



Do public interventions for innovation hit their targets?

– Evaluating cluster organisations in Northern Central Sweden

The regions of Dalarna, Värmland and Gävleborg are together conducting the SLIM Project (system management and learning related to cluster processes/innovative environments in Northern Central Sweden) in order to support the development of cluster organisations and innovative environments. The project covers cluster organisations in the three regions, and comprises some 700 companies with a total of approximately 60 000 employees. The cluster organisations cooperate with each other and with the universities, institutes of higher education, municipalities and public sectors within the regions. The goal is to increase the level of growth and competitiveness in the three regions.

Within the framework of the SLIM Project, **new knowledge is being developed concerning regional growth, clusters and innovative environments**. The report entitled “RegioStars 2010” – the Slim Project entry for the RegioStars 2011 Awards – is part of a series of reports that have been produced by analysts, researchers and consultants on behalf of the project. The opinions expressed in the reports are the responsibility of the authors themselves and do not necessarily reflect official views.

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We trust that the reports will help to develop knowledge in the fields of regional growth and regional innovation systems. We would be grateful to receive your comments on the material.

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Do public interventions for innovation hit their targets?

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The use of the Värmland model, with The Care of Measuring Cluster Effects method as an important part, shows that EU innovation and regional development funds aimed to foster innovation in European regions could be evaluated – and that the result of these evaluations could support the European Unions goal to be the most knowledge-based economy in the world.

The first aim of this paper is to develop the area of evaluation of innovation and sharpen the use of public intervention for regional growth. This can be done by using cluster organisations as innovation agents working as brokers between the cluster companies and students and researchers from the university in regional innovation platforms.

The second aim is to inspire the work in the EU especially run by DG Regional Policy by showing new ways of attacking the problem of limited growth and the need of innovation by using new methods of evaluation, where Care of Measuring Cluster effects could be one tool to better steer the use of public funding.

Sweden has a population of approximately 9 million people. The Swedish economy is knowledge intense and relies heavily on export. Sweden is divided into 8 different geographical areas, which offer the possibility to apply for economical geographical support from EU-structural funds. One of these 8 areas in Sweden is Northern Central Sweden with about 1 million people, which includes the three regions Region Gävleborg, Region Dalarna and Region Värmland.

During the period of 2007-2013 the area of Northern Central Sweden receives around 170 million Euros to support innovation and structural change. The aim is to support the start of 3 000 new companies and 6 000 new jobs during these seven years. Within the area there are 14 cluster organisations that gathers 600 companies with 60 000 employees. The aim of the cluster organisations is to support knowledge transfer, business development and innovations.

The triangulation approach to impact assessment

Finding out whether public interventions hit their targets involves attacking the problem of causality. This is inherently tricky. One method of establishing impact of a practical EU innovation and regional development programme setting is *Care of Measuring Cluster Effects*, an important tool in the Värmland model.

Usually, evaluators adopt one only of the common designs of attacking the impact issue in their evaluations. Contrary to this, the Care of Measuring Cluster Effects approach argues that designs should be *triangulated*. Three approaches to the assessment of impact should be combined to provide more reliable cause-effects findings. The three approaches are shadow controls, process tracing and generic controls. A case of triangulation, this approach is also a so-called mixed method design (Fitzpatrick et al, 2004).

The Care of Measuring Cluster Effects method proceeds in the following fashion:

- Gathering knowledge and getting answers from the users, i.e. the particular companies within the cluster organisations, on how the public funds are used and what their immediate and ulterior effects have been. This is the *shadow controls* part of the method.
- Closely tracing the social processes in the cluster organisation and with identified actors around the cluster organisation from the moment they acquire the public funds all the way through distribution of these funds to cluster cooperation and particular projects out to the end results and side effects out there in society. In this way it is possible to capture in long-time processes how trust is fostered and social capital gained, both of which are essential for achieving the desirable outcomes. This is the *process tracing* part of the method.
- Adopting a long-term perspective with annual assessments and comparing the statistical changes within cluster companies in the region with identical or similar companies outside the region or in the nation as a whole to find out differences and similarities may give input to thinking on causality. This is the *generic control* part of the method.

The aim of the assessment is to form a reasonably valid idea of the amount of the outcome that can be attributed to work of the cluster organisations in promoting the growth and innovation capacity within the cluster companies. The Care of Measuring Cluster Effects triangulation method is in an early stage of development, but seems to carry some promises for attacking the cause-effects issue in the field of evaluation of public funds to innovation.

