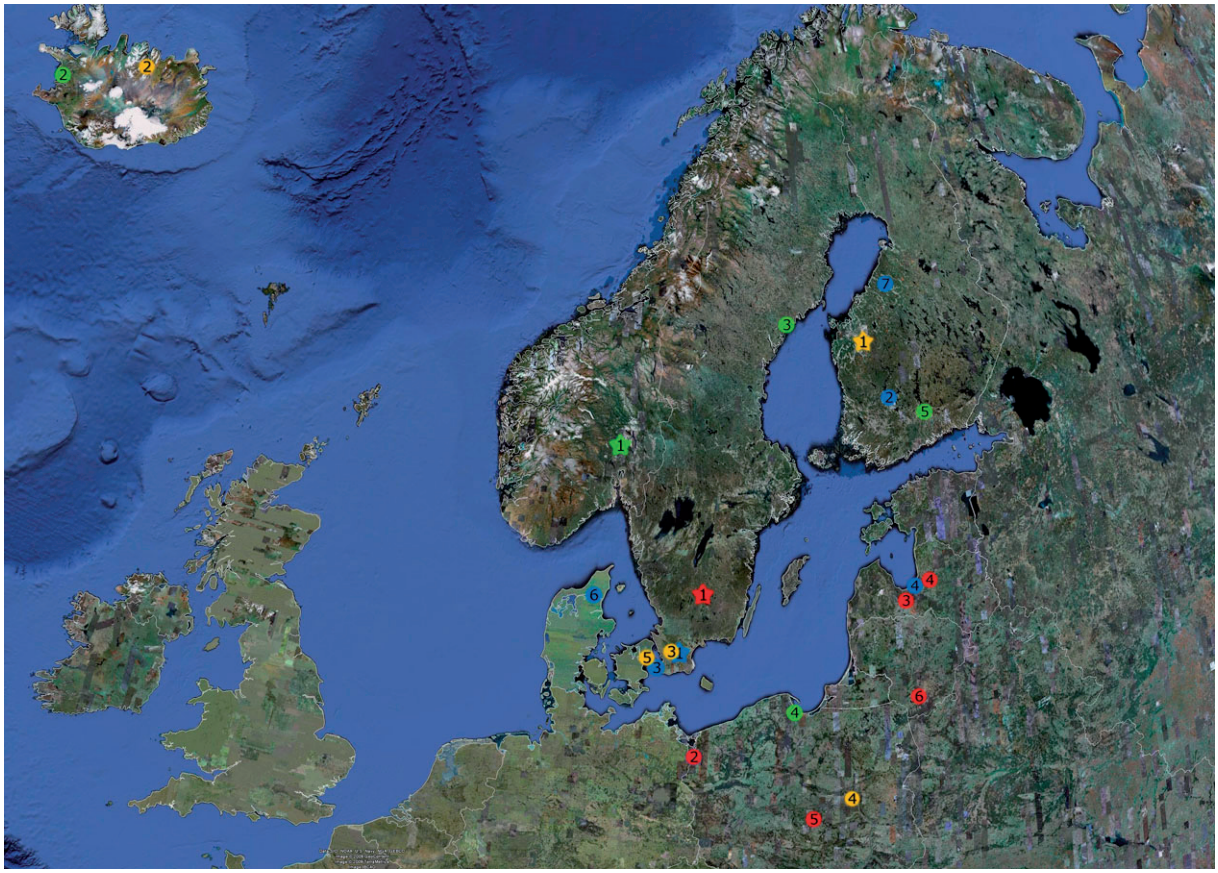
VINNOVA REPORT
VR 2010:11

CREATING LINKS IN THE BALTIC SEA REGION BY CLUSTER COOPERATION - BSR INNONET

Follow-up report on cluster pilots



KARIN NYGÅRD SKALMAN & ANNA ZINGMARK - VINNOVA

Title: Creating links in the Baltic Sea Region by cluster cooperation - BSR InnoNet. Follow-up report on cluster pilots
Author: Karin Nygård Skalman & Anna Zingmark - VINNOVA
Series: VINNOVA Report VR 2010:11
ISBN: 978-91-86517-10-6
ISSN: 1650-3104
Published: April 2010
Publisher: VINNOVA - Swedish Governmental Agency for Innovation Systems/Verket för Innovationssystem

About VINNOVA

VINNOVA (The Swedish Governmental Agency for Innovation Systems) is a State authority that aims to promote growth and prosperity throughout Sweden. Our particular area of responsibility comprises innovations linked to research and development. Our tasks are to fund the needs-driven research required by a competitive business and industrial sector and a flourishing society, and to strengthen the networks that are such a necessary part of this work.

