisticated method considering characteristics influencing behaviour on the basis of a statistical model, The effect of the intervention is identified by the remaining difference in outcomes
- Discontinuity approach is a simple approach differentiating treated and non treated on the basis of a threshold variable
- Counterfactual analyses could focus on employment, R&D investment, patenting, innovation output etc.

- Other cluster may not interpreted as a control group in a narrower sense
- The objectives of traditional benchmarking and impact oriented comparisons have to be differentiated

Methods of Counterfactual Impact Evaluation

Longitudinal comparisons of beneficiaries

Panel data, ex-post Primary Survey

Comparisons of beneficiaries and non-beneficiaries

(Propensity score)
Micro Matching

Difference in difference
identification of
control group

Instrumental variable
identification of control
group

Discontinuity
identification of
control group

Primary Survey

Second. Micro Data

(Complementary)

Comparative Study of Clusters (beneficiaries and non beneficiaries)

- A standard tool of conventional impact analysis, depending on the focus analysis the approach could be complementary to benchmarking exercises

Methods of Theory based Impact Evaluation

Complementary Role of Methods:

- Policy Logic and Context analysis support meta-level interpretation of Counterfactual analyses
- Analyses of Heterogeneity support matching approaches
- Longitud. surveys provide attributes for SNA
- Qualitative analyses integrate elements of longitudinal and context analyses

Logic Chart Analysis

Context Analysis

Regional System (Economy, R&D, Innov., Millieu) Sectorial System (Knowl., Technologies, Actors, Institutions)
 Regional Sectorial Agglom.

Literature Review, Interviews, Second. data

Structural Analysis of Heterogeneity

Primary survey (cluster Level) Interviews

Social Network analysis (Roster, Roster/Recall, Recall)

Primary survey data Secondary data

Case Study Analysis (micro-level, cluster level)

Peer Review Opinion of internal Experts
 Field visits Interviews, Focus Group

Relevance of the Method

- Map out the causal chain and link objectives, inputs to outcomes and impact
- Evaluation follows the logic of intervention

- Explaining policy challenges, and framework conditions for cluster policy
- Sets the focus on longterm systemic change

- to identify sub-groups and consider the possibility of complementarity between interventions and impact changes over time

- investigating patterns of interaction of different partner in a cluster or network at different levels
- Analyse changing patterns

- investigating agent behavior in its original social setting.
- Insight into complex settings
- show how particular contexts affect and shape impacts in different settings (comparative case studies).

Limitations/Remarks

- Logic charts should refer to the specific policy challenges of the cluster/region but not be oversimplified
- It is essential to consider assumptions and framework conditions necessary to transfer outputs to outcomes and impacts

- No explicit instrument of impact assessment, but highly relevant for better understanding
- Context reflects impacts

- Different sectors, technologies and firm characteristics should be considered

- limitations concerning available levels of analysis and data in the case of sec. data
- Primary Survey require high response rates, longitudinal comparisons the same (!) set of interviewees

- Less useful for testing causal effects
- No general transferability!

- Peer reviews are appropriate tools for both ex ante and ex post evaluations, based on the insight and contributions of specialists in the field of interest
- Expert interviews are essential for each evaluation exercise

- Consider actors incentives, bias, partiality and potential role conflicts political or corporate interests; the boundaries between policy agent, beneficiary and stakeholder become blurred;
- Peer reviews

Figure 3 provides an overview of basic approaches of theory based and counterfactual impact evaluation. Theory based and counterfactual approaches complement each other but should be kept separate methodologically. Furthermore, short statements concerning the relevance of methods for impact evaluation and potential limitations are provided.

The major challenge in evaluating clusters lies in the development and extension of traditional methods. However, traditional impact analyses concentrate on individual agents and miss the importance of cluster development and the collective competitive advantage. In order to handle this issue cluster policy evaluations need to focus on the cluster as a whole rather than on the individual beneficiaries.

It is important for policy makers to understand the process by which clustering affects business behaviour. Irrespective of the chosen methodological mix, the analysis of policy logic and context provides essential groundwork for the design and interpretation of empirical analyses.

The demand for quantitative impact measures is steadily increasing. However, according to a rough overview of available summative

cluster evaluation studies (quantitative) counterfactual impact analysis are primarily applied in the context of larger cluster programmes.

The multi-dimensional, systemic and evolutionary character of cluster and the regional development qualitative analyses form the backbone of cluster impact analyses. Qualitative methods (peer review, technology peers and experts, qualitative interviews and case studies) are more flexible and robust than ambiguous quantitative analyses (based on micro-data):

- Counterfactual impact analysis – especially those comparing beneficiaries (members) and non-beneficiaries (non-members) as well as the analysis of patterns of interaction based on Social Network Analysis involve higher costs of data generation (availability of micro-data for the control group) and analytical risks (selection bias).
- Longitudinal analyses based on panel data are sensitive to changes of the survey setting, secular trends or interfering events (external shocks). This applies in particular to the longitudinal analysis of social networks that shows limited potentials for counterfactual impact evaluation.

Figure 4: Levels of evaluation analysis and policy logic

		Cluster Policy/ Cluster Programme	Cluster initiative		(Cluster) Projects		Infrastructure	Assumptions: External factors (context factors, pre-requisites) beyond the control of intervention necessary...
			Cluster Organization (Management)	Cluster Association (Network of Members/ Participants/ Actors; Constituents)	RDI projects	Other Projects (qualification, etc.)		
Objectives								
Inputs/ Resources (examples)		Public Funding, Co-funding, Personnel	Public Funding, Cluster Fees	Personnel, Infrastructure	Public Funding, Personnel, R&D-Expenditures, Infrastructure	Public Funding, Cluster Fees, Service Fees, Personnel, Infrastructure	technical infrastr., public R&D- and education infrastr., (publicly funded) endowed chairs,	
Actors (examples)		Cluster Organizations, Cluster Partners	Cluster Management	Cluster partners (members)	Beneficiaries, subcontractors and partners	Intermediaries, beneficiaries, subcontractors and partners	HE-institutions, RTOs, intermediaries etc.	... for the activities to achieve outputs
Activities (examples)		Strategic development (docs), establishment of structures, project activities	Workshops, Meetings, Offering of Services, Milestones, Monitoring	networking and interaction (Social Network Analysis)	Project activities, Milestones, Documentation	Project activities, Milestones, Documentation	Investment, R&D employees, trainers, employees, R&D expenditure etc	
Outputs (examples)		Established Cluster Organization and Outputs (see corresponding cells)	Participation in Workshops, Meetings, Trade fairs (Monitoring), strategic planning, new cluster partners	New relations, improvement of information, enlargement and increase of density of the network	Patents, publications, prototypes, further qualification of employees (monitoring, survey)	Participation in activities (Monitoring, documentation)	Utilization of infrastructure (testing, contract research, education etc), attraction of users from outside, international integration	...if outputs are to lead to outcomes
Outcomes (examples)		(see corresponding cells)	Commitment to the Cluster Management and activity, Partner satisfaction (surveys, interviews), new business opportunities and relations, co-operation projects	commitment, new co-operations, diffusion of knowledge, access to human resources, Co-investments (SNA, surveys, interviews)	Follow-up projects Product, Process and Organ. Innovations, increased productivity and competitiveness, out-licensing, VC (surveys, interviews, Peer Assessment),	Qualified employees, new co-operations etc. (surveys, interviews, Peer Assessment)	Immigration of human resources, FDIs	... for outcomes to contribute to objectives and impacts
Impacts (examples)	Firms/ Cluster	(see corresponding cells)	Business performance (counterfactual econometr.), competitiveness, increased mutual trust, etc. (case studies)		Technology spill overs spin offs, increasing sales (exports), employment, competitiveness	Availability and mobility of highly qualified persons		
	Agglomeration (Statist. Cluster)	(see corresponding cells)	Business environment quality, increase in social capital FDIs, DDIs, entrepreneurship, knowledge base, labor market		Technology spill overs, structural change, employment, entrepreneurship, relocations, FDIs, increasing value added/ GDP, competitiveness	Business environment quality, knowledge base, labor market		
	RIS/NIS		International visibility, Localization (Jacobs),					
	Other Clusters	(see corresponding cells)			Technology spill overs, new B2B- demand;	Business environment quality, knowledge base, labor market		
	Other (social, environm.)		Regional identity		Culture of collaboration	Culture of collaboration		

Source: Joanneum Research

2. Practical Experiences and inputs received through call for cases

This section provides a summary of input received from TACTICS partners, TACTICS Reflection Group members and other ECA members on the various questions as well as practical experiences based on case examples received from regional and national agencies working in this field. The original cases are included in the download version as Annex II.

Further it presents a number of general observations, areas of discussions and conclusions.

The TACTICS Consortium and the dedicated Reflection Group members were asked to reflect on a number of questions, including:

- How are cluster strategies (on regional or national levels) defined and evaluated?
- How can existing tools and platforms (for example the European Cluster Observatory) be used in this regard?
- How do funding organisations evaluate the leverage effect of their investments in clusters?
- What methodologies are used to evaluate the impact of clusters on regional competitiveness?

At the first TACTICS workshop relating to this topic a number of policy maker needs were summarised in a kind of “wish list”:

- Wish that every region would assess the leverage effect of its investments (and justifying appropriateness);
- Wish for a common framework, enabling more similarity of approaches throughout European regions/countries;
- Wish that the approach would allow international benchmarking and learning;

- Wish that a structured overview of different evaluation approaches could be established;
- Wish that it would be possible to understand what milestones are reasonable to expect at different periods of time (output, outcome, impact);

Furthermore the different examples of evaluation tools were discussed. It was highlighted that the evaluation tool that is used depends on the objective of evaluation. What kind (level) of public cluster support do we evaluate?

The task force found it useful to structure evaluation frameworks based on what (level) is being evaluated, with a clear divisions between different levels:

- Cluster Management level (= the performance of cluster organisations) → Cluster organisation
- Project level (= the results of particular cooperative RDI projects) → Cluster initiative
- Cluster policy/programme level (= the overall impact of public investments in cluster-based policies and programmes) → Individual or a portfolio of cluster initiatives

TACTICS partners, Reflection Group members, and other members of ECA have provided various case examples of approaches for developing/evaluating cluster strategies, and evaluating the impact of public funding to clusters. The cases came from the regional as well as from the national programme level. The sections below give a summary overview of the responses from the various case examples.

24 2.1 DEFINING AND EVALUATING CLUSTER STRATEGIES

When defining cluster strategies, the identification of regional strongholds (areas of research/industry strength and growth potential) is an important component. There are strong links with the development of research and innovation strategies for Smart Specialisation (RIS 3) as well as the identification of Emerging Industries. The recently published RIS 3 (EC, Regional policy) mentioned that in the design phase of regional strategies clusters can be used to identify the industrial strengths and assets in a region and therefore can contribute to set strategic priorities and to take the right political decisions.

Regional strongholds can be identified by:

- an analysis of data (quantitative & qualitative), e.g. employment/specialization or value-added levels in different industrial areas, growth potential in different industrial areas, cross-sector potential, research investments in different fields, etc. (See Case #2 (from Baden-Württemberg), Case #3 (from NWDA) and Case #5 (Pomerania) for a listing of various indicators used to identify/select regional strongholds)

- open calls for proposals (where evidence of existing expertise, growth potential and leadership must be provided), or
- a combination of methods (where funding agencies use data inputs to identify priority sectors, and/or as a quality check and tool for evaluating proposals)

The cases submitted illustrated a fairly even distribution between the different **approaches for identifying regional strongholds. Table 2**

Another input to cluster strategies can be ex ante (or baseline) analyses – used to set performance indicators and targets. These analyses can influence the goals of the initial cluster strategy – and are also used to monitor performance towards goals over time.

The cases submitted also illustrated a fairly even distribution between conducting ex ante analyses prior to setting up the strategy (Table 3). Interestingly, some of the examples that used data-driven analysis for identifying regional strongholds did NOT conduct ex ante analyses prior to setting up the strategy and vice-versa (i.e. regions that identified regional strongholds from an open call DID conduct ex ante analyses to set targets for their cluster strategies).

Table 2: Approach for Identifying Regional Strongholds

CASE EXAMPLES	DATA-DRIVEN ANALYSIS	OPEN CALL FOR PROPOSALS	COMBINATION
1. Upper Austria, AT	X		
2. Baden Württemberg, DE		X	
3. NW England, UK	X (1999, 2003, 2006)		
4. Flanders, BE		X	(In view of smart specialisation strategy this is now changing from open calls to combination.)
5. Pomerania, PL	X		
6. Schleswig-Holstein, DE			X
7. Regions of Dalarna, Gävleborg, Värmland, SE	X (2007, 2008, 2009; and with requirements on min. critical mass and existing organisation)		
8. Lower Austria, AT	X		
9. Wallonia, BE			X
10. ACCM, AT			X
11. Pôle Programme, HU	X		
12. VINNVÄXT, SE		X	
13. Pôle de Compétitivité, FR		X	
14. Innovation Programmes NL	X		

Table 3: Ex Ante Analysis and Revisions to Cluster Strategy

CASE EXAMPLES	YES	NO	COMBINATION
1. Upper Austria, AT		X	A strategic programme set the initiative. Cluster strategy modifies and develops along the actual strategic economic and research programme of Upper Austria.
2. Baden Württemberg, DE	X		External consultants defined sustainable target fields and recommended focusing cluster policy on 18 target fields.
3. NW England, UK	X		Performance indicators and targets were set in 1999, and reviewed in 2003 and 2006. A major review (in 2006) made recommendations for revisions to the cluster programme, and criteria that should be used to identify regional strongholds. These recommendations were implemented in the 2006 regional economic strategy.
4. Flanders, BE		X	Yet changes to the programme (where consortia of companies can apply for funding) have been made: a larger commitment is required to combine knowledge development AND transformation of knowledge to innovation.
5. Pomerania, PL	X		At start of regional programme for cluster support (2009-2015), external consultant conducted analysis on whether programme could be an effective regional policy tool with impact on social and economic growth in the longer term. The consultancy suggested 17 recommendations on how the programme could be improved. Programme implementation may be amended to give less focus to technology networks (embryonic clusters) and improve the evaluation and monitoring system.
6. Schleswig-Holstein, DE	X		No amendments were undertaken until after first evaluation was made (in 2008).
7. Regions of Dalarna, Gävleborg, Värmland, SE	X		Evaluation and description made by professor Örjan Sölvell in conjunction with European Cluster Observatory; evaluation made by OECD during pure project.

CASE EXAMPLES	YES	NO	COMBINATION
8. Lower Austria, AT	X		No amendments were undertaken until after first evaluation was made.
9. Wallonia, BE	X		An independent international jury highlights priorities of the strategy in each labeled sector.
10. ACCM, AT	X	X	Experiences with former national competence centers (not the technical experiences) and knowledge of regional/EU needs drove strategy. Amendments were driven by technology.
11. Pôle Programme, HU	X		Continuous monitoring of the initial accreditation scheme is done. A major revision was carried out at the end of 2008 (in reaction to the financial crisis). A second round of revisions to the evaluation system is currently in progress.
12. VINNVÄXT, SE		X	But monitoring activities (every 6 months), annual assessments, and full-scale evaluations (every 3 years) track progress toward each cluster initiative's strategic goals.
13. Pôle de Compétitivité, FR		X	Each PdC set up its own strategy and goals.
14. Innovation Programmes, NL	X		The programme proposal was evaluated by the Strategic Advisory council at least once. For every innovation programme as midterm evaluation was carried out. Those results provided information for possible amendments in the goals of the programme or the lines of action /activities towards reaching those.

Regardless of whether ex ante analyses were conducted or not, amendments to the cluster initiatives' activities and programmes have been made over time (based on continuous monitoring).

It is interesting to note that regardless of the approach for defining and evaluating cluster strategies (top-down/data driven or bottom-up/open calls), the same elements of cluster strategies seem to be important:

- Both regional and national levels seek a combination of working with existing strongholds (or „world-class clusters“) and emerging areas of growth and renewal (including embryonic clusters and cross-sectoral activities). (For more insights on using clusters to catalyse emergence of new industries please see the TACTICS paper on “Using clusters to address emerging industries and services”.)
- Indicators of economic potential (in terms of jobs and value-added) are important selection criteria in all cases (whether identified in advance in data-driven approaches, or provided by the cluster initiatives in open call approaches).

In contrary, indicators of leadership in the region, levels of cooperation within and outside the region (including internationally), and strategic vision for cluster development and business renewal seem to be more important selection and evaluation criteria for cluster strategies that are developed through open calls/bottom-up (or that combine both types of approaches) than for data-driven/top-down approaches.

Additional questions were posed about the use of the European Cluster Observatory (ECO) as an input to defining and evaluating cluster strategies, and about the role of clusters within regional smart spe-

cialization strategies. None of the case examples mentioned using the ECO as a tool for defining or evaluating their cluster strategies. Although most of all cases show a kind of regional or national smart specialisation approach by supporting cluster initiatives, only few cases (see case #1, #8, #10, #12, #14) discussed the role of clusters in regional smart specialization strategies. This was surprising but might result from the fact that the term smart specialisation has been relatively new.

NWDA mentioned that their cluster development programme was set up to facilitate growth in both established and emerging sectors. Regional cluster organisations work with the business relations sector teams to produce a strategy for the sector – and feed into the various NWDA strategies. In addition, the regional cluster organisations work with each other on cross-sector initiatives to ensure that the maximum outcomes from opportunities are realized. (Quarterly network meetings, sharing and disseminating best practice, and providing sectoral updates are some of the tools used.)

In both Hungary and Sweden, participation in the national cluster programme is seen as a stamp of legitimacy and trust, which helps foster the joint/cross-sectoral innovation projects between cluster initiatives.

2.2 EVALUATION PURPOSE AND COMMUNICATION, CAUSALITY

In order to understand the different programme's general objectives and how funding is channelled, each case was asked to describe the public funding flow. The cases exhibited three different approaches to funding clusters:

- One approach is to channel funding to cluster organisations (for facilitation of cooperation and other services).
- A second approach is to channel funding both to cluster organisations and to cooperative RDI project consortia. In these cases, it seems that there are separate funding flows for the different types of activities that are funded. Moreover, in some of these cases, the activities that are funded are dependent on the level of accreditation/labelling that the cluster initiative has earned.
- A third approach – exhibited only by the VINNVÄXT programme – is to channel funding “in cascade”. Funds are distributed to cluster organisations BOTH for financing facilitation of cooperation/other services AND for financing cooperative RDI projects (at least 50% of the budget).

In all cases, co-financing from the cluster initiatives (from private

sources/industry partners, or from other regional sources) was required. The amount of co-financing required from the cluster initiatives varied quite greatly (from low amounts in NW England up to 50% in many other cases). Interestingly, there does not seem to be any common relation between type of activity financed and the level of co-financing required. For example, both NWDA and Baden Württemberg only finance cluster organisations (for facilitation of cooperation and other services); however, co-financing levels are low in NW England, and 50% in Baden Württemberg. In addition, in Pomerania, co-financing requirements are highest (35%) for technology networks/embryonic clusters (where main activities are network coordination, etc.), and lowest (16%) for potential world-class clusters (where main activities are collaborative RDI projects).