There are of course other approaches to designing evaluation for tackling the impact issue in the field of innovation policy. But, The Care of Measuring Cluster Effects method is to our knowledge one of the most developed. The three regions in Northern Central Sweden have already adopted it. By this a total of 600 companies with 60 000 employees have been part of the evaluation process, which has resulted in a number of strategic decisions amongst involved actors: cluster organisations and companies, institutes for higher education and research as well as regional governance organisations.

Ten years of practical experience in Värmland

Based on 10 years of practical experience of testing different approaches, Region Värmland has found a good tool for innovation and growth through cooperation and EU-funding. The gained experience shows that key actors for innovation and change in Värmland and Sweden are the cluster organisations together with modern universities with an interest to cooperate with the surrounding society. The cluster organisations play an important role as innovation agents. The role of an innovation agent is to gather SME:s and create collaboration with universities and combining different EU-funding to set up dynamical regional test labs to facilitate knowledge transfer and business development between entrepreneurs and researchers.

The cluster organisation itself is a registered association focusing on the needs of the cluster companies. A cluster manager runs the association and the board is recruited from the cluster companies. This cluster organisation gathers a critical mass of companies in a regionally specific strong sector or branch. These companies commit themselves by joining as members to be part of the cluster organisation. The cluster organisations works then as the companies voice and as an intermediary tool between the cluster companies, the region and the institutes for higher education and research.

Experiences points at the importance of building a meeting place for common projects and cooperation (Regional Development through cooperation and EU Funding 2009). One way of doing this is to use EU-funding and project money to set up an innovation lab or a test arena. In Värmland the cluster organisation Compare has created “Compare Test Lab”, an independent ICT test laboratory where both Karlstad University and 100 ICT companies comes together and test new software and collaborate in new ways. There have also been investments in the region in other areas such as test labs in the paper technology sector, renewable energy, packaging, food and the graphic sector. Within these test labs activities and meetings are arranged by the cluster organisations. During these meetings people get to know each other and new cooperation teams are formed between actors that normally not meet such as researchers and entrepreneurs

The four cluster organisations Compare, The Paper Province, The Packaging Arena and Steel&Engineering in all gather about 300 companies with 30 000 employees. This is about 25 % of the total work force in the Värmland region. As a complimentary force Karlstad University is located to the region. Karlstad University has a modern vision and act for better connection regionally adaptation of possibilities to cooperate with the region in education and research. The University of Karlstad has 13 000 students, and about 1 000 researchers and employees. This means that the cluster companies while using their test platforms have the possibility to go from breakfast meetings in these test labs to research and business projects together with students and researchers from the University of Karlstad. Altogether there is a possibility for cooperation between 43 000 people with the aim of innovation and regional growth in this case.

The Värmland model for innovation

The Värmland model focuses on cooperation between business companies, canalised through cluster organisations, the regional located university (Karlstad University) and regional governance organisation (Region Värmland). The companies and pertinent university researchers work together to improve near industry research,

which contributes to business development among the companies and facilitates entrepreneurship and the rate of skilled people in the region.

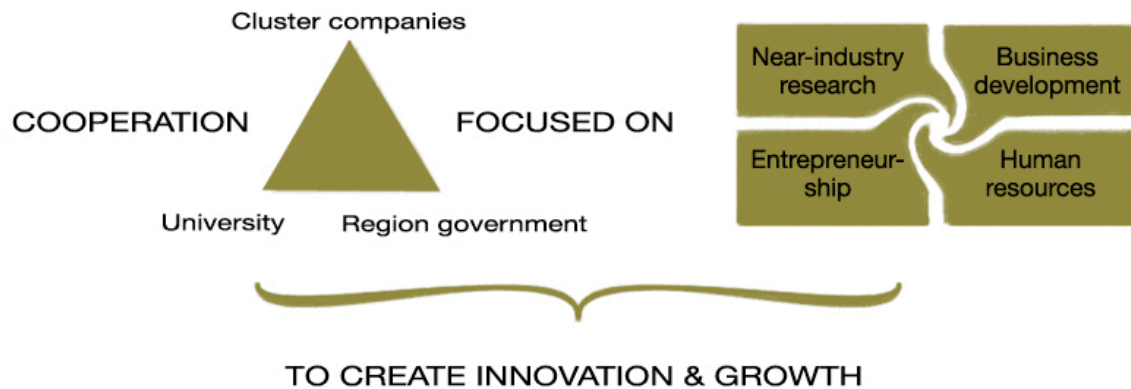


Figure: The Värmland model

The Värmland model builds on a systematic perspective on regional development, where cluster organisations and their use of public funding are measured. The assessment is based on four central processes; 1) business development, 2) increased entrepreneurship and commercialisation of innovation, 3) industry related research and co-production projects between the university and the industry, and 4) development of new education programmes to meet the companies need of skilled people in the long run. The purpose of the assessment is to clarify how the cluster organisations contribute towards growth and development (Sölvell, 2009).

Embedded in the Värmland model is the ambition to continuously gain knowledge about the processes and innovations produced by the cooperation between researchers and entrepreneurs. The instrument used to elicit this knowledge is evaluation.

The cooperation between the management of the cluster organisations and the management of Karlstad University and the management of the region makes it possible to develop strategic alliances and education in fields demanded by the companies, but also to launch new research departments. By using the cluster organisations as partners for developing new education and research programmes it is possible to find a large number of connection points in the specialized areas where the people in the cluster companies are active.

Evaluation by using Care of Measuring Cluster Effects

The method Care of Measuring Cluster Effects has been tested and used during four years in Sweden. The first two years, 2005 and 2006, it was tested in one region, Region Värmland, with four cluster organisations with 300 companies with 30 000. The following two years, 2007 and 2008, the test group has expanded to Region Dalarna and Region Gävleborg, giving three regions with 14 cluster organisations and 600 companies with 60 000 employees.

The development of the evaluation model emanated from a need to gain knowledge of the innovation process and on how the companies valued the public interventions. During the work with the cluster organisations Compare and The Paper Province, which both had received public funding since the beginning of 2000, the need for an evaluation model had become clear.

In the early years of the new millennium questions were raised by regional and national politicians on how long the public funding should continue and what difference these cluster organisations made. As a response to this, officials from the Värmland region together with The Swedish Agency for regional growth (Tillväxtverket) and The Swedish Agency for innovation systems (VINNOVA) started a pilot action project in 2004 aiming at designing a survey in order to answer the questions.

The survey was constructed with open questions about added value to the company by being part of the cluster organisation. The questions were designed to correspond to the four different areas in the Värmland model for innovation:

- 1) The change of industry related research connected to the cluster organisation
- 2) The change of the development of new education programmes.
- 3) The change of entrepreneurship with increased spin offs and commercialisation of innovation.
- 4) The change of growth in the cluster organisations by gaining new orders and increased sales by being part of the cluster organisations.

All together there were about 40 questions, which were sent out to the company leaders in 300 cluster companies. Initially about 60 % of the company managers answered the survey. There was also a cluster manager logbook connected to the survey and qualitative individual interviews complementing the survey. This pilot action project later developed into the method Care of Measuring Cluster Effects.

The method Care of Measuring Cluster Effects is still new and under development. However when seeking learning on the development of evaluating innovations processes we can see that there are few cluster programs or cluster organisations that conduct evaluations. An overview and global desk research made in cooperation between Region Värmland, Stockholm School of Economics and Uppsala University shows that there are still very few cluster evaluation reports available online (Sölvell 2009). Totally 50 cluster organisations, cluster networks and universities in 17 countries got an e-mail with ten questions regarding the evaluation of cluster programs and initiatives. By these there were only 5 of them that answered that they had conducted an evaluation and completed the questioner.

Overcoming the cause-effect challenge in impact evaluation

Finding out whether public interventions hit their targets involves attacking the problem of causality. This is probably the thorniest issue in the whole evaluation enterprise. The difficulties are manifold. Would growth or action taking place without public intervention? What can actually prove a positive connection between public funding and action and growth in small and medium sized companies? Many potential causes usually occur at the same time as the intervention under study, which makes it hard to attribute particular outcomes to the intervention. Another is that an intervention often consists of many components, which make it hard to ascertain exactly which component in the intervention contributed to the results.

Anyhow, evaluation theorists distinguish between gross outcome and net outcome. Gross outcome is everything occurring in targeted areas, whether caused by the intervention or by something else. Net outcome is intervention impact in the targeted areas, impact from all other sources beside the intervention eliminated.

Discernment of intervention impact could be done in a number of ways (Vedung, 2000, Rossi & Freeman & Lipsey, 1999). Hardcore evaluation methodologists argue that randomized controlled trials (RCT's) are the golden standard, which should be used much more in the public sector as well. Since two-group experimentation rarely is possible in practical circumstances such as finding out effects of clusters of companies with thousands of employees, evaluation theorists advance other more practical designs like shadow controls, generic controls and process tracing.

Shadow controls imply that people with special insights estimate the net outcome of an intervention or what outcomes they believe would have happened without the intervention. Instead of actually measuring the counterfactual case through statistical manipulation of data, the evaluator asks others to estimate it.

Process tracing implies that the evaluator follows the implementation and unfolding of the intervention very closely step by step in its natural surroundings. To find out the extent to which the intervention influences outcomes, intervention implementation is studied in order to discover and establish factors and generative mechanisms in the chain of implementation that have and haven't worked and explanatory causal drivers beside the intervention and its chain of implementation.