The case examples all had a similar purpose for conducting the evaluation (i.e. to prove or provide evidence of impact of the individual cluster initiatives and cluster programme). Some used project evaluations to determine future funding of cluster initiatives.

How to address the causality problem?

Proving **causality** is an issue. However, several cases presented approaches for providing evidence of causality (see Cases #3, #4, #6, #7).

Table 4: Evaluating Impact – purpose, communication and causality

CASE EXAMPLES	PURPOSE?	TO WHOM REPORTED?	ADDRESSES CAUSALITY?
1. Upper Austria, AT	To measure success of the cluster initiative	(CI) owners, board and regional government	Not specifically
2. Baden Württemberg, DE	To measure the standard indicators for structural funds	-	-
3. NW England	To meet grant funding agreements that NWDA has with the RCOs.	NWDA has to make reports and evaluations on individual projects available to BIS. NWDA activities are also monitored by the Government Office for the Northwest.	The PWC evaluation (see below) addressed causality in two ways: combined quantitative and qualitative indicators to evaluate impacts of the cluster programme, and reported the impacts and benefits as a range of figures (rather than a single number) to illustrate the potential leverage effects. ISSUE: no reference case showing effects without an intervention.
4. Flanders, BE	Individual project evaluations are used for decisions on funding renewal; programme evaluations are used to measure programme results/effect and impact	Project follow-up is done by project leaders and reported to IWT; programme evaluations are conducted by external consultants and reported to IWT	Causality is not addressed at project level; on programme evaluations, consultants often include „reference“ groups of companies (that have not received innovation support offered by COs)
5. Pomerania, PL	An impact assessment and evaluation of the programme (in 2012) will be purchased from an external service provider in order to legitimate the regional policy.	The management board of Pomerania voivodship	Causality will have to be addressed by the contractor of the impact study

CASE EXAMPLES	PURPOSE?	TO WHOM REPORTED?	ADDRESSES CAUSALITY?
6. Schleswig-Holstein, DE	The regional programme has only been measured once (in 2008) to justify public investments, measure the leverage effect, provide information about the status of development of cluster management and of the cluster, and as a basis for decision on renewed programme funding.	Results have been reported to the Ministry of Schleswig-Holstein.	Based on membership satisfaction analysis and additional measurements, there was clear evidence about the leverage effect and to which degree the cluster firms benefited (according to their degree of involvement).
7. Regions of Dalarna, Gävleborg, Värmland, SE	Annual surveys are used to track the contribution of the cluster initiative to cluster firms, as well as the development of the cluster – in order to evaluate the impact of regional investments. Results are also used by politicians to help prioritise regional development support.	Results are used by universities, cluster initiatives, regional authorities, politicians and decision-makers...both for internal purposes and to attract external visibility. Results are also submitted to DG Regio, DG Enterprise, and DG Research	Annual „generic controls“ (comparisons against a control group) indicate that companies who were subject to the intervention tended to grow faster than companies from the same sector of activity which were NOT subject to an intervention. www.regionvarmland.se/slim
8. Lower Austria, AT	Bi-annual surveys aim at evaluating satisfaction with services and self-evaluation of companies of economic impact of COs A macroeconomic impact study (2005) aimed at studying indirect returns of collaborative projects initiated in the cluster	Regional Government of Lower Austria (Dept of Economy, Tourism and Technology)	
9. Wallonia, BE	Support and Monitoring committees meet twice annually to assess leverage effect of public cluster funding	The Walloon Region	

CASE EXAMPLES	PURPOSE?	TO WHOM REPORTED?	ADDRESSES CAUSALITY?
10. ACCM, AT	Measurement performed to guarantee high standards, outstanding research activities and a renowned position in the international economic and scientific community	Austria (national level) and Upper Austria governments	
11. Pôle Programme, HU	The aim is to analyse the economic and sociological impacts and advantages of cluster cooperations – as well as to find areas of future cluster policy.	Management Authority of the Economic Development Operational Programme and Hungarian Economic Development Centre	This is a critical issue, and – until now – no solid methodology has been worked out.
12. VINNVÄXT, SE	Project evaluations (of CIs) are used to decide on continued funding and to feed into the CIs strategic plan for the next (3yr) period. Programme evaluations are used to determine impact, and to make adjustments to the programme.	Project evaluations are reported to the VINNVÄXT programme management and programme board; VINNOVA's GD decides on funding for the next 3yr period.	
13. Pôle de Compétitivité, FR	Annual scoreboards and triennial evaluations help monitor results for each pôle and for the cluster policy as a whole.	The evaluations are reported to the Ministry of Industry (DGCIS) and to the Ministry of Territorial Equality and Housing (Interministerial Delegation for Territory Attractiveness)	
14. Innovation Programmes, NL	Evaluations look at the development of the sectors supported in the programme	Annual monitoring data to parliament, evaluation (every 4-5 years) as well	Evaluations look at circumstantial evidence; ask programme beneficiaries what are the effects on their firms

Just as the cases illustrated different approaches for identifying regional strongholds, the cases also illustrated different approaches for measuring the impact of public cluster funding:

- Some project and programme evaluations included an **analysis of the leverage effects** as a way to address causality and prove impact (see Cases #3, #6, #7 in progress).
- Some project and programme evaluations **compared cluster firms' performance against a control/reference group of firms** (that were not a part of the cluster initiative) to illustrate impact (see Cases #4, #7, #8).
- Some project (cooperative RDI projects conducted within cluster initiatives) and programme evaluations used a **self-evaluation approach – evaluating results against initial project objectives** (see Cases #4, #9).
- Most regional/national programmes have used (or are planning to use) **external contractors to conduct in-depth analysis (combining quantitative and qualitative indicators) and determine impact of the cluster programme** (see Cases #3, #9). This is done only every 3rd year (at most), or at the end of a programme.
- A unique approach developed by Region Dalarna, Region Gävleborg and Region Värmland (Case #7). The method “**Care of Measuring Cluster Effects**” has been tested in the project Sustainable Leadership and Innovative management (SLIM), 2007-

2012. The method is the **combination of three different methods of evaluation of cluster funding to catch the causal chain and the impact in terms of regional growth**. This is a combination of qualitative and quantitative methods. *The following additional details provided by Staffan Bjurulf/Project Manager SLIM (Karlstad, May 2012) give more explanation on their triangulation method:*

To try to catch the causal link between the intervention and the outcome the new method combines three different designs: shadow controls with a questionnaire to the cluster companies annually; generic controls with a comparison to a group of companies not involved in the intervention; process tracing with the goal to explain why the cluster companies sell more and the connection to activities managed by the cluster organisation.

The method is based on some important points of departure:

- 1) There should be a clear discernment of the group, which is part of the intervention, in our case the members of a cluster initiative. It is recommended to discuss how this group of companies is involved in the intervention. Does the cluster organisation make a difference? To find out the possible difference with the intervention, an economical analyse of the companies in the start of the intervention is useful. This analyse could later on be complemented with analysis of the effects on the companies involved in the intervention.
- 2) When there is the goal to catch the causal link and try to understand the impact of the intervention it is probably not suf-

efficient to use one evaluation design, maybe not two designs either. Therefore we combined, in the SLIM-project, three different designs in a mixed method approach. The first two designs “shadow controls” and “generic controls” are used to catch the impact of the intervention, which also apply to the counterfactual impact question. What would the outcome have been in the absence of the intervention? The third design “process tracing” tries to open up “the black box” by tracing the activities and the difference of being part of a cluster initiative compared to stand outside, not being involved in the dynamic activities and the social network. In our case, we get the explanations of why being member of a cluster initiative leads to better business effects.

- 3) To incorporate the learning perspective and using the evaluation and the results as important strategic information contributes to sharpen the strategic work and enhance the leadership among the cluster managers. The experience from the SLIM project is, **it changed attitudes towards evaluation as an investment instead of a cost.** The method builds on a learning loop with an annual evaluation of the cluster companies in a region or a country, where the results is reported back and reflected in the steering board of the cluster organisations. From the reflections new strategies should be set, new activities organized and again evaluated a year later.

- 4) The development programmes on regional, national or EU-level, should have a long perspective, where the projects should be allowed to run between three to five years in order to generate impact. The experiences from SLIM-project showed that the cooperation between the cluster companies and the students of Karlstad University improved the possibilities for the students to get the first job. There are also clear indications from the evaluation that the cooperation between the researchers and the entrepreneurs enhance the competitiveness. That leads to an increased innovation capacity with new products and services as results from the cooperation.

All cases used a combination of qualitative and quantitative indicators. Qualitative indicators included satisfaction levels of cluster actors, and (in a few cases) indicators of social dynamics/cooperation levels within the cluster initiative. Quantitative indicators included both indicators of economic performance and indicators of cluster initiative activities.

International benchmarking was not possible – unless common cluster definitions, surveys and analytical methods are adopted. Regardless of the approach used, most regions/countries still struggle to find appropriate approaches to determine impact and causal chains of cluster policies/programmes.

3. Overview of cases and indicators used

This section intends to structure the practical cases received by TAC-TICS, Reflection Group and ECA-members. It should give the reader an overview on the cases and should help to find the appropriate case.

Table 5: Overview of cases

CASE No.	WHAT level? 1 - cluster Management 2 - coop RDI project 3 – cluster policy/programme			WHY? and WHEN? 1 - Ex-Ante 2 - Interim / accompanying 3 - Ex-Post			HOW? (Methodology)
1. Clusterland Upper Austria, AT	1				2		<ul style="list-style-type: none"> Look at overall picture; don't focus on individual indicators;
2. Cluster Policy Baden-Württemberg, DE			3	1	2		<ul style="list-style-type: none"> Success factors were used for evaluation of cluster competition; Standard indicators for Structural Funds are monitored, but allow conclusion on impact to a small extent Qualitative evaluation of the impact is planned
3. NWDA Regional Cluster Programme, NW England, UK			3	1	2	3	<ul style="list-style-type: none"> Regional cluster organisations submit quarterly and annual reports on their activities and performance measures. Data of the annual measurement assessments is compared against the forecast for the years, and also to previous years if applicable. The NWDA cluster development programme (2002-06) was evaluated by a consultancy, based on the data from the available annual reports from the cluster organisations and questionnaires that

CASE No.	WHAT level? 1 - cluster Management 2 - coop RDI project 3 – cluster policy/programme			WHY? and WHEN? 1 - Ex-Ante 2 - Interim / accompanying 3 - Ex-Post			HOW? (Methodology)
							<p>were sent to members and network partners of the cluster organisations by the auditor.</p> <p>The consultant used standard statistical methods to test validity of results.</p> <p>The resulting cost to benefit ratio was calculated to be between 1:2 and 1:27 (agency cost : benefit).</p>
4. Self Evaluation of Competence Research Centres, IWT Flanders, BE	1	2			2	3	<ul style="list-style-type: none"> Project level: each funded project present mid-term (2year) and end of project (4 year) results and effects. When applying for new project funding, this result (track record) is one of the evaluation criteria. Competence Research Center: Self-evaluation methodology based on 1. individual project's logical framework analysis, 2. Defining indicators, 3. Information collection plan and collecting, 4. Analyses of data and 5. Conclusions and reporting. Programme level: irregular (about every 4year) IWT orders studies by external consultants to measure programme result/effect and impact.
5. Cluster-based policy in Pomerania Region, PL			3	1	2	3	<ul style="list-style-type: none"> Regional authorities currently collect data on impact (including data on amounts granted to cluster actors, revenues, exports, employment, etc.) as part of the programme monitoring system. They are particularly interested in knowing about the types of support instruments to which clusters apply most often, and how this support improves their performance.

CASE No.	WHAT level? 1 - cluster Management 2 - coop RDI project 3 – cluster policy/programme			WHY? and WHEN? 1 - Ex-Ante 2 - Interim / accompanying 3 - Ex-Post			HOW? (Methodology)
							<ul style="list-style-type: none"> First impact assessment of programme in 2012. It is not yet clear how indicators will be measured, how data will be collected, nor how it will be analysed. An external contractor will be hired.
6. Food Cluster North Germany, Schleswig-Holstein, DE	1				2		<ul style="list-style-type: none"> Membership analysis and additional face-to-face interviews (to supplement/verify)
7. Cluster Evaluation, Regions of Dalarna, Gävleborg, Värmland, SE							<ul style="list-style-type: none"> „Power Measurement“ Consultants provided yearly assessment reports on cluster development in the regions. The results were used to attract the attention of universities outside the regions and relevant national players in Stockholm. Annual measurements are now being extended to include the effects of social interaction that binds together the cluster actors. Impact study aims at triangulating „Generic controls“ (comparing against a control group), „Shadow controls“ (surveys with company leaders), and process tracing – in order to understand which were critical activities and how they contributed to positive results.
8. Cluster Programme, Lower Austria, AT	1	2	3				<ul style="list-style-type: none"> Macroeconomic impact study on indirect returns of collaborative projects initiated in cluster initiatives (2005) Bi-annual surveys: Companies' satisfaction with services from cluster management and companies' self evaluation

CASE No.	WHAT level? 1 - cluster Management 2 - coop RDI project 3 – cluster policy/programme			WHY? and WHEN? 1 - Ex-Ante 2 - Interim / accompanying 3 - Ex-Post		HOW? (Methodology)
						<p>of economic impact of support from cluster management.</p> <ul style="list-style-type: none"> Balanced scorecard (introduced in 2009) includes indicators related to economic policy objectives, improvement of membership, cluster organisations' performance and learning objectives of cluster organisation.
9. Competitiveness Poles, Wallonia, BE		2	3			<p>Support and Monitoring committees meet twice annually to assess leverage effect of public cluster funding and formulate recommendations for adapting the projects.</p>
10. ACCM (Austrian Center of Competence in Mechatronics), Upper Austria, AT		2				<ul style="list-style-type: none"> Yearly measurements on economic and scientific indicators. As well as mid-term reviews done by a high-level group. Data is analysed in comparison to predicted/expected values (on the basis of the application form)
11. Pôle Programme, HU			3		2	<p>The methodology (elaborated in 2010) includes:</p> <ul style="list-style-type: none"> collection of data from selected clusters, personal interviews with selected cluster managers and company leaders, and analysis of the socio-economic effects of cooperation and of the cluster initiatives <p>The Hungarian Economic Development Centre will analyze and evaluate the data from each cluster initiative on a longitudinal basis – both on the individual</p>

CASE No.	WHAT level? 1 - cluster Management 2 - coop RDI project 3 – cluster policy/programme			WHY? and WHEN? 1 - Ex-Ante 2 - Interim / accompanying 3 - Ex-Post			HOW? (Methodology)
							<p>cluster level and on the aggregate level. The aim is to measure the total economic significance of clusters compared to the total national economy in terms of revenues, R&D expenditures and employment.</p>
12. VINNVÄXT Programme, VINNOVA – Sweden		2			2		<ul style="list-style-type: none"> Cluster initiatives submit activity reports every 6 months and more detailed annual reports (including both qualitative and quantitative indicators) In addition, evaluations (conducted by two external international panels – one panel of experts within the specific sector, and one panel of general cluster experts) are conducted every 3rd year – and these determine continued funding (up to 10 years). These are also inputs to the cluster initiatives strategic plan they have to submit for the coming 3-year period.
13. Pôles de Compétitivité Programme – France	1	2	3	1	2	3	<ul style="list-style-type: none"> Each pôle enters into performance contracts with the government. Statistical follow-up tools help the pôles and collaborative RDI projects to monitor results. Independent consultants conduct audits every 3rd year to determine performance relative to contract agreement.

CASE No.	WHAT level?			WHY? and WHEN?			HOW? (Methodology)
	1 - cluster Management	2 - coop RDI project	3 - cluster policy/programme	1 - Ex-Ante	2 - Interim / accompanying	3 - Ex-Post	
14. Innovation Programmes in the Netherlands	1			1	2	3	<ul style="list-style-type: none"> Ex-ante evaluation by the strategic advisory council at least once. Annual monitoring the innovation programme (no. of participants, total sum of R&D efforts within the programme). Every 4-5 years in depth evaluation; Evaluations look at the development of the sector supported in the programme and the performance of the programme as such.