Generic controls involve working with some comparison group constructed in a rather specific way. Generic controls proceeds from the idea that the development in the smaller group covered by the intervention is compared to data about the normal or average development for the same time period in one or several larger populations to which the smaller group is maintained to belong.

Implementation of the evaluation model in Northern Central Sweden

The Care of Measuring Cluster Effects method is based on a survey with questions to cluster company managers. The questions are centred on changes in different cooperation and innovation matters connected to company managers' estimations of effects on the current growth of the companies. In evaluation terms this is a quantitative method and the *shadow controls design*. Also the company managers' satisfaction of being part of a cluster organisation is measured.

In addition to the survey, deep interviews are conducted with representatives from the university, the cluster companies and the region (Mapping of cluster effects in Värmland 2009) The intention is to gain specific knowledge from the field to get concrete examples and input from the on going process in the region. This information gives clues to what is happening during the process between the cluster organisations and the university and the region. Important knowledge about successful activities and actions gives also good information to better shape up the processes to do the right things but also things on a right way. This procedure is a qualitative method and a part of the *process tracing design*.

To further try to prove and find the real growth results in the companies within the cluster organisations and to have an idea of the result is good there is a need to use comparable groups to measure with. Two times during the period 2005-2009 there has been a statistical analysis of company growth in terms of employees and sale. The statistical analysis is based on the cluster organisations in their branches. This result has been compared to a national reference group with branch statistics in the same statistical branch code. This quantitative method and *generic controls design* is the third dimension of the triangulation to try to better gain results to illuminate the causality effect.

By analysing the combination of these three different evaluating methods and also combination of quantitative and qualitative data we can get some information of what is actually going well in the companies connected to each cluster organisation. From the findings we can also indicate fields for improvement and development. The results from the different cluster companies are accumulated on a cluster organisation level. From the accumulated result on a cluster organisation level it is then possible to compare the different cluster organisations with each other and from the difference in estimated effects it is possible to trace differences in the management and leadership of the cluster organisations The accumulated results when the survey is being repeated yearly gives a trend of development and change of stated customer satisfaction from a cluster company perspective.

During the period 2005 to 2008 new innovative platforms were built by combination of EU-funding and money from the private sector. The progress of inward investment and new companies and new jobs connected to these platforms, test labs, are specifically interesting to evaluate. Without the cluster organisations these test platforms would probably never been set up. Therefore a quite clear asset for evaluation is found. The test labs are easier to identify, than the progress of a whole region, where it is hard to discern the actors and also get focus on which activities and funding that creates results and which do not.

The platforms/test labs act as meeting places between industry and research where breakfast meetings lead to business projects, new investments, innovations and new jobs in the cluster companies. By near industry research projects knowledge transfer takes place and thereby renewal of the regional industry to more knowledge driven. The cooperation between the university and the cluster companies also results in student projects ending with the companies recruiting students to the cluster companies. The new projects and cooperation also results in spin offs. New knowledge from the cooperation leads to a higher value in the new products and services, which the entrepreneurs from the cluster companies put into the market. By a higher value in the products and more innovative products the cluster companies

can make better business and by that get an improved competitiveness in the longer run. (Edling, Vinnovanews 2009)

Results gained from the 2008 shadow controls evaluation

The gathered result using Care of Measuring Cluster Effects shows that the companies connected to the cluster organisations:

- Have a stronger desire to grow than other companies
- Increase their participation in research and development
- Predict increased innovation and commercialisation of new ideas
- Have a strong belief that the model used contribute towards greater competitiveness

The shadow control was made by a survey to the cluster company managers which they used about 15 minutes each to answer. The results tell us that the companies in the region, which want to grow, are connecting themselves to a cluster organisation. A high amount of these companies are also working together with the university today in one way or another. Almost all of the participating companies want to further develop the cooperation with the university. Through this assessment we can clearly see that companies with an ambition to grow and develop are connecting themselves to a cluster organisation. We can also see that the companies themselves view the collaboration thru the cluster organisations as fruitful when it comes to business development and knowledge transfer.

Case 1) Compare

Founded in year 2000, Compare is a cluster organisation in Karlstad, Sweden, that conducts business and competence development within the sector of IT and Telecom, ICT. The 100 member companies, with about 3 000 employees, cooperate in order to strengthen the region's competitiveness at the global market. Compare, Karlstad University and Region Värmland has a common goal to improve the region and to evolve its conditions for sustainable social and economic growth and innovation.

The Care of Measuring Cluster Effects method shows that about 78 % of the companies predict that new products and services will come out as a result of the cooperation within the cluster organisations. The assessment also shows that the willingness to grow in terms of both turnover and number of employees is about 85 % among the cluster companies, but only about 40 % in all other companies in the regions. About 78 % of the companies answers that they cooperate with the university today and about 98 % wants to do so in the future.

Case 2) The Paper Province

Värmland and its surroundings is a unique place for competence within the pulp and paper industry. Since the beginning of the 20th century, a large number of forestry giants have been established. In 1999 companies like Stora Enso, Pöyry, Metso, Billerud and others shared a need to reconstruct their businesses. This led to the establishment of The Paper Province cluster organisation.

Again, the assessment using the Care of Measuring Cluster Effects method shows that about 64 % of the companies predict that new innovations will be a result from the cooperation within The Paper Province.

The assessment also shows that the willingness to grow in terms of both turnover and number of employees is about 68 % among the cluster companies compared to about 40 % in all companies in the region. According to the assessment 79 % of The Paper Province companies cooperate with the university today and about 93 % wants to do so in the future.

Results gained from the 2009 process tracing evaluation

The process tracing was made by the company Attityd, which is a spin off company from Karlstad University, which works with marketing research on the behalf of organisations in Sweden. The process tracing was focused on the innovative platforms connected to each cluster organisation.

The result from the process tracing tells us that there are new industry related research projects, in cooperation between the university and companies, which has led to innovations on the market. These cooperation projects have also led to a change in the university where new professorships connected to the industry in the region are created.

The results also tells us that the process has led to dynamic change and innovation in the region not only in terms of new research cooperation between industry and the university, but also results in an increased attractiveness and new inward investments in the region.

Case 1) Compare

In 2007 Compare Test Lab, was founded through common efforts within Compare. Today, Tieto and other companies use the lab to develop new business regarding tests and labs, and Karlstad University contributes with world-class research. Externally financed research projects, among others involving the Sixth and Seventh Framework Programme, initiate further development and engagement by the Department of Computer Science at Karlstad University.

Compare Test Lab has received investments of 10 million Euros with 5 researchers working fulltime with research projects. Two new innovations has been put out on the market from research results and about 140 new jobs has been created between 2006-2008. A new professorship in test of communication technology is set up by University of Karlstad by EU structural funds.

Case 2) The Paper Province

In 2003 The Paper Province got an opportunity to strengthen the ties between researchers and the member companies. Supported by regional and national public bodies, The Paper Province acquired a pilot machine for paper testing and started an independent industrial research and development company, The Packaging Greenhouse. Today, the pilot machine has become an asset for the region, for The Paper Province's 82 member companies and their more than 8 000 employees, researchers at Karlstad University as well as players from all over the world.

Apart from being used by regional companies, The Packaging Greenhouse lab has helped to attract new companies to the region. This has resulted in new investments in the region amounting to approximately 200 million Euros, about 300 new jobs and substantial research projects within the 7th Framework Programme.

The investment in, and development of, an independent test lab is one of the explanations behind The Paper Province's position as one of Europe's 16 most innovative clusters (Cluster Observatory, 2007).

The Packaging Greenhouse lab in the Paper Province has led to 16 million Euros in test investments with researchers working within 7th framework programme. Two new innovations have been put to market.

Results gained from the generic controls evaluation

The generic control was made by WSP Analyse Group in Stockholm, a consultancy company focusing on statistics from a Swedish database Statistical Central Bureau. The generic control was made by three steps, first gathering the branch codes from the cluster companies, second summing the results in terms of employees in these companies during each of 14 years 1993-2007, third comparing the growth in terms of employees in these companies with the growth in these branches in Sweden during the same time.

The results from the survey tells us that the work connected to this cluster organisation and the companies has led to a growth in new jobs in the region in comparison with the average in the branch in Sweden during the same period.

We can also see that the research cooperation and the increased attractiveness in the region has led to more jobs in the mature industry, while other parts of the same industry in Sweden has cut down the number of employees during the same period.

Case 1) Compare

The cluster organisation Compare has had a growth of people in the information and communication technology branch with 2 297 persons. This sector has grown more than the average in Sweden during the same period.

Case 2) The Paper Province

The companies in the cluster organisation Paper Province has had an expansion of people with 783 persons, while the branch in the rest of Sweden has been reduced the amount of people in the paper technology sector during the period 1993-2007

Theoretical discussion on the evaluation model

In this section, we will highlight some possibilities and limits of designing evaluation for illumination of causal impacts of funding.

Designing evaluation for innovation processes is complicated and difficult. Innovation itself is hard to measure and trace. Therefore the triangulation model Care of Measuring Cluster Effects is one way of both discern the actors who actually will make the change, the company leaders, and get their answers but also measure the effects of public interventions and see if there are any effects.