Summary of indicators in use extracted from the cases received:

Table 6: Indicators

CASE No.	INDICATORS
1. Clusterland Upper Austria, AT	<p>More than 85 indicators (qualitative + quantitative) on three levels:</p> <ul style="list-style-type: none"> Cluster initiatives' activities, Member satisfaction, Self financing degree
2. Cluster Policy Baden-Württemberg, DE	<p>Success factors:</p> <ul style="list-style-type: none"> Benefit for stakeholders, businesses and the region (in terms of results and outcomes on Innovation capacities and competitiveness of companies and sustainability of the region) Innovative Character: technical, organisational, societal or process oriented? Benefit for the employment and location development Impacts on the value chain in relevant markets Intent to collaborate Regional Consensus

CASE No.	INDICATORS
3. NWDA Regional Cluster Programme, NW England	<p>Criteria to be used to identify appropriate sectors for the cluster development programme:</p> <ul style="list-style-type: none"> • Significant in terms of regional GVA? • Significant in terms of GVA per FTE? • Sub-sectors with Global growth potential • Internationally tradable • Strong cross-sector potential • Amenable to intervention • Nationally/Regionally significant <p>Indicators are a combination of activity indicators (e.g. # of network events, attendance, # of newsletters, etc.) and impact indicators (e.g. GVA, employment, etc.).</p> <p>There has been discussion about repeating the qualitative survey (auditor) on an annual basis, and about using the Cluster Dynamics model developed by Scottish Enterprise.</p>
4. Self Evaluation of Competence Research Centres, IWT Flanders, BE	<ul style="list-style-type: none"> • Self –evaluation of competence research centres based on logical framework analysis (LFA): Do the activities contribute to the objectives and eventually to the mission? Are all the objectives supported by activities? In other words, is there a programme logic? • Indicators are proposed by the cluster initiative (based on their particular operational targets and objectives). • IWT compares results against initial project objectives.
5. Cluster-based policy in Pomerania Region, PL	<p>Programme monitoring:</p> <ul style="list-style-type: none"> • Data on amounts granted to relevant beneficiaries (cluster actors) • Revenues, exports, employment, etc. <p>The programme evaluation (first time 2012) will cover a broad span of indicators (see case) including:</p> <ul style="list-style-type: none"> • Economic indicators (like income, exports, employment) and innovation indicators for enterprises in clusters, especially in the potential world-class cluster category (plans for a system to monitor this data are being developed). • Number of actors in potential world-class clusters in the following categories: enterprises, R&D units, business support organisations, self-government organisations • Scope of activities and projects in potential world-class clusters, implemented by cluster organisations, cluster members alone and in consortia • Number of collaborative projects, including knowledge and technology transfer projects • Scope of activities performed by cluster organisations • Number of cluster actors receiving services from cluster organisations

CASE No.	INDICATORS
6. Food Cluster North Germany, Schleswig-Holstein, DE	A broad spectrum of data (around 40 indicators) are used: in the areas of cluster management performance, and how cluster firms have benefited
7. Cluster Evaluation, Regions of Dalarna, Gävleborg, Värmland, SE	<ul style="list-style-type: none"> • „Generic controls“ (comparing against a control group) • „Shadow controls“ (surveys with company leaders) • Process tracing • Increase in sales and cooperation, developing new products and services • Employment rate <p>350 company leaders in 12 clusters were surveyed on whether being part of a cluster had increased the growth of the company (called „shadow controls“).</p>
8. Cluster Programme, Lower Austria, AT	<ul style="list-style-type: none"> • For self-evaluation of cluster companies: turnover, employment rate, R&D rate. • For economic policy objectives: turnover development, labour market development, level of qualification, international visibility • For membership improvement: # of active cluster partners, # of product and system solutions developed, rate of participation in competence-enhancing initiatives, rate of participation in productivity- enhancing initiatives. • For cluster organisations performance objectives: # of newly commissioned focus topics, # of leading projects initiated, rate of participation in collaborative projects initiated in cluster initiatives, # of documented success stories among cluster projects, members' satisfaction. • For cluster organisations learning objectives: quality of organisational standards, member satisfaction, #of cross-organisation/ overlapping projects
9. Competitiveness Poles, Wallonia, BE	<ul style="list-style-type: none"> • A broad range of indicators are considered, including:# of new enterprises, # of patents, # of international partnership agreements, etc.
10. ACCM (Austrian Center of Competence in Mechatronics), Upper Austria, AT	<ul style="list-style-type: none"> • Economic indicators: no. of partners, turnover, no. of patents, etc. • Scientific indicators: no. of scientific publications, no. of dissertations and master theses, etc.
11. Pôle Programme, HU	<ul style="list-style-type: none"> • Indicators derive mainly from balance and P&L statements of cluster firms: e.g. Total revenues of companies; Added value of SME's; Net export revenues of SME's; Total R&D costs of the companies etc. • But also including strategies of cluster initiatives • Revenues, R&D expenditures and employment to measure the total economic significance of clusters compared to the total national economy

CASE No.	INDICATORS
12. VINNVÄXT Programme, VINNOVA – Sweden	<p>Selection criteria used to select VINNVÄXT projects/cluster initiatives were:</p> <ul style="list-style-type: none"> • The strategic idea and the growth potential • Future markets • Regional area of strength identified • Prerequisites and abilities to create new research-based knowledge and technology • Type and degree of renewal • Leadership in the region (involving the whole Triple Helix: the regional government, research actors within the cluster's field, and industry in the region) • Description and motivation of the geographical core/the functional region • Description of cooperation outside the region (both national and international) • Clear development steps – description of where the initiative stands today and in which way it is going to be developed <p>Status report annual and half year assessments includes qualitative data as mentioned above and quantitative indicators e.g.:</p> <ul style="list-style-type: none"> • Company growth • # of new companies • # of companies involved in cluster initiatives (3 categories depending on level of involvement) • # of patents • # of new products • # of research projects and # of involved researchers • # of researches in the region • # of scientific articles published • Level of employment (in the region)
13. Pôles de Compétitivité Programme – France	<p>Public scoreboards encompass indicators of research and technology activity e.g.</p> <ul style="list-style-type: none"> • Annual expenditures • # of employees involved in RDI projects • # of labeled projects • # of patents • Scientific publications <p>Indicators of involvement of actors and exports e.g.</p> <ul style="list-style-type: none"> • # of companies of different sizes involved in the pole • Employment and growth of the pôle relative to reference groups of companies • # of engineers and searchers working on projects
14. Innovation Programmes in the Netherlands	<ul style="list-style-type: none"> • Ex-ante criteria: international excellence, contributions to economy and society, innovation barriers, effectiveness of overall plan. • # of participants and total sum of R&D expenditures (public and private) within a programme.

Conclusions/Recommendations

4.1 CONCLUSIONS

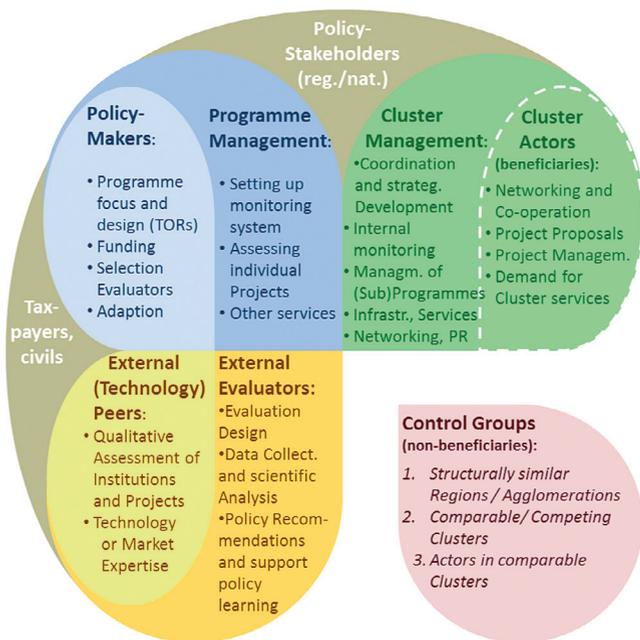
Assessments of the socio-economic impact of cluster initiatives or programmes should not only demonstrate accountability and proof of legitimization of past actions. Such assessments also need to reflect the appropriateness of policy tools and provide information about future initiatives and the wider context in which a cluster initiative / programme has operated. The following paragraphs are dedicated to basic recommendations. They should be considered accordingly in the planning phase of planning and commissioning of cluster impact evaluations.

Key messages from the TACTICS group and RG-members towards impact evaluation:

- Evaluation methodology depends on which target group is asking for results!
- Evaluation has to be effective and beneficial to the different target groups!
- Evaluation indicators have to show results in an easy and understandable way!
- Evaluation is effective the better the target group, their respective target and the corresponding indicators are defined!

46 4.2 RECOMMENDATIONS

Figure 5: Parties and Stakeholders of Cluster Impact Evaluations



Source: Joanneum Research

RECOMMENDATION I

Consider in advance the involvement and role of the principal, parties, stakeholders and external experts:

Impact assessment includes a broad range of parties and stakeholders and therefore should be embedded in a collective process of policy learning considering actors' incentives, bias and partiality. Unlike single cluster initiatives, cluster policy programmes need professional programme management structures. The situation becomes even more complex in the case of those cluster programmes, which provide project funding for individual cluster actors.

As political or corporate interests often dominate cluster schemes (Andersson et. al.2004) the boundaries between policy agent, beneficiary and stakeholder become blurred. In some cases public bodies or business associations fulfil the tasks of the cluster management. As clusters are heterogeneous (including different actors at different levels of activity), beneficiaries of clusters are not readily identified.

- **In order to define the involvement of different actors carefully, the role of relevant players has to be considered in advance.**
- **Furthermore, different levels of commitment to the objectives of impact assessment should be considered.** In particular, the control group will show limited willingness to provide extensive information.

RECOMMENDATION II

Definition of the boundaries of the analysis - clear objectives and realistic expectations:

The definitions of the boundaries of the cluster and its periphery are essential for the specification of levels of analysis, the survey design and the selection of interview partners.

Superficial discussions of regional impacts of clusters focus on regional growth and employment. Shrinking budgets and intentions of new public management might cause a focus on “short term value for money”– and lead to a discussion of short-term employment effects. Cluster policy should have a long-term orientation and cluster impacts are multi-dimensional. However, exhaustive analyses of impacts along the functional chain of effects and of spin-off activities would be doomed to failure. Impact analyses need to focus on selected impact dimensions.

Recent debates focus more on how far clusters influence the regional milieu, knowledge creation, organisational learning and the broader context or regional structural change. Apart from economic impacts, impact analyses increasingly consider social, environmental or spatial impacts.

Policy makers frequently show exaggerated expectations. For policy makers to make informed decisions, **it is important to understand what works, why it works, and who benefits from the intervention. In other words:**

- **Policy makers need to learn more about the role of the cluster initiative and cluster organisation for the development and**

long-term position of the (regional) sectorial agglomeration (the natural cluster corresponding to the policy driven cluster).

- **Policy makers need to improve their understanding of the functional impact chain and the impacts of cluster activities in order to address major challenges of the (regional) sectorial agglomeration.**

RECOMMENDATION III

Qualitative analysis supported by quantitative arguments

It is essential to clarify at an early stage of the process of impact evaluation, which methods should be used and under which circumstances they should be used.

Inspired by experiences of econometric impact analysis of labour market and qualification policies a lot of attention is attached to econometric impact analysis by policy makers. However, reaction times as well as time lags between output and impact as well as the complex and systemic nature of clusters imply that at any given time only relatively few activities will show clearly measurable (quantitative) impacts. Traditional econometric impact analyses concentrates on individual agents and hence miss the importance of cluster development and the collective competitive advantage. **As impacts are context specific and should include both, intended and unintended effects their analysis and discussion requires an individual approach. Mechanistic approaches are largely inadequate.**

Because clusters are complex systems, the impacts of policy interventions are not normally reflected in linear changes in the target

variable, nor can they be isolated in terms of exogenous factors such as cyclical fluctuations. Substitution effects and crowding out hamper the determination of net impacts of interventions. **These effects can only be analysed by complex qualitative primary research, such as expert or actor interviews.**

The required methodologies should reflect a mix of quantitative and qualitative analytical approaches, and behavioural effects also need to be addressed, however qualitative analyses form the backbone of cluster impact analyses. The analysis of policy logic and context provide essential groundwork for the design and interpretation of empirical analyses.

RECOMMENDATION IV

Resources and sufficient funding for impact assessment

In the sense of a reasonable balance between policy intervention (public funding) and the costs associated with policy evaluation and impact assessment the costs, scope and limits of methodologies should be considered.

- **In the case of smaller cluster initiatives, impact analysis therefore will be clearly dominated by qualitative elements of analysis (logic chart, context analysis, expert assessment and case studies).**
- **Econometric counterfactual impact analyses are applied primarily in the context of larger cluster programmes.**

RECOMMENDATION V

Impact analysis starts in the phase of agenda setting and policy formulation, but not with measuring long-term effects in the remote future.

According to the availability of data (qualitative /quantitative), it should be interpreted as continuously accompanying exercise. Impact analyses complement the evaluation of the implementation. It builds on previous evaluations (ex-ante, interim etc.) but is no substitute for them.

Primarily referring to the outcome level, the integration of elements of impact evaluation in interim and ex-post evaluation could sharpen underlying impact chain.

- **Ex-ante, interim and ex-post evaluation could provide data groundwork for later impact analysis. Therefore, basic issues of data collection should be clarified at the design stage.**
- **With regard to subsequent counterfactual econometric analyses, the basic data frame should build on generally accepted definitions of indicators.**
- **All concerned stakeholders should be involved into the indicator identification process.**

4.3 NINE STEPS - CHECKLIST

The nine steps for policy makers to set up an evaluation process of cluster-related policies were composed under consideration of the workshop results, task force key messages and policy recommendations.

Table 7: Nine steps - evaluation process

Nine Steps of the Evaluation Process	Short Description
<p>1. Identifying the evaluation focus</p> <p>WHAT? (What kind of support do we evaluate?)</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Clarification/identification of the policy target/problem (supported by policy doc., external analysis, problem tree etc.) <input type="checkbox"/> Identification of the evaluation level: <ol style="list-style-type: none"> 1. Cluster management level (=Cluster organisations) 2. Project level (=Particular cooperative RDI projects) 3. Cluster policy/programme level (= the overall impact of public investments in cluster-based policies and programmes) <input type="checkbox"/> Identification of relevant context factors (supported by previous evaluations, monitoring etc.)
<p>2. Definition of the evaluation perspective</p> <p>WHY?</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Ex-ante evaluation: definition of policy objectives <input type="checkbox"/> Interim, accompanying evaluation: review and adjustment of the policy objectives and policy logic <input type="checkbox"/> Ex-post evaluation: review and renewal of the policy objectives and policy logic objectives and policy logic <input type="checkbox"/> Ex-post evaluation: review and renewal of the policy objectives and policy logic

3. Consider when do we need to evaluate what?

WHEN?

Depends on the evaluation perspective, the WHY? (step 2).

- Ex-ante Evaluation > **Inputs, Activities, Outputs, Outcomes, Impacts**
 - During the creation phase of new policies/programmes and before implementation
 - For checking whether the planned measures correspond to the needs and
 - Feasibility of activities, outputs, outcomes/impacts (whether the measures are practicable and if the objectives are realistic and achievable).
- Interim, accompanying evaluation > **Inputs, Activities, (Outputs)**
 - During implementation on regular basis
 - For checking whether inputs, activities and early outputs are according the plan
 - For optimising of the implementation process and adjustment of the policy objectives and policy logic
- Ex-post Evaluation: > **Inputs, Activities, Outputs, Outcomes, Impacts**
 - Review and renewal of the policy objectives and policy logic

4. Define the subject(s) of evaluation

WHO?

- Define who gets analysed? (set boundaries)
- Choice of assessment approach (e.g. economic, environment, spatial, cultural and /or social impacts)
- Formulate terms of reference (= extent) of the evaluation

5. Set up an accepted evaluation team

WHICH TEAM?

- Identification of process owner (steering group), evaluators (scientific partners), stakeholders (advisory board)
- Consider technical capabilities and expertise
- Consider role conflicts and reasons for exclusion

6. Methodology, policy and impact evaluation exercise

HOW?

- Definition of the methodological framework and working plan
- Information of relevant parties about the evaluation and main objective
- Impact Analysis (Analysis of outcomes and impacts)
 - Identify (direct and indirect) economic, social and environmental impacts and how they occur (causality).
 - Identify who is affected (including those outside the EU) and in what way.
 - Assess the impacts (if possible against the baseline) in qualitative terms (Experts/ Peers, Case Studies etc.) and (if possible) in quantitative terms (counterfactual).

7. Conclusions and recommendations

LESSONS LEARNED?

- Summary, discussion (with relevant parties and advisory board) and reflection of results
 - If feasible, display aggregated and disaggregated results
 - Identification of policy challenges, consider the risks and uncertainties in the policy choices
 - Weigh-up the positive and negative impacts on the basis of criteria clearly linked to the objectives.
- Formulation of policy recommendations (addressing main subjects and target groups)
- Documentation (evaluation report and lessons learned)

2. Policy reaction and adaptation

BENEFIT FROM THE RESULT?

- Communication of evaluation results
- Formulation of policy objectives
- Adaptation of the policy logic
- Exploitation of evaluation results for marketing & branding purpose as attractive add-on to sometimes time-consuming evaluation exercises. It valorises the evaluation results and rewards the people concerned.

3. Implications on monitoring and future evaluations

DATE FOR NEXT EVALUATION?

- If necessary, adaptation of the monitoring
- Create positive image for evaluation. Change the image from time consuming/inconvenient to a process that pays.
- Scheduling follow-up evaluation

Annexes

Annex I: ECPG Recommendations on Raising the Excellence of Clusters and Cluster Organisations

INTRODUCTION

After many years of efforts (at Member State and EU levels) to develop clusters, the challenge today is to enhance the competitiveness and sustainability of existing and new clusters and foster their transformation into dynamic clusters with global reach.

Promoting cluster excellence by measuring and benchmarking cluster performance and the quality of cluster organisations is already an accepted practice. In addition, scientific-based approaches and methodologies are currently used to develop strategies and monitor progress of cluster initiatives. The third task of the European Cluster Policy Group was aimed at formulating recommendations on how to raise the excellence of clusters and cluster organisations.

RECOMMENDATION 1

Offer Tools for Enhancing Excellence of Cluster Management

Justification

Even though clusters are natural phenomena and exist without organised cluster management, there are clear benefits to organising efforts within and between clusters in a more strategic manner. Cluster organisations function as “motors” to cluster initiatives – responsible for catalysing and facilitating action within and between cluster initiatives. Cluster organisations/managers represent an important stakeholder group, and efforts should be made to ensure that this group is stimulated with appropriate tools to ensure professionalism and continued

improvements in practices. The ECPG acknowledges the European Cluster Excellence Initiative’s (ECEI) ongoing work to increase the excellence of cluster management through training, quality indicators, and peer assessment, and recommends a number of actions to build on the work of this project.

Suggested Actions

- 1.1. The European Commission and Member States should develop a methodological framework for benchmarking cluster organisations (based on existing benchmarking methodologies) to be used as a voluntarily tool by clusters to improve their competitiveness. Benchmarking should not be used as a pre-selection criteria for allocating EU funds (FP, structural or CIP).
- 1.2. The European Commission should ensure that training needs are addressed through the ECEI’s development of a range of training modules – targeting cluster management on different levels of expertise. (Additional customisation of training – addressing differentiated issues on a sectoral level – could be considered.)
- 1.3. The European Commission should organise a European Cluster Summit on a yearly basis (similar to the European Open Days, conceived by DG Regio and the EU Committee of the Regions), where different stakeholder groups (e.g. cluster companies, cluster managers, regional authorities, venture capital and other financial institutions, etc.) could meet, and where a European Cluster Excellence award could be given.¹ Such a summit could address topics other than international cooperation.

¹ A tradition for such an action has been started through the first European Cluster Conference 2010.

54 RECOMMENDATION 2

Provide Comparable Data on Cluster-specific Framework Conditions² and Methods for Evaluating Effectiveness of Cluster Programmes

Justification

Today, there is very limited comparable data on clusters – and even more limited comparable data on cluster-specific framework conditions. Different stakeholder groups have different needs and uses for data on clusters and cluster-specific framework conditions. Policy-makers have needs for understanding the general profile and economic geography in Europe, for assessing and evaluating specific clusters, and for assessing the effectiveness/impact of public actions in support of clusters. Cluster initiatives have needs for understanding strengths and weaknesses, and relative positioning (in their particular fields). Companies have needs for assessing investment and partnership opportunities in specific clusters.

To respond to the lack of limited comparable data on cluster-specific framework conditions and methods for evaluating effectiveness of cluster programmes, a number of actions are suggested.³

Suggested Actions

2.1. The European Commission should launch pilot projects (within

the context of the European Cluster Observatory) on identifying and collecting data on cluster-specific framework conditions in 2-3 cluster areas where the Commission is currently running programmes (e.g. aerospace, biotechnology, expansion of the BSR InnoNet pilot life science study, etc.). These pilot projects should:

- a. Access a more heterogeneous set of data indicators
 - b. Still focus on publicly available data
 - c. Focus on indicators that can help policymakers prioritise among various cluster support schemes.
- 2.2. The European Cluster Observatory should engage (through voluntary self-assessments) cluster organisations in the benchmarking activities (mentioned in 2.1 above) to provide more in-depth data to the ECO where public data is not available.
- 2.3. The Commission⁴ should launch an EU-level working group on impact assessment aimed at:
- a. sharing experiences from evaluating cluster programmes at MS level
 - b. making better use of impact assessment data collected in reports for EU-financed projects (e.g. Cluster-IP, Regions of Knowledge, etc.), and
 - c. creating an approach for integrating data from different sources (e.g. economic outcomes/statistics, cluster-specific framework conditions, cluster initiative benchmarking)

² This recommendation is related to “provide data on the real cluster landscape”, proposed in the policy recommendations for “Better Support to International Cluster Cooperation” (theme #1).