Programme theory of the EU Innovation and Regional Development Programme

One of the most fruitful methodologies to have emerged in the field of evaluation is the programme theory idea, developed by among others Chen, McLaughlin, Hoogerwerf and Vedung. The programme theory idea involves the reconstruction and ordering by the evaluator of the presuppositions and assumptions embedded in the pertinent intervention as a tool for further evaluative activities such as for instance an assessment of causes and effects. The programme theory is the intervention's own philosophical backbone.

The programme theory of the EU innovation and regional development programme can be sketchily reconstructed in the following manner. The European Union distributes funds to innovation and regional development. These funds are supposed to be disbursed by particular public sector regional governance organisations.

The regional governance organisations expend these funds to regional cluster organisations. These cluster organisations are of utmost importance in the EU innovation and regional development programme. Cluster organisations may enter into cooperation within a three-party platform where a university and a regional governance organisation are also involved. Funding for such a platform may also come from cooperating municipalities, companies and universities.

For the cluster companies, the rationale for participation in such a platform is to get new ideas on potential future products or services. These ideas are in due time transformed into concrete products and services by the cluster companies.

By working in close cooperation with companies in the network, the participating university may acquire suggestions for new research areas or more specific research ideas. Such research projects could be co-funded by the university and different cluster companies. The university and the cluster company may also work together in order to compose more competitive applications to external research foundations to get research projects funded.

There is also an education rationale for the university and the companies alike. To be able to produce innovative products and services, companies need trained specialists. The university might initiate educational activities to fulfil this need.

The rationale for the regional governance organisation is to discern exactly who should be given the funds. The governance organisation also has a responsibility to give accounts of how the money has been spent and to promote better use of the funds. A tool for this is evaluation.

To achieve renewal of businesses and gain new knowledge, there is a need for knowledge transfer between people. Innovation is based on the ability to see and get new reflections on running activities. New ideas come out of combination of traditional thinking and actions in different branches and research fields. Hereby, ways of acting and knowledge from other fields can be combined in new ways and forms.

In our two cases, Compare and Paper Province, innovative platforms as test labs are essential for knowledge transfer and gaining new knowledge. The labs are meeting places for different companies, but also for researchers, who find “real-world” problems to address and investigate. Therefore these environments are excellent centres for action to promote processes of innovation aiming at new methods or ideas. The outcome could later be licensed or patented, contributing to an increased competitiveness. The closeness between enterprises and university students and researchers improve the possibilities for commercialisation. By this, co-production between companies and academia promote regional growth and renewal of mature branches.

While to some extent already embedded in the Care of Measuring Cluster Effects approach to evaluation, the programme theory idea could be made much more explicit and clear in the method.

Interests and constraints regarding evaluation

A) Cluster organisations

There is a constraint regarding evaluation, as the cluster organisations to some extent are dependent of public funding for its activities. Political actions based on the results of the evaluation could mean less public funding. This has happened twice in Värmland, where two cluster organisations has been shut down as a result of poor results and lack of interest within evaluated cluster companies. However, over time the experience in Värmland, where information gathered by evaluation has been important strategic information, is good. Information from the cluster companies has in most cases resulted in improved cluster action plans, promoting even better results regarding cooperation and knowledge transfer, competitiveness, innovations and growth. To avoid dependence and influence by the cluster organisations in the results of the evaluation the evaluation is 100 % paid by official funding.

B) University

At the university there is a dilemma regarding “free research”, which is not to be interfered by political aspects. This could mean that research actors do not want to be evaluated, and that effects of cooperation and results of innovation are not of interest for individual researchers. When the region wants to direct public money to research activities connected to the regional industry, this often lead internal discussion within the university on how and in what way it is of interest to change direction and content of both education and research. At the modern university in Karlstad, there is a clear vision to be an independent actor and at the same time cooperate with companies and other organisations in order to contribute to development, regionally, nationally as well as internationally. Therefore the university has shown great interest participating in evaluations of the regional model for innovations and growth.

C) Regional government

Politicians are interested in getting knowledge about the outcome of public investments in regional growth through for example cluster organisations. Information on effects and results creates input to political prioritisations. However, there is a constrain if the results is poor and there is a need to take responsibility for investments and interventions that has not been successful as this could affect the possibility to be re-elected in coming elections.

What should be evaluated and discernment of critical actors

The answer to the question what should be evaluated is the cooperation between the discerned critical actors, with a focus on the collaboration between cluster companies and the regionally located university. As the companies are end users, it is essential to gain knowledge on how they value the cooperation. With focus on innovation and long-term competitiveness it is for example essential to monitor the willingness to grow compared with other companies. It is also important to investigate the current level of cooperation with the university and specific institutions, as well as the willingness to cooperate in the future. Last but not least, it is crucial to measure to what extent cooperation contributes to innovations, developed into new or improved products and services by the cluster companies.

As facilitators of co-production with a regionally based university, cluster organisations are key actors. The cluster managers play an important roll as brokers between the companies, researchers and students. The advantage of a cluster organisation compared to other actors is the possibility to gather a critical mass of companies in a specific branch. The cluster managers' responsibility is to support the member companies and arrange activities to strengthen their competitiveness. The cluster organisations are responsible for developing labs, where knowledge transfer could occur facilitating innovations within the member companies. In these labs there is a need for cooperation with institutes of higher education. Together with academic departments, cluster organisations produce common strategic documents to promote an increased cooperation regarding research and education. In the end the companies are the ones supposed to deliver innovation and sustainable growth and thereby also ensuring that the public money hits its targets.

Another key actor is the university management, who need to maintain and pursue cooperation with the cluster organisations. The university management contributes to the cooperation adjusting education and research strategies at the university to the needs of the companies. This two-way co-production adds value to research and education, affecting the level of innovation, and contributes to sustainable growth.

The third key actor is the regional governance organisation, with responsibility to the national state, delivering strategies according to the Lisbon Strategy so that the European Union could be the most knowledge-based economy in the world. Through regional leadership the regional governance organisation could support cooperation for innovation by funding, but also assess if the public interventions hit the targets and if and how they could be optimised.

Pros and cons of the Care of Measuring Cluster Effects evaluation model

The strength of the Care of Measuring Cluster Effects method resides in the triangulation of three different designs for the illumination of the causality issue in innovation interventions. In this fashion, it provides much more validity to the

findings concerning the effects of the EU funding. It is also focused on the intended user of the public intervention: the cluster companies. The voices of companies are an important source of strategic information and knowledge to develop and shape actions for regional innovation and growth in Europe. The method itself also includes a holistic perspective where different actors and activities are included in the regional innovation system. This provides possibilities to better connect actors, but also to direct public interventions for regional sustainable growth in a better way.

There are weaknesses with the method. It is resource demanding because three designs are combined. For this reason it should probably be used only when large amounts of public money is involved. Furthermore, it is still being developed as it only has been tried out for four years. Another weak spot is that it has been tested in Sweden only. One challenge would be to adjust the method to circumstances and cultures in other parts of the European Union.

Ways of developing the evaluation model

There are some promising ways of developing the Care of Measuring Cluster Effects approach to innovation policy evaluation. Since the cause-effects issue probably will be with us forever in public policy, our approach does not constitute the last word. Yet, with some more determined use of the programme theory idea the process tracing part of the triangulation involved in the method could be made more focused, reliable, simple and less resource demanding.

Also the generic controls part of the method might be improved by discerning some simpler and more readily available control cases to compare with.

Final comments

For the next EU-programme period it is possible to direct public funding in a better way, in order to increase the outcome. By obtaining strategic knowledge from evaluations conducted in a holistic perspective, input for the European Union becoming the most knowledge based economy in the world is given. Today we have the following background:

- Large amounts of money are put into regional development and growth by different official funding in Europe.
- Innovation and sustainable regional growth is important for competitiveness in Europe in the long run.
- Strategic knowledge from evaluation of effects of EU interventions is crucial when forming the new programmes in the EU programme period from 2014.
- SMEs are maybe the most important potential growth factor for new jobs in Europe; it is in these companies the new jobs will come in the future. Therefore new knowledge is needed to support increased knowledge spill over and co-production between universities and SMEs, which is intended to result in bigger amount of renewal and innovation.
- New growing sectors will rise in the combination of established branches and knowledge platforms where cross border activities are stimulated.

The need to discern critical actors who can support the innovation flow

- Cluster organisations can support the innovation flow trough gathering a critical mass of large and small companies and stimulate actions for cooperation with local universities.
- Modern universities, eager and competent to co-produce with companies in the region, aiming at building and transfer knowledge into innovation and growth.
- Regional governance organisations, managing the regional contexts communicating with national and EU level actors.

One way of striving for a more knowledge based economy

- Long run projects, more than 5-8 years.
- Development of common policy documents by academia and cluster organisations, on a regional level.
- Further cross border cooperation in Europe.
- New programmes that support modern universities with an ambition to cooperate with SMEs gathered in cluster organisations.
- Sustainability, gender and integration potential for increased focus areas in the future.
- A better connection between EU-programmes for regional development and EU-programmes for research, where the combination can support innovation and growth.