³ A related document with suggested actions on this topic is the policy paper “Recommendations on how to work with fact-based cluster policy in the future”, submitted to DG ENTR as a conclusion to the ECA working area “Measuring the Economic Impact of Cluster Policies”, led by FORA on behalf of the BSR InnoNet project.

⁴ Supported by the TACTICS task force on “Evaluating Cluster Excellence”.

RECOMMENDATION 3

Promote Policies for Improving Cluster-specific Framework Conditions

Justification

The excellence of clusters and cluster organisations is supported not only by specific activities to strengthen cluster management and strategic orientation, but perhaps more importantly by strong framework conditions.

Framework conditions are important for the emergence, growth, excellence (and decline) of clusters. If clusters are already in place, certain specific activities (such as strengthening cluster management and strategic orientation, ensuring human capital is reinforced and social capital promoted, etc.) can help clusters to grow, internationalise, excel, etc.

However, these specific activities or policies for improving cluster-specific framework conditions can only be designed based on a prior assessment of characteristics, functioning and performance of various types of clusters in order to take into account the specific needs of the sector/industry in which a cluster operates.⁵ Depending on the identified needs, the cluster-specific mix of policy instruments (e.g. to enhance the level of linkages and mutual trust, to promote international linkages, demand-side policies, training policies, etc.) can be designed.

Given regional characteristics of clusters and clusters' diversity, cluster-specific policy instruments should be designed "bottom-up" in order to be effective – with EU-level policy action only adopted where there is strong evidence of significant added value.

Suggested Actions

To improve cluster-specific framework conditions, Member States should:

- 3.1. Identify and collect data by cluster area, enabling the analysis of cluster-specific framework conditions.
- 3.2. Identify which business environment conditions are of particular importance for specific cluster areas in order to improve policy measures in support of clusters.
- 3.3. Measure the impact of policy measures enhancing cluster-specific framework conditions not only on cluster companies' performance, but also on the broader impact (through increased productivity and innovative capacity) on regional/national economy.
- 3.4. Propose the establishment of an EU-level working group to develop an analytical framework for identifying the dynamics in the process of social capital formation on the basis of which the instruments/policy measures for increasing social capital within clusters could be effectively designed.

⁵ See Recommendation #2 of the same theme, above.

Annex II – Case Examples⁶

CASE 1: CLUSTERLAND UPPER AUSTRIA – INNOVATION THROUGH COOPERATION – OUR EVALUATION SCHEME

56

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

There was an initial basic study conducted

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

No. A strategic programme set the initiative.

3. Which amendments were undertaken and were they based on impact analyses?

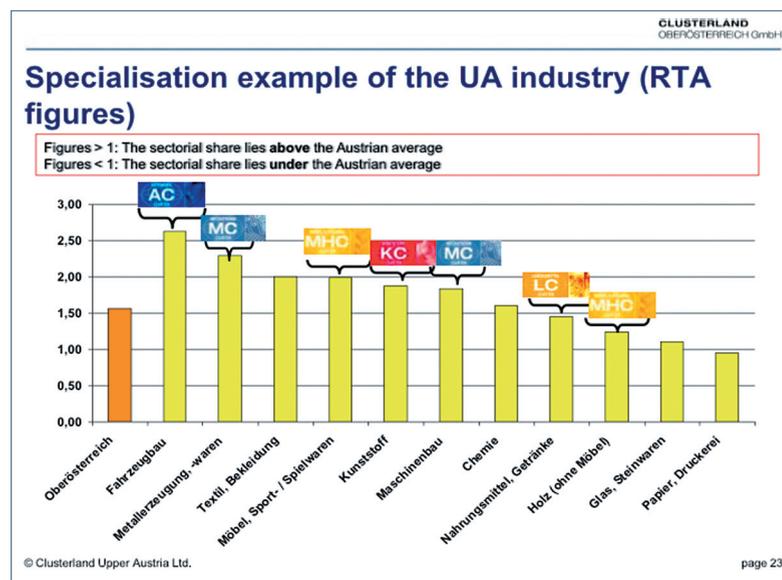
n.a.

4. What is the role of clusters within the regional smart specialization strategy?

http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/smart_growth/comm2010_553_en.pdf

Upper Austria's cluster strategy has been integrated in the regional strategic economic and research programmes since 1998. These programmes base on a kind of the nowadays so called smart specialisation approach.

⁶ All cases received have been incorporated in the paper "as is".



B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW
(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ⁷	Cluster organisation ⁸
Who is the recipient?	Companies – SME's and LE's	Cluster organisation
Who is the financing authority? - Regional or national level - Ministry or agency	Regional	Regional + national on specific projects
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)	Both	No
PRIVATE contribution to total budget	Yes: min. 70% (Public funding is 30% of eligible costs; for technology projects, max funding of €30k/partner; for organisational projects, max funding of €15k/partner and max €45k/project)	Yes: 66% private contribution in 2010 (specific clusters had about 80% private financing)

⁷ A cooperation project for a particular research or innovation activity

⁸ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

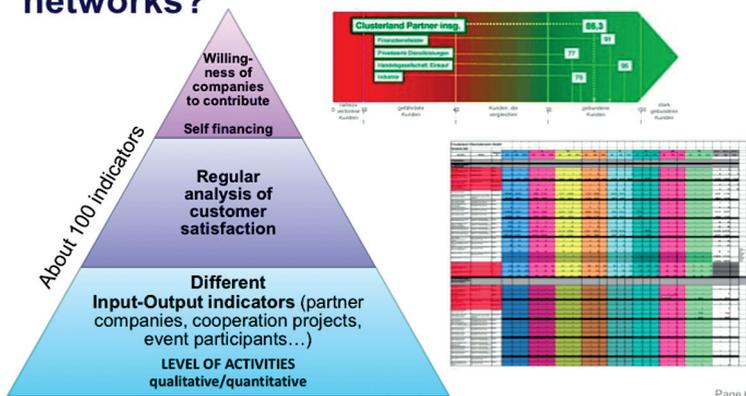
1. **How is it measured and how often?**
3 different levels of measurement:
2. **Why is it measured and to whom is it reported or what is the purpose?**
To measure the success of the CI. It is reported to the owners, board and regional government.
3. **How is the “causality problem” addressed?**
Not specifically

D. INDICATORS

1. **Which indicators do you (as policy maker) collect?**
More than 85
2. **How do you analyse the data?**
Get the overall picture and not focus on individual indicators
3. **Is it possible to compare this data on a European/international level?**
Probably just very limited.

CLUSTERLAND
OBERÖSTERREICH GmbH

How to measure success of clusters and networks?



To activate further regional innovation potential, the Ministry of Economics launched a competition for strengthening regional clusters in Baden-Württemberg in 2008. 36 submissions from all regions of the state covered a wide range of industries and areas of technology, including, for example, fields of competence such as microsystem technology, medical engineering, aerospace, packaging technology, biotechnology, automotive, surface technology, energy / environmental and nanotechnology. An independent jury chose 12 submissions considering many criteria and awarded a prize. This competition that was not limited to specific topics confirmed our expectations with regard to the high innovation potential of the partners in the region. In the cooperation to follow, this innovation potential can be extended further and have an even greater effect.

In 2010, the second round of the Regional Cluster Competition followed. 20 submissions were made, for example from the competence areas of health/tourism, nutrition, nanotechnology, satellite communication, aerospace, textile business and business-related services. 10 were chosen by a high-ranking jury.

About 5 million Euros from the European Structural Funds have been made available for regional cluster initiatives by 2013.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

Innovative products and services represent essential competitive advantages in a market that is more and more characterised by internationalization and globalisation. An indispensable prerequisite for innovations is intense cooperation between regional universities, research institutions and companies. Cluster initiatives enable this interdisciplinary exchange of knowledge and experience. Because of this, cluster policy takes higher and higher priority on a European, federal and state level. Development and strengthening of future-proof regional clusters gains more and more importance. In Baden-Württemberg, the Ministry of Economics considers cluster policy a key component of its innovation and economic policy.

2. Was an ex ante analysis carried out prior to the set up of the cluster strategy?

Yes, For the Ministry of Economics, experts of Prognos AG have defined sustainable target fields and recommended focusing its cluster policy on 18 target fields.

3. Which amendments were undertaken and were they based on impact analyses?

4. What is the role of clusters within the regional smart specialization strategy?

The role of clusters in Baden-Württemberg is: "Innovation clusters for regional growth"

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW**(needed as base information in order to understand your approach for measuring the impact):**

	(Temporary) Project Consortia ⁹	Cluster organisation ¹⁰
Who is the recipient?		Cluster Organisations
Who is the financing authority? - Regional or national level - Ministry or agency		Ministry of Economy Baden-Württemberg, European Structural Funds
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)		The actual management of cluster initiatives/organisations is funded in order to facilitate cooperation and provide services to the members
PRIVATE contribution to total budget	y/n	Yes (funding is about 50% from the Ministry. But the other 50% do not necessarily have to be private budget. Budget could also derive from other regional funds)

⁹ A cooperation project for a particular research or innovation activity

¹⁰ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

Success factors upon which the applications in the cluster competition have been evaluated were:

- Benefit for stakeholders, businesses and the region (in terms of results and outcomes on Innovation capacities and competitiveness of companies and sustainability of the region)
- Innovative Character: technical, organisational, societal or process oriented?
- Benefit for the employment and location development
- Impacts on the value chain in relevant markets
- Intent to collaborate
- Regional Consensus

1. How is it measured and how often?

- A qualitative evaluation of the impact will be undertaken. But it is not yet scheduled in detail.
- What's monitored are the standard indicators for Structural Funds. These allow conclusions in terms of evaluation of impact only to a small extend.

2. Why is it measured and to whom is it reported or what is the purpose?

-

3. How is the "causality problem" addressed?

-

D. INDICATORS

A qualitative evaluation of the impact will be undertaken. But it is not yet scheduled in detail.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

In the Northwest, the initial Regional Economic Strategy in 1999 identified 14 key sectors for economic growth out of the 30 which had been considered during the consultation process. Task and Finish groups of specialists in all 30 sectors were brought together to produce a short summary of their sector including a SWOT analysis, an assessment of future growth potential and an indication of what the sector would need from NWDA. The leaders of the Task and Finish groups then took part in a “Select Committee” panel interview where they gave additional details about the summaries. Other baseline data was collected mainly from published sources to inform the development of the Regional Economic Strategy. Several of the Task and Finish groups later formed the core of the Regional Cluster Organisation for the sector.

The 14 key sectors were divided into two groups; “Emerging” or “Target” sectors consisting of Biomedical (Life Sciences), Medical Equipment & Technology, ICT/New Media, Environmental Technologies, Financial & Professional Services, Creative Industries and Tourism, and “Established” sectors consisting of Chemicals, Textiles, Aerospace, Automotive, Mechanical & other Engineering, Food & Drink and Energy. The NWDA Cluster Development programme was set up to facilitate the growth of all 14 key sectors. Over the first few years of the programme there was an increasing focus on the parts of the Established sectors where there were particular strengths and growth opportunities for businesses in the Northwest region.

The priority sectors were revised in the 2003 RES and again in the

2006 RES. The current cluster development programme is focused on the priority sectors in the 2006 RES which are:

- Biomedical
- Energy & Environmental Technologies
- Advanced Engineering & Materials (Chemicals, Aerospace, Automotive and Advanced Flexible Materials)
- Food & Drink
- Digital & Creative Industries
- Financial & Professional Services

A major review of the cluster development programme was completed in 2006 by the consultancy, CSES. This review made a number of recommendations which were implemented in the revised AMAs with the Regional Cluster Organisations which applied from April 2006. The review developed a series of criteria to be used to identify sectors for which the cluster development programme would be appropriate. These were used in the 2006 RES.

- Significant in terms of regional GVA
- Significant in terms of GVA per FTE
- Sub-sectors with Global growth potential
- Internationally tradable
- Strong cross-sector potential
- Amenable to intervention
- Nationally/Regionally significant

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

The initial Regional Economic Strategy in 1999 included performance indicators and targets for 2003 and 2006.

3. Which amendments were undertaken and were they based on impact analyses?

A major review of the cluster development programme was completed in 2006 by the consultancy, CSES. This review made a number of recommendations which were implemented in the revised AMAs with the Regional Cluster Organisations which applied from April 2006. The review developed a series of criteria to be used to identify sectors for which the cluster development programme would be appropriate. These were used in the 2006 RES.

The criteria are for the sector to be:

- Significant in terms of regional GVA
- Significant in terms of GVA per FTE
- Sub-sectors with Global growth potential
- Internationally tradable
- Strong cross-sector potential
- Amenable to intervention
- Nationally/Regionally significant

4. What is the role of clusters within the regional smart specialisation strategy?

The NWDA Cluster Development programme was set up to facilitate the growth of all 14 key sectors. Over the first few years of the programme there was an increasing focus on the parts of the Established sectors where there were particular strengths and growth opportunities for businesses in the Northwest region. There was also a focus on the emerging sectors and there has been some activity around the overlaps between some sectors (both Established and Emerging).

The Regional Cluster Organisations work with the Business Relations sector teams to produce a strategy for the sector. They feed into various strategies in the NWDA, including the Regional Strategy, and provide sectoral economic intelligence to the Agency on a regular basis.

The Regional Cluster Organisations work with each other on cross sector initiatives to ensure that the maximum outcome from these opportunities is realised. All RCOs attend quarterly network meetings, sharing and disseminating best practice and providing sectoral updates to ensure that collaborative opportunities are not missed.

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ¹¹	Cluster organisation ¹²
Who is the recipient?		<p>Chemicals Northwest Northwest Aerospace Alliance Northwest Automotive Alliance Northwest Texnet BioNow Call Northwest Professional Liverpool Pro.Manchester Northwest Vision and Media Envirolink Northwest Food Northwest</p> <p>In addition Mersey Maritime has been funded as a sub-regional cluster organisation.</p>
Who is the financing authority? - Regional or national level - Ministry or agency		<p>Regional Northwest Regional Development Agency</p>
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)	<p>The Regional Cluster Organisations frequently work in partnership with other organisations, eg universities</p>	<p>The core Regional Cluster Programme only funds the provision of networking and information services to the cluster members.</p> <p>Additional activities are funded on a project by project basis from the NWDA Single Programme and other funding sources. Cooperative RDI projects are rare although the cluster organisations have been active in promoting the NWDA Innovation Vouchers to the cluster members.</p>
PRIVATE contribution to total budget	<p>For cooperative RDI and other projects they will be other public and private funding. The amounts will depend on the individual project.</p>	<p>Up to 2010 the Private sector contribution varied considerably between the cluster organisations. Most received low levels of Private sector funding from sources such as membership subscriptions, marketing and sponsorship revenue, event fee income and match funding for minor projects. Pro Manchester has a long established membership scheme which provides a significant amount of funding. From April 2011 the cluster organisations will be totally reliant on Private sector funding for their core activities.</p>

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

The RCOs submit quarterly and annual reports to NWDA on their activities and the performance measures under the AMA.

The cluster development programme for 2002-06 was evaluated in 2008 by PriceWaterhouseCoopers as part of BERR's Impact Evaluation Framework. The Evaluation used the information on activities and impacts submitted by the RCOs through the AMA plus a Questionnaire sent to all the organisations on the contact databases of the RCOs (ie formal members plus participants in networking events etc). The overall conclusion was that the programme is a successful one.

The conclusions based on the findings from PWC's consultation programmes, e-survey and analysis of impacts, are that:

- The current direct net impacts generated by the Programme as a result of agency support are significant even at the level of the sample results (i.e. at around £24 million to £59 million (□ 28m to □ 70m) revenue per annum or £13 million to £32 million (□ 15m to □ 38m) GVA;
- The level of total net impacts is likely to be some multiple of the above when account is taken of the years in which the Programme has been running and the other companies that might have benefited from support (but did not respond to the survey);

- The benefits are calculated to be in the range of £46.2m to £678m (□ 54m to □ 799m)for an Agency cost of £24.7m (□ 29m), giving a value for money (i.e. cost to benefits ratio) of between 1 to 2 and 1 to 27.

The influence of the Regional Cluster Development programme on other publicly funded programmes and the private sector is considerable. There are a number of projects to support specific clusters which are funded by the Agency such as the Joule Centre, Aerospace Supply Chain Excellence etc. In 2009/10, £48m (□ 57m) in theme 1.1, (Internationally Competitive Sectors) of the NWDA Corporate Plan was targeted at RES priority sectors. In addition, proportions of the Skills, Science and Innovation and other themes of the Corporate Plan are also sector driven. There are several external funding sources which have a strong focus on the priority sectors, e.g. ERDF, Grant for Business Investment (GBI), the former Learning and Skills Council (LSC), and Sector Skills Councils. Above all, the Regional Cluster Development programme influences activities in the RES priority sectors themselves which contribute over £55bn (□ 65m) GVA to the regional economy. The Regional Cluster Programme leverages in £40-50m (□ 47m to □ 59m) ERDF via Action Area 1.2. Regional Cluster Organisations also raise smaller amounts of private sector funding from sources such as membership subscrip-

¹¹ A cooperation project for a particular research or innovation activity

¹² A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

tions, marketing and sponsorship revenue, event fee income and match funding for minor projects.

2. Why is it measured and to whom is it reported or what is the purpose?

The RCOs quarterly and annual reports to NWDA on their activities and the performance measures under the AMA plus the evaluation by PriceWaterhouseCoopers are part of the requirements of the Grant Funding Agreements that NWDA has with the RCOs. They are regarded as individual projects on the NWDA systems. NWDA has to make reports and evaluations on individual projects available to BIS and they are incorporated in the Annual Report that NWDA submits to BIS.

NWDA activities are also monitored by the Government Office for the Northwest and by 4NW, which brings together all the Local Authorities in the Northwest. There are no Regional Governments in England.

Economic development activities at regional level in England are being stopped by the UK Government and NWDA, 4NW and the Gov-

ernment Office for the Northwest will close. In future economic development activities will be either managed centrally by Government Departments or locally by individual Local Authorities and Local Economic Partnerships (LEPs). In the Northwest the LEPs correspond to the former Sub-Regional Partnership areas.

3. How is the “causality problem” addressed?

The evaluation by PriceWaterhouseCoopers addressed the causality issue in two ways. Firstly the evaluation used a combination of quantitative and qualitative methods to gather and analyse information on the impacts of the Regional Cluster Programme. Secondly the evaluation reported the impacts and benefits as a range of figures rather than a single number. The lower end of the range showed that the Regional Cluster Programme had been successful, whilst the upper end of the range showed that the level of success could have been very significantly.