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Cluster cooperation creates growth and competitiveness

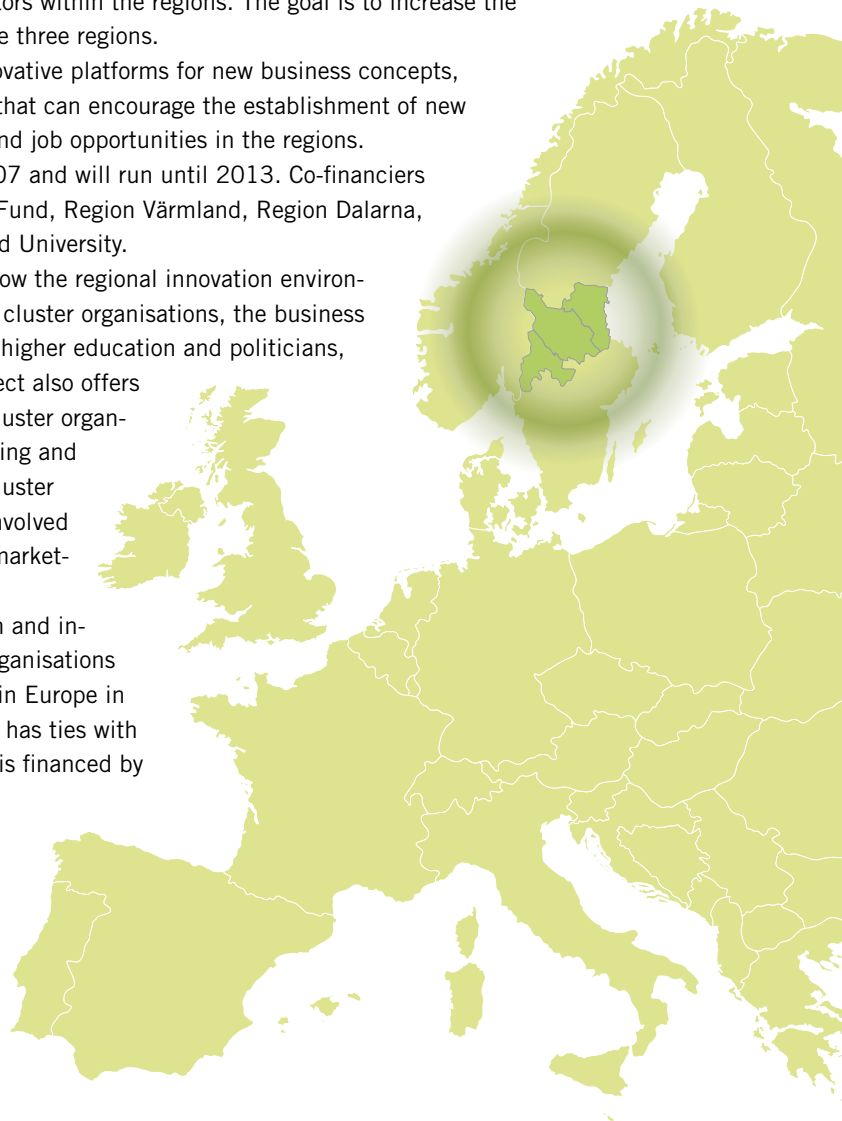
The regions of Dalarna, Värmland and Gävleborg are together conducting the SLIM Project (system management and learning related to cluster processes/innovative environments in Northern Central Sweden) in order to support the development of cluster organisations and innovative environments. The project covers cluster organisations in the three regions, and comprises some 700 companies with a total of approximately 60 000 employees. The cluster organisations cooperate with each other and with the universities, institutes of higher education, municipalities and public sectors within the regions. The goal is to increase the level of growth and competitiveness in the three regions.

The cluster organisations provide innovative platforms for new business concepts, research work and development projects that can encourage the establishment of new companies, new products and services, and job opportunities in the regions.

The SLIM Project was initiated in 2007 and will run until 2013. Co-financiers are the European Regional Development Fund, Region Värmland, Region Dalarna, Region Gävleborg, VINNOVA, and Karlstad University.

The project entails joint learning on how the regional innovation environments can be developed in dialogue with cluster organisations, the business community, universities and institutes of higher education and politicians, as well as with national players. The project also offers process support to the managers of the cluster organisations in the form of mentorship, coaching and competence development. Through the cluster co-operation, small companies become involved in new business solutions, international marketing and R&D work.

The SLIM project also has a European and international perspective and the cluster organisations taking part cooperate with other clusters in Europe in order to learn from each other. SLIM also has ties with the European Cluster Observatory, which is financed by the EU Commission.



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