The fundamental problem is that there is no reference case which shows what happens without an intervention.

D. INDICATORS

1. Which indicators do you (as policy maker) collect?

The AMA with each Cluster Organisation is used to collect data which is then aggregated for the full Regional Cluster Programme. The indicators are a combination of activity indicators, eg number of network events, attendance, number of newsletters etc, and impact indicators, eg GVA, employment etc.

There have been discussions within NWDA about repeating the PriceWaterhouseCoopers qualitative survey on an annual basis, and about using the Cluster Dynamics model developed by Scottish Enterprise. However, due to impending closure of NWDA neither of these will be implemented.

2. How do you analyse the data?

The data from the AMA with each Cluster Organisation is compared against the forecast for the year, and is also compared to previous years where this is appropriate.

PriceWaterhouseCoopers used standard statistical methods to test the validity of the results and to estimate the errors which produced the ranges for the impacts and benefits.

3. Is it possible to compare this data on a European/international level?

The monitoring and evaluation of cluster development initiatives is difficult because of the problems of definition of clusters (SIC codes are not particularly appropriate) and in proving the causal link between funding, activities and outcomes.

Data which is collected by surveys can only be compared if the surveys are carried out in exactly the same way. A potential role for the European Cluster Observatory could be the development of a standard questionnaire that can be used by all cluster organisations in Europe. If the questionnaires are all sent out and collected at the same time, it should be possible to compare information across Europe.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

In Flanders, Clusters are not identified nor recognized by the regional government or administration as an “organisation”. Consortia of companies (newly created or existing organisations such as for example: federations) can apply for funding in several funding schemes. Funding schemes currently in place vary from first line innovation support to Competence Research centres. We therefore consider the clusters as a bottom up approach from industry and not an identification of regional strongholds

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy? no

3. Which amendments were undertaken and were they based on impact analyses?

Recently there has been a change in the programme where consortia of companies can apply for funding. The change consists of a larger

commitment of the applicant toward results on innovation (implementations in the industry). As a consequence the current programme requires a combination of knowledge development and knowledge transfer while up to now these were separate programmes and thus separate projects.

4. What is the role of clusters within the regional smart specialization strategy?

In late 2006, the Flemish Science Policy Council (VRWB) brought together all relevant players to agree on six strategic technology clusters. Working with Flanders’ Chamber of Commerce and Industry, industry federations and knowledge institutions, the VRWB further expanded these six clusters, taking into account the scientific and technological excellence and the economic potential present in Flanders. (See also <http://www.vrwi.be/pdf/clusterbrochure-en.pdf>). Currently a bonus in the evaluation procedure (higher on the ranking list) is given to projects from clusters that can prove a contribution to one of these spearheads.

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW
(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ¹³	Cluster organisation ¹⁴
Who is the recipient?	Both are possible as recipient in Flanders	Both are possible as recipient in Flanders
Who is the financing authority? - Regional or national level - Ministry or agency	IWT or in exceptional cases directly from ministry	IWT or in exceptional cases directly from ministry
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)	Both but also collective RDI projects. Cooperative RDI is for a limited number of companies known by name. Collective RDI is for a large number of companies in Flanders (>20).	Both but also collective RDI projects. Cooperative RDI is for a limited number of companies known by name. Collective RDI is for a large number of companies in Flanders (>20).
PRIVATE contribution to total budget	Yes; a minimum of 20% of the project budget is contributed by the industry	Yes; a minimum of 20% of the project budget is contributed by the industry

¹³ A cooperation project for a particular research or innovation activity

¹⁴ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

- a. Project level: each funded project present mid-term (2year) and end of project (4 year) results and effects. When applying for new project funding, this result (track record) is one of the evaluation criteria.
- b. Programme level: at irregular moments (about every 4year) IWT orders studies by external consultants to measure programme result/effect and impact.

2. Why is it measured and to whom is it reported or what is the purpose?

- a. Individual project result: measured by project leader , used by IWT in for renewal of project funding
- b. Programme evaluation: measured by external consultants, used by IWT to make amendments to programme.

3. How is the “causality problem” addressed?

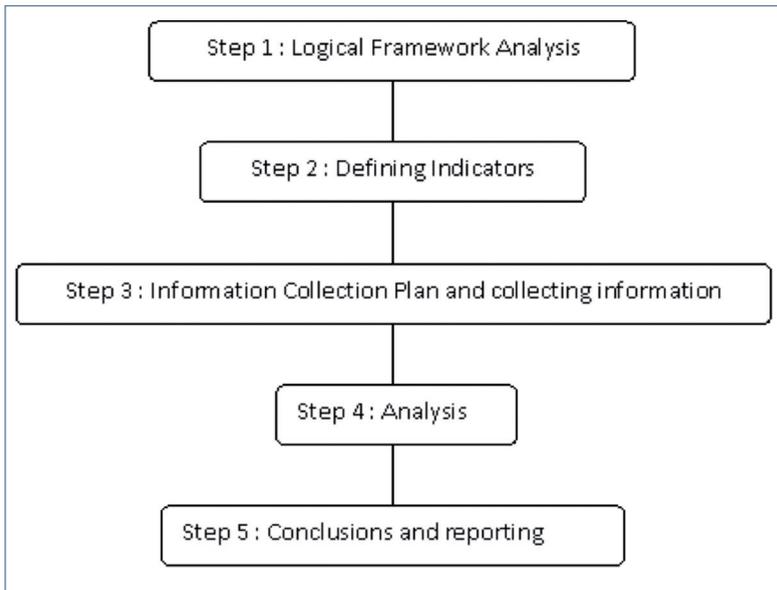
Problem is not addressed on project level. On programme evaluations consultants often include „reference“ groups of companies; not having received innovation support offered by the cluster organisation.

D. INDICATORS

Instead of listing the indicators, we would like to submit the ‘methodology of self-evaluation of competence research centres’ as a good practice. This manual offers a structure to carry out a complete self-evaluation: from (re)formulating a vision and mission to

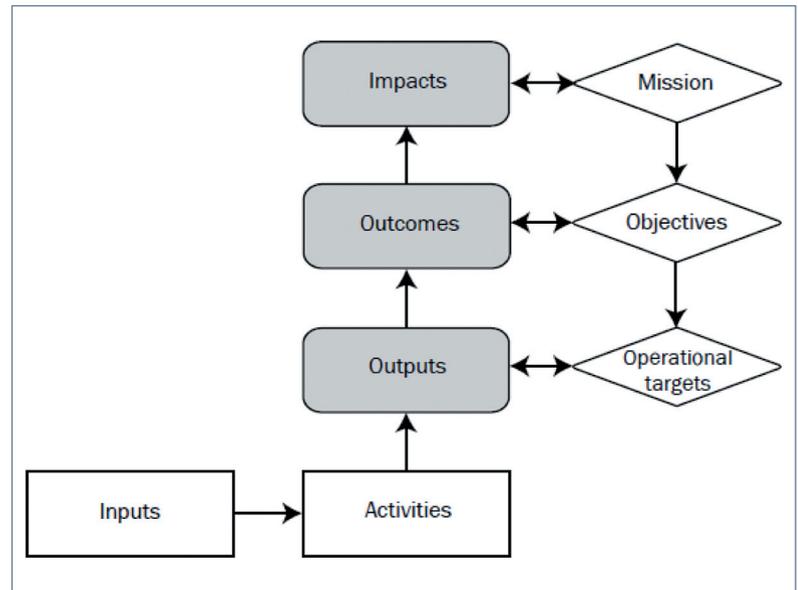
translated objectives, from collecting information to producing a self-evaluation report.

The self evaluation steps are indicated below:



Step 1 – the set-up of a logical framework analysis (LFA) is crucial in the whole process.

An LFA focuses on the reasons behind the activities chosen; the objectives and the needs these objectives address; the inputs that can lead to activities; the achieved outputs leading to results; and eventually to impacts. An LFA offers the chance to explicit the coherence between all these elements and to analyse it. The key questions are: do the activities contribute to the objectives and eventually to the mission? Are all the objectives supported by (a set of) activities? In other words, is there a programme logic? The various components and the way they are interrelated are presented in the figure below.



The full report on how IWT uses the methodology for competence research centres can be downloaded : http://www.iwt.be/sites/default/files/publicaties/iwt_studie62.pdf

1. **Which indicators do you (as policy maker) collect?**
Indicators proposed by cluster.
2. **How do you analyse the data?**
Results compared to initial project objectives.
3. **Is it possible to compare this data on a European/international level?**
We don't think.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

- Regional project scheduled for 2005-2008 period, entitled “Stimulating innovations in Pomerania economy through support for cluster development, policy concept and pilot actions” that provided recommendations on cluster policy and concrete support actions
- Pilot regional initiatives implemented during 2007-2008 dedicated to 3 specific industries (jewellery, food and biotechnology/pharmacy/cosmetics) that consisted in partnership building and strategy development
- Report on potential clusters in Pomerania region (2008) that identified 11 key sectors for cluster development (agriculture and food, construction, maritime, jewellery, ICT, tourism, LTD - logistics, transportation and distribution, wood and furniture, chemical, metal, machine). The basic criteria for selection included: minimum level of employment 10,000 people, relatively high location quotient (LQ) comparing to country average or LQ close to one but with high dynamics of growth in given period and considerable share in regional sales. Additional criteria included high LQ for NACE classification groups in particular cluster and exports of products which have clear comparative advantage. Identified 11 clusters accounted for 41% of total employment in Pomerania and almost 52% of production sold as well as for a big share of export potential according to data from 2006.

- Strategy for Development of Pomerania Region that indicated the need for provide organisational, administrative, legal and financial milieu favourable to emergence of clusters

Analyses performed on the regional economy led to establishing a cluster-based policy in the region that was reflected in the Pomerania Regional Programme for Cluster Support for years 2009-2015 (PRPCS).

The core objective of the programme is to strengthen competitiveness of Pomerania's economy through stimulating of regional and local clusters.

Specific goals to achieve include mobilization of cluster initiatives under potential clusters, intensifying collaboration within clusters and improving professional services dedicated to clusters in terms of quality, scope and availability of such services.

The concept of PRPCS is to support 3 types of clusters:

- Potential world-class clusters
- Local clusters (sub-regional)
- Technology networks (embryonic clusters)

It is assumed that up to 6 potential world-class clusters will be supported and according to the available data, 6-10 clusters in Pomerania region could apply for a status of potential world-class cluster. The programme assumes that potential world-class clusters will be selected on the basis of call for proposals in order to raise effective-

ness of funding and provide legitimacy to public intervention.

It is planned to provide support for 10 local clusters and 8 technology networks.

Additionally, the programme includes also establishing a Cluster Contact Point in Pomerania region.

Another form of support is provision of an exploratory grant for development of strategy and action plan in case of clusters applying for a status of potential world-class cluster.

Selection criteria for potential world-class clusters include:

- cluster potential and competitiveness (economic potential, location advantage, competitiveness)
- strategy and action plan (evaluation of strategy and action plan, expected benefits)
- partnership (quality, critical mass, organisation system, examples of collaboration, at least 30 entrepreneurs and 2 R&D/education organisations)

So far 3 clusters in Pomerania region have been named potential world-class clusters. In the first call for proposals two clusters have been selected: ICT Cluster of Pomerania and Baltic Eco-energy Cluster. The Construction Cluster of Gdansk has received the status in the second call for proposals.

The idea of PRPCS is to use existing support measures, mainly under EU structural funds 2007-2013, to give preferences to potential world-class clusters. Projects eligible for such preferences to be given during evaluation procedure must be reflected in the strategy and

action plan of a particular cluster with eligible applicants being different cluster members including firms, universities, business support organisations and cluster organisations as well as consortia consisting of the mentioned above.

Preferences in a form of additional scoring during proposal evaluation, are available in the following support measures:

- Regional Operational Programme (ROP):
 - 1.1.2 Small and medium sized enterprises (16 points)
 - 1.2 Innovative solutions for MSP (12 points)
 - 1.5.1. Infrastructure for development of innovative enterprises (15 points)
 - 1.5.2. Support for regional pro-innovative processes (17 points)
 - 1.6. Economic promotion of Pomerania region (20 or 19 points)
- Human Capital Operational Programme (national programme with regional components):
 - 8.1.1. Support for development of professional skills and advisory for enterprises (5 points)
 - 8.1.2. Support for adaptation and modernization processes in the region (5 points)
 - 8.2.1. Support for collaboration between scientists and entrepreneurs (20 points)

In case of local clusters and technology networks, support is offered in a form of separate calls under ROP of Pomerania region, measure 1.5.2.

Before the programme was launched it had been consulted with regional stakeholders and partners in order to collect opinions and proposals on the cluster-based policy framework drawn-up for Pomerania.

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

Ex ante analysis of RPCS for Pomerania region was contracted from a professional provider of advisory services (Case Doradcy Ltd.) in 2009 with the objective to evaluate whether the programme can be an effective regional policy tool with potential impact on social and economic growth of Pomerania in longer period of time.

In the final report experts from Case Doradcy Ltd. suggested 17 recommendations on how the programme could be improved.

3. Which amendments were undertaken and were they based on impact analyses?

First years of the programme implementation showed that the primary focus should be given to potential world-class clusters in the region.

No amendments to the programme have been made so far, although it seems that the concept of technology networks proved unsuccessful. No calls have been launched so far for technology networks as no technology networks are observed in the region. Another expected amendment to the programme is evaluation and monitoring system that needs to be improved.

4. What is the role of clusters within the regional smart specialization strategy?

http://ec.europa.eu/regional_policy/sources/docoffic/official/commu-nic/smart_growth/comm2010_553_en.pdf

No info is available on this issue as smart specialization strategy has not been prepared for Pomerania region.

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ¹⁵	Cluster organisation ¹⁶
Who is the recipient?	<p>Potential world-class clusters: ICT Cluster of Pomerania, Baltic Eco-energy Cluster, Construction Cluster of Gdansk</p> <p>Local clusters Technology networks</p>	

<p>Who is the financing authority?</p> <ul style="list-style-type: none"> - Regional or national level - Ministry or agency 	<p>Regional authority of Pomerania Region (European Social Fund Department, Marshall Office of Pomerania Voivodship) Regional agency (Pomerania Development Agency)</p>	
<p>Purpose of funding?</p> <ul style="list-style-type: none"> - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channelled to cluster firms or research actors) 	<p>a) In case of potential world-class clusters purpose of funding include building laboratory infrastructures, collaborative R&D projects, development of certification systems, promotion and internationalization, market analyses, information generating and processing, education infrastructures and development of new curricula, training, purchase of advisory services. Additionally cluster organisations can get funding for "soft" projects including networking, transfer of knowledge and innovation, technology watch, advisory services, strategic planning, etc.</p> <p>b) In case of local clusters funding is granted to cluster organisations for activities such as office and cluster administration, exchange of information, promotion, networking and collaboration within the cluster, development and implementation of collaborative projects, development of strategy and action plan</p> <p>c) In case of technology networks, coordinators can get funding for office and network administration, exchange of information, promotion, networking and collaboration within the network, development and implementation of collaborative projects</p>	
<p>PRIVATE contribution to total budget</p>	<p>Contribution from private sources depend on cluster label (projects from potential world-class clusters must provide 16%, projects from local clusters 20% , projects from technology networks 35%)</p>	<p>N/D</p>

¹⁵ A cooperation project for a particular research or innovation activity

¹⁶ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

No leverage effect has been measured so far as the first impact assessment of the programme is scheduled to next year (2012). On a current basis Pomerania regional authorities collect data on impact that the programme has on clusters in the region and such data include amounts granted to relevant beneficiaries (cluster actors), revenues, exports, employment, etc.

It is not provided for in the existing programme documents how often impact/leverage effect analysis will be performed or how it will be measured.

According to financial plans of RPCS, public funding is 69,728,000 euro and projected private funding amounts to 15,146,000 euro. Financial plan presents total figures divided to different sources of

funding and provide no information on yearly figures.

2. Why is it measured and to whom is it reported or what is the purpose?

Impact assessment will be performed together with official evaluation of the programme which is scheduled to 2012. It will be purchased from external service provider and reported to the management board of Pomerania voivodship with the purpose to legitimate the regional policy.

3. How is the “causality problem” addressed?

Causality problem will have to be addressed by the contractor of impact assessment study.

D. INDICATORS

1. Which indicators do you (as policy maker) collect?

According to the programme document, indicators include:

- number of potential world-class clusters
- number of exploratory grants
- number of local clusters
- number of technology networks
- number of actors in potential world-class clusters in the following categories: enterprises, R&D units, business support organisations, self-government organisations
- scope of activities and projects in potential world-class clusters, implemented by cluster organisations, cluster members alone and in consortia
- number of actors in local clusters in the following categories: enterprises, R&D units, business support organisations, self-government organisations
- scope of activities and projects in local clusters
- number of actors in technology networks in the following categories: enterprises, R&D units

- economic indicators (like income, exports, employment) and innovation indicators for enterprises in clusters, especially in the potential world-class cluster category
- number of collaborative projects, including knowledge and technology transfer projects
- scope of activities performed by cluster organisations
- number of cluster actors receiving services from cluster organisations
- scope of activities performed by Cluster Contact Point
- number of clients of Cluster Contact Point (entities and persons)

It is completely unclear how some of above indicators will be measured. It is also not defined how often data will be collected for each indicator.

Evaluation and monitoring system of the programme needs to be modified to address such issues as for example evaluation goals, time span, evaluation criteria, etc. What is also missing is a comprehensive system for data collection, data scope and analysis.

Although, the first official evaluation of the programme is scheduled to 2012, in the meantime data is being collected on how the programme improves performance of clusters in the region. Pomerania regional authorities are particularly interested to know about types of support instruments to which clusters apply the most often,

amounts being granted to cluster actors and on how this support improves their performance.

The programme assumes development of a system to monitor economic parameters and innovation indicators of enterprises in supported clusters, especially the potential world-class ones. The Department of Economic Development, Marshall Office of Pomerania region, will be responsible for the monitoring system and will be assisted by Cluster Contact Point. Monitoring system will be primarily based on the following data sources: periodic reports from cluster organisations, periodic reports from the Cluster Contact Point, surveys in cluster firms and available statistical data.

Monitoring system will provide for yearly reports for the management board of Pomerania voivodship. The Regional Cluster Support Programme will also undergo evaluation by external contractor with regard to achieved outcomes and with the objective to define next steps to provide answer to the changing needs of entrepreneurs.

2. How do you analyse the data?

The data will be analysed by professionals hired for this purpose.

3. Is it possible to compare this data on a European/international level?

It might be difficult due to some definition problems and different approaches in different countries and regions.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

Combined top-down and bottom-up-approach. Based on a regional potential analysis, an industrial agglomeration of firms being active in the food sector has been identified in 2004 (top-down). In parallel key actors within this region decided to set up a regional network (2005) and asked the regional government for providing co-funding. Taken the outcomes of the regional potential analysis and the expressed interests of regional key actors into account, the regional government provided some co-funding (public-private-partnership), which enabled the emergence of this food network (food cluster)

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

The ex ante analysis was carried prior a cluster strategy has been set up.

3. Which amendments were undertaken and were they based on impact analyses?

No amendments were undertaken until the first evaluation in 2008. Based on this evaluation and impact assessment, appropriate amendments have been made

4. What is the role of clusters within the regional smart specialization strategy?

No dedicated role since there is not regional smart specialization strategy in the food sector available for

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ¹⁷	Cluster organisation ¹⁸
Who is the recipient?	No project consortia are funded	X
Who is the financing authority? - Regional or national level - Ministry or agency		EC-structural funds, co-funded by the Ministry of Schleswig-Holstein as well as regional governmental agencies

¹⁷ A cooperation project for a particular research or innovation activity

¹⁸ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members’ RDI activities.

Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)		Setting up of a cluster management in order to increase networking and co-operations among the cluster firms. Increased innovation capabilities of the cluster firms. Setting up of demand oriented network services, improved professionalization of the cluster management,
PRIVATE contribution to total budget	y/n	Yes, continuously improving, from 10 % at the beginning until about 40% in 2010

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

Measured only once in 2008

2. Why is it measured and to whom is it reported or what is the purpose?

Justification of public investments, measuring the leverage effect, providing information for policy makers about the status of development of the cluster management and of the cluster, base for a decision for providing a second funding period;

It has been reported to the Ministry of Schleswig-Holstein (State level)

3. How is the “causality problem” addressed?

Based on the membership satisfaction analysis and additional measurements, there was a clear evidence about the leverage effect and to which degree the cluster firms benefited (according to their degree of involvement)

D. INDICATORS

1. Which indicators do you (as policy maker) collect?

Broad spectrum of data, around 40 indicators, dealing with cluster management performance, but also how the cluster firms have benefited and to what extent

2. How do you analyse the data?

Membership analysis and additional face-to-face interviews

3. Is it possible to compare this data on a European/international level?

Indicators related to the cluster management performance are widely used and comparable. Others must be collected separately since no statistical data were used

The SLIM project aimed to promote cluster development by linking clusters, universities and regional authorities to stimulate innovation in the companies involved. The companies were encouraged to intensify and widen their networking in order to develop new products and services and increase employment. Research on the performance of the companies and communication of the results was an important element of the project. The project was implemented in the regions of Dalarna, Gävleborg and Värmland in Northern Central Sweden. The regions are large but sparsely populated with a total population of 820,000.

SLIM resulted from a process initiated by the Region of Värmland a decade ago. A gradual economic decline followed by the closure of some major economic activities prompted different actors to join forces to overcome the decline by transforming the sites vacated into test centres for local industries. This accelerated the development of partnerships between the developing clusters, universities and regional authorities. The SLIM I project implemented in 2007-2008 built on these experiences and SLIM II carried on the work in 2009-2010. The neighbouring regions Dalarna and Gävleborg were involved in both projects.

SLIM had three sub-projects. (1) 'Process support for cluster initiatives' targeted cluster leaders, process leaders and other key people

involved in cluster development. (2) '**Power Measurement**' evaluated the impact of regional investments at company and cluster level. Company leaders were surveyed on whether being part of a cluster had increased the growth of the company. (3) 'Policy learning' provided a basis for co-operation integrating the 'Triple Helix model' and experiences gained from the project.

In the sub-project "Power Measurement" consultants provided yearly assessment reports on the cluster developments in the regions. The results were used by the universities, regional authorities, politicians and decision-makers as well as within the clusters. They were also used to attract the attention of universities outside the regions and relevant national players in Stockholm. The latest assessments using 'shadow control' among 350 companies in 12 clusters showed a clear trend in an increase in sales and co-operation as well as in developing new products and services and creating new employment from 2007–2009.

On average, companies reported an increase of 30% in sales²⁰, an increase of 50% in cooperation with the university and 35% with other companies, as well as in increase of 15% in employment (around 1,800 new jobs in companies in the 12 clusters). Finally, 80% of the companies in the clusters stated that they aimed to grow and 70% believed that participation in the clusters to lead new products and

¹⁹ Text is extracted from a case study written by Mr. Pasi Rantahalvari at DG Regio Evaluation, conducted during September-December 2010. The full version of the case study will be available at http://ec.europa.eu/regional_policy/index_en.htm. Additional material - including results from the 2010 annual survey - is available (in English) at: (<http://www.regionvarmland.se/vi-arbetar-med/naringsliv-forskning/innovativa-kluster/slim-projektet/-slim-project/about-slim-project>).

²⁰ With an increase of 40% in sales reported in the cluster initiative Compare

services.

The first 'generic control' was carried out in the second half of 2010 on the first set of clusters. This evaluation seems to prove that companies in Sweden subject to the intervention tend to grow faster than the companies from the same sector of activity which are not subject to an intervention. In February 2011, the first results of this generic control were visualised and presented.

The primary results show that the companies in two cluster organisations (The Paper Province and Compare) grow faster than a comparable control group. In the case of Compare, the control group was chosen to be the other companies in the same branch in the region. The measurements from about 100 ICT companies during the period 2001-2008 showed that companies involved in the cluster initiative had attained stronger growth relative to other companies in the same line of business and relative to all companies in the county of Värmland.

- The average growth of Compare companies was 213%.
- The average growth of companies in the same line of business was 89%.
- The average growth of all companies in the county was 58%.

The analysis made by the Simpler diagram showed that the stronger growth rates was worth about 50 million Euros (when compared to the control group's growth rates). Based on the survey to companies – which showed that about 40% of the companies had increased their sales thanks to being part of the Compare organisation – it is also possible to discuss the impact of the public intervention in Compare.

If the expanded competitiveness was worth about 50 million Euros compared to the control group and about 40% of the Compare companies expressed that they had benefited of being member of the Compare cluster organisation, then the estimated impact during 2001-2008 is summarized to = 0,40 X 50 million Euros which will be about 20 million Euros in impact or added value for the companies. However, this result can partly be explained by the finding that clusters attract growth-oriented companies. This suggests that further work is needed to establish a control or comparison group with characteristics more similar to the participating companies (Pasi Rantahalvari 2010).

As a third part of the triangulation there is a process-tracing activity, which will focus on the tipping points (or critical milestones) that are identified through in-depth case studies of two companies in Compare. This activity addresses the tipping points from a company perspective and explains the actions that Compare has taken that have made a difference. This will help to identify in what way public interventions should be planned and developed to make the change for the end users – the small and medium sized companies.

The total result from this triangulation of methods will be summarized in an article, which is in progress. The reflection using a combination of three different methods is that it is expensive; however in big interventions/programmes, it can be worth the invested money to catch the causal chain and the impact on the end-users!

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

Each cluster initiative in Lower Austria is based on an in depth analyses of the related sector (or sectors in case of horizontal topics (e.g. logistics)) including:

- Statistical mapping of the relevance of the sector in Lower Austria and compared to other Austrian regions
- Mapping of relevant R&D institutions/universities within the region
- Identification of already existing informal networks among companies and existing collaboration with R&D institutions (extensive interviews with regional stakeholders)
- Need for support for further collaboration (workshops with companies)

Based on this analyses the regional government decides whether to support a cluster initiative or not.

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

Results of the initial analyses (see above) and definition of vision and main objectives and thematic priorities in workshops with the so-called advisory boards (= representatives of companies, relevant R&D institutions, intermediaries) are the basis for the development of the cluster strategy.

3. Which amendments were undertaken and were they based on impact analyses?

We would like to highlight 2 amendments of our cluster initiatives – but

they were based on performance indicators not on impact analysis:

- Stronger involvement of leading (big, innovative) companies: Lower Austria' clustering approach focuses on facilitating collaborative innovation of SMEs. This concept has not been changed, but it was enlarged by the objective to connect SMEs with big innovative companies within the region to enable learning and the development of supplier relationships to these leading companies. Related to this new objective 2 new performance indicators for cluster initiatives have been introduced: number of leading companies involved in collaborative projects; number of international R&D projects involving leading companies

- Stop of Wellbeing Cluster initiative

The initiative supporting the Wellbeing Cluster of Lower Austria was stopped, because the number of cluster partners decreased from about 100 to 82 in its 6. year of existence and a substantial decrease of collaborative projects.

4. What is the role of clusters within the regional smart specialization strategy?

The Lower Austrian Cluster Programme together with the Technopol Programme are an integral part of the regional Innovation Strategy and the main tool to foster regional smart specialization. Example: With the Bio-Plastics Initiative started and coordinated by the Plastics-Cluster in Lower Austria a new technology field has been developed within the region (activities: feasibility study on available resources, management of international collaborative R&D projects and initiation and coordination of regional collaborative product development projects).

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ²¹	Cluster organisation ²²
Who is the recipient?	Companies	Ecoplus – the Business Agency of Lower Austria (management body for all Lower Austrian cluster initiatives)
Who is the financing authority? - Regional or national level - Ministry or agency	Regional Government of Lower Austria (Department Economy Tourism and Technology)	Regional Government of Lower Austria (Department Economy Tourism and Technology)
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)	Co-operative innovative projects	Facilitation and services
PRIVATE contribution to total budget	Yes	Yes

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

2. Why is it measured and to whom is it reported or what is the purpose?

3. How is the “causality problem” addressed?

- Evaluation in 2004: satisfaction with services and self evaluation of companies of economic impact of support by cluster man-

²¹ A cooperation project for a particular research or innovation activity

²² A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members’ RDI activities.

agement on their business (impact evaluation planned in 2011)

- Macroeconomic impact study in 2005: study on indirect returns of collaborative projects initiated in the cluster
- Bi-annual Survey: satisfaction with services and self evaluation

of companies of economic impact of support by cluster management on their business + development of turnover, employment and R&D rate

D. INDICATORS

1. Which indicators do you (as policy maker) collect?
2. How do you analyse the data?
3. Is it possible to compare this data on a European/international level?

Balanced Scorecard (introduced in 2009): reporting of cluster management to regional government on a regular basis (2 times a year):

Economic Policy Objectives by 2013	Key Indicator	Measurement
Enhance competitiveness of cluster companies	Turnover development	Annual survey among cluster companies in regard to turnover development (central) Analysis of comparison groups using secondary sources on a case-by-case basis
Increase number of (qualified) jobs at cluster companies	Labor market development Level of qualification	Annual survey among cluster companies in regard to personnel development (central) Analysis of comparison groups using secondary sources on a case-by-case basis
Position success stories of Lower Austrian cluster policies internationally	International visibility	Qualitative evaluation on the basis of diverse data collected (number of international visits / mentions as "good-practice" cases / international invitations to events, and more)

Customer Objectives	Key Indicator	Measurement
Increase number of leading innovators and leading companies in cluster projects	Number of active cluster partners with more than 250 employees	Cluster managers count number of projects
Tap market potential and new sources of turnover	Number of product and system solutions developed	Cluster managers count number of projects initiated
Enhance competence among cluster companies in a systematic way	Rate of participation in competence-enhancing initiatives	Cluster managers count number of involved cluster companies
Enhance productivity potential among cluster companies	Rate of participation in productivity-enhancing initiatives	Cluster managers count number of involved cluster companies
Performance Objectives	Key Indicator	Measurement
Prepare new focus topics and suitable measures / instruments for target groups and present in an accessible manner	Number of newly-commissioned focus topics	Cluster managers count number of newly-created topics
Develop leading projects with high potential for value creation	Number of leading projects initiated	Cluster managers count number of leading projects
Exploit potential for cooperation in focus topics in a systematic way	Rate of participation in collaborative projects initiated in cluster	Cluster managers count number of involved cluster companies in collaborative projects
Create and guide project development and management efficiently	Number of documented success stories among cluster projects up to 2013	Cluster managers count the number of projects

Offer attractive standard cluster services	Customer satisfaction	Annual survey among cluster companies regarding satisfaction with standard services (central)
Learning Objectives	Key Indicator	Measurement
Early and systematic recognition of chances and deficits in cluster action fields	Quality of organisational standards	Qualitative evaluation via WST3 and programme management at review meetings
Achieve above-average level in consultative services	Customer satisfaction	Annual survey among cluster companies in regard to satisfaction with project-specific services (central)
Increase level of cooperation with other institutional partners	Number of cross-organisation/ overlapping projects	Cluster managers count number of overlapping projects

INTRODUCTION:

In August 2005, the Government of Wallonia decided to dedicate important budgets to a Priority Action Plan, also called the “**Marshall Plan**” which aims at giving a qualitative jump to the economy of the Region. This Plan developed structural reforms under 5 priorities:

- 1) Competitiveness poles policy
- 2) Stimulation of the creation of activities
- 3) Reduction of taxes on companies
- 4) Promotion of research and innovation
- 5) Improvement of the skills of the workforce

In 2009, the orientations of the Marshall Plan were confirmed by the new government of Wallonia in “**2.green**” version placing greater emphasis on eco-efficiency and green technologies ²³.

Consistent with those strategic orientations, the new industrial policy developed in Wallonia mainly focused on the development of industrial networking through two complementary and linked policies: Competitiveness Poles and clustering.

- **The Competitiveness Poles policy:** The main objective of this policy was to develop some key growth sectors on the basis of strong partnerships projects between enterprises, research centres and training centres. It aims at implementing leading industrial and technological projects within the 5 sectors considered essential for the regional economy : Life Sciences and health (BIOWIN), the Agri-Food Industry (WAGRALIM), the Aeronautics and space Industry (SKY-WIN), Mechanical Engineering (MECATECH), Transport & Logistics

(LOGISTICs in Wallonia). The sixth Pole in environmental technologies (GREENWIN) is currently under consideration. **This policy is developed using a top-down approach.**

- **The clustering policy:** launched in 2001, the objective of this policy is to develop business networks in specific domains, eventually with research operators, and, doing so, to develop a cooperation framework and a stronger economic structure within the sector. **This policy is developed using a bottom-up approach.**

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

For giving a qualitative jump to the Region and developing a strong Competitiveness Poles Policy, the Government of Wallonia decided in 2005 to dedicate important budgets to a Priority Action Plan, also called the “Marshall Plan” (cfr. Introduction).

On the basis of the university study of HENRY CAPRON (2005 - Free University of Brussel), sectors in which the Region has sufficient potential to develop such an approach were identified. **36 indicators were gathered in 8 main categories:** Economic base (1) and its evolution (2), Technological base (3) and its evolution (4), Scientific base (5) and its evolution (6), the state of the redeployment process (7) and the prospects for the development of the strategic assets (8)²⁴ scientific basis: analysis of regional potentials and perspectives development.

²³ <http://economie.wallonie.be/competitiveness/Competitiveness-policy.htm>

²⁴ CASE ANNEX: “Paramètres d’évaluations des différents critères”.

Afterwards, a call for interest for the creation of Competitiveness Pole sectors was launched for all the operators concerned by the five identified sectors (TOP DOWN APPROACH). To be selected, Competitiveness poles were required to be composed of a mix of different

categories of operators (enterprises, training centers and research centers) and to develop a common and innovative project for their sector with a view to reaching a high level of competitiveness and international visibility.

3 OPERATORS CATEGORIES

Enterprises
Research units
Training centers

3 CENTRAL FACTORS

Partnerships
Setting up of joint innovative projects
International visibility

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

A) An independent and international jury

The submitted creation projects are analysed by an independent and international jury and, on the basis of its recommendations, the Government of Wallonia labelled five Poles and their firsts projects at the mid-2006. (The creation of a Sixth Pole in environmental technologies was adopted in 2009 and will be effective in 2011).

The selection by an international Jury composed of independent experts highlights priorities of the strategy in each labelled sector.

The jury consists of 10 members, namely:

- **five industrial experts:** either, having an international experience in foreign countries, or being members of the Management Board of multinationals and having an expertise in one/some technological and economic concerned domain(s)

- **three participating foreign experts** having participated in the implementation and in the management of a competitiveness pole and having an expertise in one or some technological and economic concerned domain(s).

- **two specialized experts in regional economy**, especially the economic context of the Walloon Region.

B) Calls for projects: a Public/Private Partnership.

To support the Competitiveness poles, the Government has launched, on a regular basis, calls for projects on their behalf. These projects can be of 3 kinds:

- **R&D projects** (collaborative projects with at least two enterprises (one of which must be an SME) and two research centres participating);
- **Investment** (common infrastructures meeting the Poles' needs, e.g. research infrastructures or incubators, enterprises needs);

- **Training** (specific training actions, in line with the Poles' needs).

Afterwards, the various steps of the selection of the project highlight the Public/Private Partnership:

- **The management of Competitiveness Poles is assured by industrials and scientists.** The government is present in the clusters only through the intermediary of observers in charge of verifying that the philosophy of clusters as defined by the government is implemented.
- **Internal calls for projects are launched and selected by an internal jury and the Governance Council of the Competitiveness Pole.**
- **checking of the eligibility of the projects by the relevant administrations.**
- **The quality assessment of projects** is assured to the international jury (see point A, an independent and international jury).
- Based on the opinion of the jury, the government labels the relevant projects and allocates the financial means

Up to now, 6 calls for projects have been launched by the Government. The 7th call is in progress and will be closed for the beginning of November 2011.

C) International visibility and coordination with the European strategy

In addition, and for more coherence with the European strategic orientation (Internationalisation / Excellence of clusters), each pole recruited a sectoral expert with a view to develop an international promotion strategy for the Competitiveness Pole. This person must improve the cluster strategy.

3. Which amendments were undertaken and were they based on impact analyses?

In 2009, the orientations of the Marshall Plan were confirmed by the new government of Wallonia in "2.green" version placing greater emphasis on eco-efficiency and green technologies. The creation of a Sixth Pole in environmental technologies will be effective in 2011.

4. What is the role of clusters within the regional smart specialization strategy?

On the basis of the university study of HENRY CAPRON (2005 - Free University of Brussels), sectors in which the Region has a high innovative potential were identified. Moreover, the potential projects are analysed by an independent and international Jury of experts. By this way, the strategy of clusters is continuously evaluated and **involves a specialisation of certain themes of the key sector (niche markets).**

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

1. Support of the Walloon Region

Competitiveness Poles are essentially supported by the Walloon Region for the achievement of projects of investment, R&D and training in the wake of competitive positioning strategy they have themselves defined.

2. Board

	(Temporary) Project Consortia ²⁵	Cluster organisation ²⁶
Who is the recipient?	<p>PROJECTS Distribution by nature for the calls</p> <ul style="list-style-type: none"> - Support to export: 0,7 millions Euros (AWEX)/ 5 certified (label) Projects - Investment projects: 7 millions Euros/ 15 certified projects - Training projects: 39 millions Euros (FOREM)/ 51 certified projects - Research projects: 282 millions Euros (SPWS - DG 06 Research)/ 100 certified projects - Foreign investments attraction: 5.5 millions planned by the Marshall plan 1.0 (AWEX) 	<p>ANIMATION COST allocated by the SPW (Service Public Wallonie - DG06 Network) until 2010</p> <ul style="list-style-type: none"> - BIOWIN: 450 000 Euros - Logistics in Wallonia: 311 000 Euros - Mecatech: 378 000 Euros - Skywin: 321 000 Euros - Wagralim: 308 000 Euros <p>Rule: 1 public Euro for 1 private Euro!!!</p>
Who is the financing authority?	/	<p>The regional level: Walloon Region</p> <p>SPW (Service Public Wallonia) AWEX (Agence wallonne exportation) FOREM (Service public wallon de l'emploi et de la formation)</p>

²⁵ A cooperation project for a particular research or innovation activity

²⁶ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

<p>Purpose of funding?</p> <ul style="list-style-type: none"> - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channelled to cluster firms or research actors) 	/	<p>Networking and operational management of the competitiveness pole. Project management and engineering Watch and Prospective studies + the 3 central factors: partnerships, setting up of joint innovative project, international visibility ²⁷</p>
<p>PRIVATE contribution to total budget</p>	<p>For projects: It depends on the projects and the partners: e.g. For R&D projects, it can be 40% of Public Funding for the companies to 100 % of Public Funding for the Universities involved in the project.</p>	<p>Financing of the animation structure of the Competitiveness Pole: 50% of public co-financing - 50 % of private co - financing.</p>

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. **How is it measured and how often?**
 2. **Why is it measured and to whom is it reported or what is the purpose?**
 3. **How is the “causality problem” addressed?**
- Twice a year, the support and monitoring Committee meets to assess

leverage effect of Public Cluster Funding. This Committee includes a representative of the cabinet of Economy and the regional public services in relation with experts from R&D, Economy, international and training. The Committee can formulate recommendations for adapting the projects (or refuse financial means which was initially planned.

D. INDICATORS

1. **Which indicators do you (as policy maker) collect?**
2. **How do you analyse the data?**

3. **Is it possible to compare this data on a European/international level?**

Please see CASE ANNEX “Indicateurs de performance” et “exemples d’indicateurs complémentaires

²⁷ CASE ANNEX: “ La mission de la cellule opérationnelle du pôle”

E. case annexes:

Paramètres d'évaluation des différentes critères

Scores	Critères	Sources et caractéristiques
1. BASE ECONOMIQUE		
Score 1	Emploi salarié privé total (2002)	Données ONSS (4 digits)
Score 2	Nombre d'établissements privés (2002)	Données ONSS (4 digits)
Score 3	Propension à l'exportation	Tableau Input-Output belge 2000
Score 4	Effets multiplicateurs	Tableau Input-Output belge 2000
2. EVOLUTION DE LA BASE ECONOMIQUE		
Score 5	Croissance de l'emploi privé total 1995-2002	Données ONSS (4 digits)
Score 6	Croissance du nombre d'établissements privés 1995-2002	Données ONSS (4 digits)
3. BASE TECHNOLOGIQUE		
Score 7	Nombre de brevets	Brevets déposés auprès de l'EPO
Score 8	Entreprises R&D	Sources diverses
Score 9	Investissements R&D	Données SPF
4. EVOLUTION DE LA BASE TECHNOLOGIQUE		
Score 10	Evolution de nombre de brevets	Brevets déposés auprès de l'EPO
Score 11	Evolution des investissements R&D	Données SPF
5. BASE SCIENTIFIQUE		
Score 12	Participations aux programmes européens	Banque de données CORDIS
Score 13	Participations aux projets Eureka	Banque de données Eureka
Score 14	Nombre de publications scientifiques	Statistiques ISI
Score 15	Indice de citation	Statistiques ISI
6. EVOLUTION DE LA BASE SCIENTIFIQUE		
Score 16	Participation au 6ème programme cadre	Banque de données UWE
Score 17	Participation aux projets Eureka depuis 2000	Banque de données Eureka

7. ETAT DU PROCESSUS DE REDEPLOIEMENT

Score 18	Investissements aidés (%)	Banque de données DPE
Score 19	Emplois créés - Total par secteur	Banque de données DPE
Score 20	Aides à l'investissements (%)	Banque de données DPE
Score 21	Fonds structurels	Banque de données DPEur
Score 22	INVEST	Sowalfin
Score 23	Pôles d'excellence (Personnes occupées)	Existence de centres de recherche publics
Score 24	Centres de compétence	FOREM
Score 25	Clusters industriels	Expérience en matière de clustering
Score 26	Grappes technologiques	Participation à une politique de grappe technologique
Score 27	Grappes à l'exportation	UWE
Score 28	Nombre de Spin-off	Site des universités
Score 29	Choix stratégiques locaux	Implication des autorités locales dans le développement des activités
Score 30	Capacité d'innovation servicielle	Informations sectorielles

8. PERSPECTIVES D'EVOLUTION DU PORTEFEUILLE STRATEGIQUE

Score 31	Complétude spatiale Emploi	Nombre d'équivalents communes en termes de répartition équilibrée de l'emploi (basé sur l'indice d'Herfindahl)
Score 32	Complétude spatiale ETS	Nombre d'équivalents communes en termes de répartition équilibrée du nombre d'établissements (basé sur l'indice d'Herfindahl)
Score 33	Intensité technologique	Distinction entre pôles produisant des technologies diffusantes ou spécifiques
Score 34	Potentiel de croissance	Taux de croissance des activités
Score 35	Leaders mondiaux	Principales entreprises de dimension internationale
Score 36	potentiel endogène	Principales entreprises belges et tissu industriel

La mission de la cellule opérationnelle du pôle

La mission de la cellule opérationnelle du pôle comprend les tâches suivantes:

1. Maillage et gestion opérationnelle du pôle:

- Prospection et mobilisation d'acteurs;
- Gestion opérationnelle du pôle;
- Maintenance d'une base de données de compétences;
- Liaison inter-pôles et clusters liés à l'activité du pôle;
- Assistance à la construction de partenariats entre les acteurs du pôle ou de réseaux liés à l'activité du pôle;
- Communication;
- Promotion internationale;
- Site web et intranet du pôle;
- Développement du volet formation;
- Relations avec les administrations;
- Suivi des performances du pôle et reporting à la Région.

2. Gestion et ingénierie de projets:

- Organisation des appels à projets et des procédures de sélection internes au pôle;
- Soutien administratif aux porteurs de projets;
- Suivi et contrôle des projets sélectionnés au titre du pôle;
- Conseils en ingénierie de projets;
- Recherche de financements;
- Soutien à la gestion de la propriété intellectuelle et à la valorisation de la recherche.

3. Veille et prospective:

- Appui stratégique au Conseil de Gouvernance;
- Veille technologique et scientifique;
- Partage de bonnes pratiques et standardisation;
- Gestion et diffusion des connaissances;
- Partenariat international;
- Mise en œuvre opérationnelle des recommandations du jury.

Indicateurs de performances (résultats et impacts) et indicateurs complémentaires

Indicateurs Jury « obligatoires »

Code Jury	Intitulé
P 9.0	# ETP occupés, en Région Wallonne, dans les équipes de recherche publiques ou privées, actives dans les projets labellisés du pôle
P 10.2	Moyens financiers privés du pôle (hors projets labellisés et hors contrepartie privée à la subvention « cellule opérationnelle »)
A 3.0	# contrats de collaboration signés avec un partenaire industriel international dans le cadre des projets labellisés
A 4.0	# projets acceptés dans le cadre d'appels à projets à l'échelon européen
R 1.0	# entreprises créées en Région wallonne grâce aux projets labellisés
R 2.0	# emplois créés en Région wallonne grâce aux projets labellisés
R 4.0	# brevets (ou autres titres de propriété intellectuelle : marque, modèle...) déposés
R 5.0	# brevets (ou autres titres de propriété intellectuelle : marque, modèle...) octroyés
R 6.0	# licences vendues
R 7.0	# licences achetées
R 15.0	Montant des royalties OUT – Montant des royalties IN des projets labellisés

Exemples d'indicateurs complémentaires

Domaine	Intitulé
Produits	# nouveaux produits développés
	# nouveau produits mis sur le marché
	# entreprises utilisatrices des nouveaux produits
	# processus industrialisés
	Part de marché européenne/mondiale des nouveaux produits
	Revenus engendrés par les nouveaux produits

Actions à l'international	# d'actions et de démarches internationales réalisées
	# de marchés étrangers prospectés (en mettant l'accent sur les nouveaux marchés)
	# de contacts établis avec des partenaires étrangers (pôles, clusters, fédérations industrielles, institutions publiques, universités, centres de recherche, entreprises...)
	Flux d'exportations en Région wallonne engendrés par les actions internationales (à spécifier par marché étranger prospecté)
	Estimation des parts de marchés induites par les actions internationales (à spécifier par marché étranger prospecté)
	Investissements étrangers engendrés en Région wallonne par les actions internationales
	# d'emplois créés en Région wallonne grâce aux actions internationales (exportations et investissements étrangers)
Communication et promotion	# publications presse et apparitions audiovisuelles en Belgique et à l'étranger
	# personnes atteintes par les publications presses et apparitions audiovisuelles
	fréquence de mise à jour du site (nouveaux articles / mois, ...)
	référencement du site: position sur moteurs de recherche, présence sur portails internationaux...
	nombre de publications électroniques (newsletters)
	# personnes présentes aux séminaires, conférences, invitations organisées
	# abonnés aux newsletters
	# de fréquentations (hebdomadaires ou journalières) du site internet
Partenariat international	# nombre de partenaires internationaux du pôle
	# de projets internationaux dans lesquels le pôle est impliqué
	# de membres du pôle impliqués directement dans ces partenariats
	# MoU signés avec des pôles étrangers
	# de partenaires internationaux dans les projets du pôle
Mobilisation des acteurs et services rendus aux membres	Taux de couverture du pôle
	# nouveaux membres au cours de l'année
	Fréquence de mise à jour de la base de données de compétences des membres du pôle
	Taux de couverture de la base de données de compétences des membres du pôle
	# de projets pour lesquels une étude de marché a été menée
	# de projets ayant bénéficié de conseils en propriété intellectuelle
	# de projets ayant bénéficié de conseils en recherche de financements

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

Industry (bottom-up) as well as politics (top-down) manifested the stronghold “Mechatronics” for the regional economy long before cluster strategies were enabled (see e.g. the establishment of the WORLD-WIDE first regular university study on Mechatronics in Linz in 1990).

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

ACCM was established by former national competence centers (kplus and kind) and the University of Linz. The experiences (in this case not the technical experiences) and knowledge of regional as well as EU wide needs from co-operations of the former centers and the university can be understood as an ex ante analysis.

3. Which amendments were undertaken and were they based on impact analyses?

The need of technological changes is a natural constant. The amendments in ACCM are therefore driven by Technology.

4. What is the role of clusters within the regional smart specialization strategy?

The smart specialization strategy for Upper Austria is formulated within the programme “Innovatives Oberösterreich 2010plus” where Mechatronics forms one of the core strategies. ACCM has the goal to be known as one of the most important players world-wide in the field of industry driven basic Mechatronics research.

B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW

(needed as base information in order to understand your approach for measuring the impact):

	(Temporary) Project Consortia ²⁸	Cluster organisation ²⁹
Who is the recipient?	The recipient of the money are the members of the consortia	The cluster organisation administrates the money and is responsible for the correct use

²⁸ A cooperation project for a particular research or innovation activity

²⁹ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members’ RDI activities.

<p>Who is the financing authority?</p> <ul style="list-style-type: none"> - Regional or national level - Ministry or agency 	<p>The financing authorities are both regional and national. In both cases the authorities are represented by Ministries / Government of Upper Austria</p>
<p>Purpose of funding?</p> <ul style="list-style-type: none"> - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors) 	<p>Cooperative R&D projects, Strategic Research Projects</p>
<p>PRIVATE contribution to total budget</p>	<p>appr. 50%</p>

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

There are yearly measurements on economic (no. of partners, turn-around, no. of patents,...) and scientific (no. of scientific publications, dissertation, master thesis, ...)

There are mid-term measurements of a high level group

2. Why is it measured and to whom is it reported or what is the purpose?

Measurement is performed for the purpose of guaranteeing high standards, outstanding research activities and a renowned position in the international economic and scientific community.

The results are reported to the governments (Austria and Upper Austria)

3. How is the “causality problem” addressed?

-

D. INDICATORS

1. Which indicators do you (as policy maker) collect?

ACCM ist NOT the policy maker. The policy makers are the governments (national and regional). The indicators, economic and scientific – see above, are given to ACCM.

2. How do you analyse the data?

By means of predicted / expected values and on basis of the application form.

3. Is it possible to compare this data on a European/international level? Quantitative expressions can be compared.

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

In Hungary territorial imbalances are rather large with Central Hungary dominating the country in terms of GDP, R&D capacity, employment opportunities, etc. Both the Hungarian government and the EU Commission considered important to launch a multipolar territorial development policy, of which cluster development policy is an integral part.

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

Before the conceptualization of the Hungarian cluster policy, detailed mapping and analysis procedure have been conducted in two steps.

- a. Mapping of clusters with perceived operations
- b. Choose and test the potential clusters across the evaluation system of the Accreditation

The final evaluation system of the Accreditation and other cluster tenders have been set-up by using the collected data. A broad range of stakeholders have been asked to give their opinion on the planned accreditation system and cluster policy during a series of discussion lasting for approx. 6 months. The addressed stakeholders were the Ministry of Economy, Ministry of Education, the National Research and Technology Institute, the Economic Development Programmes

Managing Authority, the Human Resources Development Managing Authority, the Regional Programmes Managing Authority, the Hungarian Economic Development Centre (MAG), universities, research institutes, chambers of commerce in Pole cities and the clusters.

3. Which amendments were undertaken and were they based on impact analyses?

Regarding the Accreditation scheme, we apply continuous monitoring, which is based on the collected experience and data of the submitted applications to the Accreditation scheme. A major revision has been carried out at the end 2008 to react to the deteriorating financials of cluster member companies due to the crisis. Further we could require a deeper level of co-operation from cluster members than originally thought.

Second revision of the Cluster evaluation system is currently in progress.

4. What is the role of clusters within the regional smart specialization strategy?

The accredited clusters provide a favourable environment to drive innovation. Every accredited cluster has proven track record and a feasible strategy concerning innovative projects. Level of trust in the accredited clusters is an order higher than in general in the economy and so accredited clusters are fertile ground for joint innovation projects.

100 B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW (needed as base information in order to understand your approach for measuring the impact):

In the Hungarian cluster development model clusters can apply for grants according to their development level. Accordingly we differentiate 4 stages of development:

Stage 1: Start-up cooperations

Stage 2: Developing cooperations

Stage 3: Accredited Innovation Clusters

Stage 4: Excellent Innovation Clusters (not implemented so far)

Tailor-made supports have been elaborated for each stage considering the different requirements arisen from the different needs of cooperations.

	(Temporary) Project Consortia ³⁰	Cluster organisation ³¹
Who is the recipient?	On Stage 3 cluster project companies - founded by at least 3 cluster members – can apply for support of joint innovation projects	On Stage 1-2 cluster organisations can apply for support to set-up or strengthen the operations of the cluster management organisation.
Who is the financing authority? - Regional or national level - Ministry or agency	National level National Development Agency: Managing Authority of the Economic Development Operational Programmes	National level but with strong opinion of the regional level at the decision making process National Development Agency: Managing Authority of the Regional Operational Programmes

³⁰ A cooperation project for a particular research or innovation activity

³¹ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)	Cooperative (joint) R&D and innovation projects to develop new, innovative, exportable products, services	Establishment and reinforcement of cluster management organisations and their activities
PRIVATE contribution to total budget	Yes, approx. 50%	Yes, approx. 20%

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. How is it measured and how often?

In 2010, the methodology of a complex analysis for the effects and results of the Hungarian clusterization have been elaborated.

The analysis consists of the following steps:

- a. Data collection from the selected clusters
- b. Personal interviews with the selected cluster managers, and cluster company leaders
- c. Analysis of the socioeconomical effects of cooperations and clusters.

2. Why is it measured and to whom is it reported or what is the purpose?

The main purpose of the study is to analyse the economic and sociological impacts and advantages of cluster cooperations. Further it aims to find areas of future involvement in cluster policy and supports.

3. How is the “causality problem” addressed?

It is a critical issue and up until now no solid methodology has been worked out.

102 D. INDICATORS

1. Which indicators do you (as policy maker) collect?

The PPO and MAG (Hungarian Economic Development Centre) has direct access to huge amount of primary data provided by clusters in their Accreditation calls. These data are mainly derived from the balance sheets and the P&L accounts of the cluster member companies. For example: Total revenues of companies; Added value of SME's; Net export revenues of SME's; Total R&D costs of the companies etc., but they include strategies of the clusters, as well. The PPO together with MAG (Hungarian Economic Development Centre) stores, analyses and evaluates these data. Clusters provide these data themselves filling in forms and tables and the colleagues of MAG verify these data by performing an on-site check at the premises of the cluster management organisation.

2. How do you analyse the data?

- Balance sheet and P&L data are examined on a longitudinal basis both on the individual cluster level and on aggregate level.
- We try to measure the total economic significance of clusters as compared to the total national economy in terms of:
 - revenues,
 - R&D expenditures
 - employment

3. Is it possible to compare this data on a European/international level?

The share of clusters from the total economy expressed in different forms is comparable on international level.

Vinnväxt aims to promote sustainable regional growth by developing internationally-competitive research and innovation environments in specific growth fields. This is done by funding needs-driven R&D to strengthen the cutting-edge competence of the respective environment and by fostering strategic efforts to develop the regional innovation systems. Over the three calls, a total of some 200 initiatives have applied for Vinnväxt funding. Of these, 12 cluster initiatives have been declared winners.

The criteria used to select VINNVÄXT clusters were:

- The strategic idea and the growth potential
- Future markets
- Regional area of strength identified
- Prerequisites and abilities to create new research-based knowledge and technology
- Type and degree of renewal
- Leadership in the region (involving the whole Triple Helix: the regional government, research actors within the cluster's field, and industry in the region)
- Description and motivation of the geographical core/the functional region
- Description of cooperation outside the region (both national and international)
- Clear development steps – description of where the initiative stands today and in which way it is going to be developed

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

One of the criteria listed above is regional strength. For being a VINNVÄXT cluster, they have to prove that their growth strategy is based on historical and traditional strength in the region. For instance it could be the steel industry in the middle of Sweden – an area of strength since 16th century. It could also be fibre optics – obviously not that old, but they have a regional strength based on the experience from Ericsson and Acreo (the biggest research institute in Sweden). Both industry and the research sector (university) should focus on the same area of strength for being a VINNVÄXT-cluster.

2.-4. Was an ex ante analyses carried out prior to the set up of the cluster strategy? Which amendments were undertaken and were they based on impact analyses? What is the role of clusters within the regional smart specialization strategy?

Since the VINNVÄXT-programme is a bottom-up programme, no ex ante analyses were done. From a national level, we were looking for growth in the regions, and as a method we used an open call for proposals (all sectors were included).

The VINNVÄXT-winners represent smart specialisation (both within sectors and cross sectorial) in the regions since the clusters are based on regional strength (and the research actors and industry are focused and mobilised around the same strategic idea).

104 B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW (needed as base information in order to understand your approach for measuring the impact):

A unique aspect of Vinnväxt is the long time horizon. VINNOVA provides winners with funds of up to 1.1 million euro per year for a period of 10 years. The cluster initiatives (including all actors within Triple Helix) must contribute at least the same amount by themselves. The winners are also offered so-called process support in the form of coaching, learning seminars, and networking activities between all Vinnväxt winners. Since the VINNVÄXT label gives the clusters a high legitimacy, it has turned out to be easier for them to attract additional funding – both regional co-financing and EU-funding.

	(Temporary) Project Consortia ³²	Cluster organisation ³³
Who is the recipient?		Cluster organisation
Who is the financing authority? - Regional or national level - Ministry or agency		VINNOVA (national authority)
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channeled to cluster firms or research actors)		Yes Yes
PRIVATE contribution to total budget	y/n	y/n

³² A cooperation project for a particular research or innovation activity

³³ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

From the Governmental Bill on "Research and Innovation" (Published October 2008)

- "The Government's considerations: The Regional work for growth should find forms for a continuing development of cooperation between the regional work for growth and the national research and innovation policies. The dialogue between regional actors and concerned national agencies about the strategic work on research and innovation issues on a regional level should be developed."
- "On national level, VINNOVA's work with the VINNVÄXT-programme...has contributed to strengthen the cooperation concerning knowledge based innovation in a number of regions."

VINNVÄXT is a national initiative for giving leverage to regional processes

Targets

- To support the development of R&I environments
- To stimulate regional Triple Helix actors to develop internationally competitive regional innovation systems
- To be a catalyst for coordination of resources

Some results:

- Initiatives build and develop functions in the region (e.g. "Testbeds" and Incubators)
- Industry is cooperating (not only competing)

- New business models and new markets have been developed
- Most resources (from VINNVÄXT funding) is invested in R&D-projects (with emphasis on Development)
- Competence supply an important task of many cluster initiatives (from Kindergarten to PhD:s)
- VINNVÄXT initiatives attract national and international funding (FP7: seven applications, of which three granted; ESF funds of 7,5 MEUR)
- Gender perspective (in competence supply) improvements made (through working with right incentives in cluster initiatives)
- In 2008, at least 144 PhDs and 66 doctoral students participated in projects (the 8 old initiatives)

1. How is it measured and how often?

Every third year, the VINNVÄXT-clusters have to go through an evaluation done by international experts.

In addition to the evaluations every third year, assessments are carried out each year (each 6 months but a more extended version every 12 months).

2. Why is it measured and to whom is it reported or what is the purpose?

The purpose of the evaluation is to check if the cluster is developing according to the plans (i.e. into an internationally competitive cluster within their specific area of strength).

Before the evaluation, the clusters have to hand in a status report

according to the criteria above (qualitative data), as well as quantitative figures about growth in companies, companies involved in the cluster, patents, research projects, involved researchers, new products etc.

The clusters also have to hand in a strategic plan about their plans for the next three years.

The evaluation panels consist of two teams - one team consists of more general cluster experts, and the other panel consists of experts within the specific area (sector) to which the cluster belongs. The evaluation teams read the status reports and conduct interviews with many people in the region (the cluster management and other important actors: regional politicians, some of the companies, and research actors).

Of the basis of the results from the evaluation, the programme

board and the programme management makes a recommendation on whether the clusters should be approved for an additional three years of funding. The Director General at VINNOVA makes the final decision about further funding.

3. How is the “causality problem” addressed?

We use both quantitative and qualitative data. The questions are answered by the cluster manager and then followed up with yearly interviews. In addition, the clusters undertake self assessments and interactive research in order to improve their cluster development.

Every cluster also has a board comprised of regional actors (for instance the county governor) from the whole Triple Helix. Their role is to ensure that the cluster meets the regional expectations.

D. INDICATORS

1. Which indicators do you (as policy maker) collect?

Some important indicators we are looking for are: regional growth measured in number of companies involved, new products, and renewal (research projects and newly-started companies linked to the research environment). We are also evaluating the cluster’s development into a strong research and innovation environment – e.g. if the business and the research actors are working closely together. We want to be sure that the region is developed into a strong national and international hub.

Example indicators (qualitative and quantitative):

- Companies involved (listed in three categories, depending on level of involvement)
- New companies formed
- Researchers involved
- Research projects initiated
- Scientific articles published
- Number of researchers (in the region)
- Level of employment (in the region)
- (Qualitative) questions about new cooperations and internalisation.

1. How are cluster strategies (on regional or national levels) defined and evaluated? How can existing tools and platforms (for example the European Cluster Observatory) be used in this regard?

Over the past years, more efforts have been made to bridge the gap between the public research actors and the industrial actors. In France, most of the efforts have been focused on the competitiveness cluster policy (accounting for more than 30% of the budget dedicated to innovation policy priorities identified in the fact sheets). This instrument allows industry and public research institutions to identify collective innovating projects, and to fund them through a common inter-ministerial fund.”

A main cluster policy was launched in France in 2004 with a first phase of selecting pôles de compétitivité and labelling their projects from 2005 to 2008. After an evaluation, a second phase from 2009 to 2011 was launched – still with the labelling of R&D projects, but more strategically focussed, involving broader aspects, like open innovation, internationalisation, etc.

On a strategic level, each pôle de compétitivité has to define its own strategy for 3 to 5 years, including the thematic priorities, the development objectives in link with the “pôle” ecosystem, the coordination with other “pôles de compétitivité working in the same field, a description of the main actions to set up, etc. The document is called “strategic roadmap” and is forwarded to the Minister of Economics Industry and employment services; they may ask for more details or coherence in the roadmap. The document includes a kind of SWOT

Analysis, and the pôle has to propose indicators for a good implementation and follow up of its roadmap.

On a more operational level, the pôle signs a contract with the State and the local authorities for the concrete implementation of the action plan related to its strategy.

A finance Committee and an operational Committee are making the follow up.

Information on the evaluation of cluster strategies is available at: <http://www.industrie.gouv.fr/poles-competitivite/brochure-en.html>.

France is also developing a more systematic evaluation of its policies. Several major pieces of the innovation policy have been evaluated – including the competitiveness clusters.

After 3 years of implementation, an evaluation was made in 2007/2008 concerning all the 71 pôles de compétitivité by 2 independent consultants. Many hearings were organised, and all members of “pôles de compétitivité” teams were audited.

At the end of this evaluation process, decisions were taken concerning the 71 pôles: some of them were “delabelised”, indications were given to create new “pôles de compétitivité” on environment and energy thematics, other “world class pôles” became national pôles. (See http://competitivite.gouv.fr/documents/commun/Politique_des_poles/1ere_phase_2005-2008/Evaluation_de_la_politique_des_poles/CP_evaluation_des_poles_de_competitivite.pdf)

Another evaluation has been conducted in 2012, and the evaluation process remains dynamic.

<http://competitivite.gouv.fr/politique-des-poles/l-evaluation-de-la-2e->

phase-de-la-politique-des-poles-846.html

To complete the creation of pôles de compétitivité at National or world class level, French State has also launched a call for “grappes d’entreprises” which are existing clusters more locally implemented, often members of the “pôles de compétitivité” (or the contrary) but interlinked with them and able to represent more largely SMEs and all the local fabric of companies, and technical institutes (<http://territoires.gouv.fr/grappes-dentreprises>).

2. How do funding organisations evaluate the leverage effect of their investments in clusters?

There are also statistical follow up tools like the “tableau de bord des pôles de compétitivité” where one can find really a lot of information concerning the structure of the pôles but also the R&D projects, plus information about the results of R&D projects.

(See <http://competitivite.gouv.fr/poles-en-action/les-tableaux-de-bord-statistiques-des-poles-de-competitivite-467.html>, http://www.industrie.gouv.fr/p3e/4pages/4p10_dgcis.pdf, http://www.industrie.gouv.fr/p3e/4pages/4p10_dgcis.pdf, http://www.industrie.gouv.fr/p3e/4pages/4p10_dgcis.pdf.)

3. What methodologies are used to evaluate the impact of clusters on regional competitiveness? What indicators do policymakers collect? How are these analysed and benchmarked?

It is still early to evaluate the impact of clusters on regional competitiveness, but there are some existing studies made by governmental Agencies, in particular concerning employment (<http://cadres.apec.fr/resource/mediatec/domain1/media27/15493-o0o1k49spxr.pdf>)

Several regions also, have made such analyses (see http://www.bretagne.fr/internet/upload/docs/application/pdf/2008-11/evalpdc_prerapportfinal_volume_1_22092008-1.pdf).

A. CLUSTER STRATEGY

1. What led to the identification of regional strongholds?

The Innovation Programmes in the Netherlands were the result of the innovation policy of the former government. In 2004 the Innovation Platform (chairman was the prime minister) identified several “key areas” in which the position of the Netherlands was excellent or had the potential to be so. Consortia of firms and knowledge institutes were invited to develop their vision on how the sector could develop, what the ambitions were, and what the drivers and obstacles would be to achieve international excellence and economic growth. This could lead to a proposal for an innovation programme. These proposals were evaluated by independent experts.

2. Was an ex ante analyses carried out prior to the set up of the cluster strategy?

Yes, a programme proposal was evaluated by the Strategic Advisory Council at least once. The evaluation criteria were international excellence, contributions to economy and society, innovation barriers, effectiveness of overall plan.

3. Which amendments were undertaken and were they based on impact analyses?

For every innovation programme, a midterm evaluation was carried out. Those results provided information for possible amendments in the goals of the programme or the lines of action / activities towards reaching those.

4. What is the role of clusters within the regional smart specialization strategy?

Innovation Programmes and the clusters behind them are nationally organised. An innovation programme only gets funded if it can show excellence at an international level.

In this we the government promote smart specialisation at a national level. Sectors in which the Netherlands does not excel at an international level are not stimulated to form national clusters.

Most national clusters have a regional smart specialisation component as well. The Research and Innovation strategy focuses at centres of excellence within the Netherlands. There is a good cooperation with regional development agencies in to promote regional cluster formation around these centres of excellence.

110 B. DESCRIPTION OF PUBLIC CLUSTER FUNDING FLOW (needed as base information in order to understand your approach for measuring the impact):

A unique aspect of Vinnväxt is the long time horizon. VINNOVA provides winners with funds of up to 1.1 million euro per year for a period of 10 years. The cluster initiatives (including all actors within Triple Helix) must contribute at least the same amount by themselves. The winners are also offered so-called process support in the form of coaching, learning seminars, and networking activities between all Vinnväxt winners. Since the VINNVÄXT label gives the clusters a high legitimacy, it has turned out to be easier for them to attract additional funding – both regional co-financing and EU-funding.

	(Temporary) Project Consortia ³⁴	Cluster organisation ³⁵
Who is the recipient?	Consortia / company	Cluster organisation
Who is the financing authority? - Regional or national level - Ministry or agency	AgNL, National agency for innovation	VINNOVA (national authority)
Purpose of funding? - Facilitation of cooperation and provision of services to cluster members and/or - Cooperative RDI projects (funding gets channelled to cluster firms or research actors)	R&D&I, projects that fit in the research & innovation strategy of the national cluster	Yes Yes
PRIVATE contribution to total budget	Yes (minimum of 50%)	y/n

³⁴ A cooperation project for a particular research or innovation activity

³⁵ A cluster organisation is a permanent/long-term legal body – generally established as a non-profit organisation – that is responsible for facilitating cooperation within the cluster and providing various other services to cluster members. These services can include managing funds for cluster members' RDI activities.

C. LEVERAGE EFFECT OF PUBLIC CLUSTER FUNDING TO THE REGION > LEVERAGE EFFECT = IMPACT

1. **How is it measured and how often?**
2. **Why is it measured and to whom is it reported or what is the purpose?**

Innovation Programmes are monitored every year on two quantitative indicators: number of participants and the total sum of R&D efforts within a programme. There is no specific indicator with regard to local or regional impact. Every four or five years innovation programmes are evaluated in depth: economic impact, impact on collaborative R&D etc. Evaluations look at the development of the domain of the

programme (e.g. high tech industries, food industries etc.) and at the performance of the programme as such. Again, the issue of local or regional impact is not addressed explicitly.

Annual data are reported to parliament. Evaluations as well.

3. **How is the “causality problem” addressed?**

Causality problem is only indirectly addressed. Most evaluations look at circumstantial evidence, although usually programme participants will be asked to indicate what the effects are on their firms.

D. INDICATORS

1. **Which indicators do you (as policy maker) collect?**

Number of participants, amount of R&D expenditures (public and private)

2. **How do you analyse the data?**

In an independent intelligence unit of NL Agency.

3. **Is it possible to compare this data on a European/international level?**

No, we are not aware of comparable programmes in other EU countries.

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113

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Linkology

114

Austria

ACCM (Austrian Center of Competence in Mechatronics)

www.accm.eu/nc/en.html

Clusterland Upper Austria

www.clusterland.at/index_ENG_HTML.php

ecoplus. The Business Agency of Lower Austria

www.ecoplus.at/en/ecoplus/cluster

Joanneum Research Forschungsgesellschaft mbH

Policies – Centre for Economic and Innovation Research

www.joanneum.at

TMG, Upper Austria

www.tmg.at/index_eng.php

Belgium

IWT, Flanders, Belgium

www.iwt.be/english/welcome

Service Public de Wallonie

<http://spw.wallonie.be>

Estonia

www.eas.ee/en

France

Oséo, France

www.oseo.fr/international

Ministère de l'Industrie

www.industrie.gouv.fr/poles-competitivite/brochure-en.html

Ministère de l'Économie et des Finances

www.economie.gouv.fr/innoTSD

www.inno-group.com/index.php/kb_1/oe_113/oe.html

Germany

MFG Baden-Württemberg mbH, Germany

www.mfg.de/english/

VDI-VDE, Germany

www.vdivde-it.de/?set_language=en&cl=en

foodRegio

www.foodregio.de/en

Greece

Corallia, Greece

www.corallia.org

Hungary

Gideon Richter

www.richter.hu/EN/Pages/home.aspx

MAG – Hungarian Economic Development Centre

<http://en.magzrt.hu>

Italy

Ministry of Economic Development

<http://www.sviluppoeconomico.gov.it>

Veneto Innovazione

www.venetoinnovazione.it/?q=eng

Luxembourg

Luxinnovation GIE

<http://en.luxinnovation.lu/Accueil>

Netherlands

Ministry of Economic Affairs, Agriculture & Innovation

<http://www.government.nl/ministries/eleni>

Poland

Ministry of Economy

www.mg.gov.pl

PARP

<http://en.parp.gov.pl>

Spain

Generalitat de Catalunya

www.gencat.cat

Sweden

Region Värmland

www.regionvarmland.se

VINNOVA

www.vinnova.se

United Kingdom

Manchester Metropolitan University Business School

www.mmucfe.co.uk

Scottish Enterprise

www.scottish-enterprise.com/

General websites related to clusters

European Cluster Alliance

www.eca-tactics.eu

European Cluster Collaboration Platform

www.clustercollaboration.eu

European Cluster Observatory

www.clusterobservatory.eu

European Commission, DG Enterprise&Industry

www.ec.europa.eu/enterprise

European Commission, DG Regional Policy

www.ec.europa.eu/regional_policy

OECD

www.oecd.org

PRO INNO EUROPE

www.proinno.net

TCI Network

www.tci-network.org

Glossary of key terms

116 Produced in collaboration with the European Cluster Excellence Initiative

Cluster

"A cluster is a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities". (Michael E. Porter, *On Competition*, Harvard Business Press, 1998, p.215)

Cluster members or constituents

Cluster members or better "constituents" (since to be part you do not need to sign a membership) *"include end product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions; and firms in related industries. Clusters also often include firms in downstream industries (that is, channels or customers); producers of complementary products; specialized infrastructure providers; government and other institutions providing specialized training, education, information, research and technical support (such as universities, think tanks, vocational training providers); and standard setting agencies. Government agencies that significantly influence a cluster can be considered part of it. Finally, many clusters include trade associations and other collective private sector bodies that support cluster members."* (Michael E. Porter, *On Competition*, Harvard Business Press, 1998, p.215-216)

Cluster Initiative

"Cluster initiative: an organised effort to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community". (Örjan Sölvell, Göran Lindqvist and Christian Ketels, *The Cluster Initiative Greenbook*, Vinnova/TCI, 2003, p.)

Cluster Initiative Participant

"Businesses and other innovation stakeholders involved in cluster initiatives" (extracted from EC Communication: *Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy- SEC(2008) 2637*, 17 October 2008, p.7)

Cluster Organisation

"Cluster initiatives are increasingly managed by specialised institutions, known as cluster organisations, which take various forms, ranging from non-profit associations, through public agencies to companies." (EC Communication: *Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy- SEC(2008) 2637* 17 October 2008, p.8). A Cluster Organisation does not necessarily have members, but it provides services to the cluster initiative participants.

Note: Cluster organisations have different names in different countries, eg. *compétitivité pôles*, cen-

tres of expertise, innovation networks and competence networks etc.

Cluster Association and Cluster Association Members

A non-profit association legally formed by members *"businesses and other innovation stakeholders involved in cluster initiatives"* (concluded from definitions above).

Statistical clusters

"Regional agglomerations of co-located industries and services". (EC Communication: *Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy- SEC(2008) 2637*, 17 October 2008, p.3)

Cluster Development

The cluster development process encompasses a range of organised efforts aimed at increasing the *growth and competitiveness* of the organisations in the cluster. Efforts are usually based on an evaluation of the cluster's strengths and capabilities (a mapping exercise), from which a vision for the cluster is formulated and objectives articulated. Targets and actions plans specific to individual clusters are developed. Results are then monitored and evaluated.

Cluster Manager

The Cluster Manager is the head of a Cluster Organisation. The term can also refer to all senior members of staff in a Cluster Organisation.

Cluster Members

Cluster Members are the Businesses, universities, policy makers, other public sector organisations and other private sector organisations which actively participate in a Cluster Initiative. They may pay a membership fee to the Cluster Organisation.

International

Activities shared between countries. Often refers to activities with countries outside Europe.

Memorandum of Understanding (MoU)

A MoU is a document that describes the general principles of an agreement between parties, but does not amount to a substantive contract.

Platform

A platform is a set of principles or plan by which activities can happen.

AND / OR

A platform is a place or forum for discussion.

Sector

A sector is an agglomeration of business activities into generally recognised individual industries which is used to quantify and analyse official in-

dustry data. This official data is based on Industry Classification codes eg the Standard Industrial Classification (SIC) code in the UK, which do not easily relate to modern business clusters.

Tool

Something used in the performance of an operation; an instrument: *“Modern democracies have the fiscal and monetary tools... to end chronic slumps and galloping inflations”* (Paul A. Samuelson).

Transnational

Activities shared between countries with common borders.

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