The Government has assigned VINNOVA to

...contribute making Sweden a leading research nation in which research of high scientific quality is conducted.

...promote sustainable growth and increased employment by acting to increase competitiveness and the emergence and expansion of successful companies.

...support research and development work of the highest quality in areas such as engineering, transport, communications and working life in order to promote renewal and sustainable growth.

...stimulate Swedish participation in European and international R&D collaboration and in the exchange of experience in the field of innovation.

The VINNOVA Report series includes external publications and other reports from programmes and projects that have received funding from VINNOVA.

VINNOVA's vision is that:
"VINNOVA makes a clear contribution to Sweden's development as a leading growth country."

Creating links in the Baltic Sea Region by cluster cooperation - BSR InnoNet

Follow up report on cluster pilots

by

Karin Nygård Skalman
&
Anna Zingmark

VINNOVA

Contents

Summary **5**

Introduction **7**
Background 7
Why follow-up? 8
Designing learning processes for the pilots 8
How to read this report 10

1 Cluster cooperation pilots in the BSR- describing the process **11**
1.1 Creation of a taskforce 11
1.2 Identification and selection of clusters within the various countries 12

2 Creating links between clusters in different countries **14**
2.1 Why is transnational collaboration between clusters considered important? 14
2.2 What are the lessons learned so far? 15
2.3 How can it be done? 16

3 Lessons learned from the pilots **18**
3.1 Pilot: Food 18
3.1.1 Establishing collaboration on sustainable food development in the BSR 18
3.1.2 Pilot development review 19
3.1.3 What results can be seen? 20
3.1.4 What are the lessons learned? 21
3.1.5 Opportunities for future cooperation 22
3.2 Pilot: Furniture 23
3.2.1 Creating new business opportunities in the wood and furniture sector 23
3.2.2 Review of pilot development 24
3.2.3 What results can be seen? 25
3.2.4 What are the lessons learned? 25
3.2.5 Opportunities for future cooperation 26
3.3 Pilot: ICT 27
3.3.1 Supporting growth potential in the ICT sectors by clusters working together 27
3.3.2 Review of pilot development 27
3.3.3 What results can be seen? 29
3.3.4 What are the lessons learned? 29
3.3.5 Opportunities for future cooperation 30
3.4 Pilot: Bioenergy 31
3.4.1 Bioenergy - Finding answers to BSR challenges within energy 31
3.4.2 Review of pilot development 31
3.4.3 What results can be seen? 32

3.4.4 What are the lessons learned? 33
3.4.5 Opportunities for future cooperation 34
3.5 Lessons learned from the international taskforce 34

4 Conclusions 37
4.1 What are the overall results of the pilots? 38
4.2 Identified success factors 39
4.3 Implications for future programmes on linking clusters in the BSR 41
4.4 Need for knowledge development 43

Appendix 1 – Cluster initiatives in the various pilots 45
Food 45
The Food Development cluster (Finland) 45
Northeast Iceland Culinary Experience (Iceland) 45
Skåne Food Innovation Network (Sweden) 47
Warsaw University of Life Science (Poland) 47
Øresund Food (Denmark/Sweden) 48
ICT 48
Mobile Heights (Sweden) 48
Øresund IT (Denmark/Sweden) 49
Ubiquitous Computing Cluster, (Finland) 49
Latvia IT Cluster (Latvia) 51
ICT West Pomerania (Poland) 51
Bioenergy 52
Biorefinery of the Future (Sweden) 52
Arena Bioenergy (Norway) 53
Baltic Eco-Energy Cluster, BKEE, (Poland) 53
Græn Orka cluster (Iceland) 54
Finnish Cleantech Cluster (Finland) 55
Wood production, furniture and design 55
Möbelriket – Kingdom of Furniture (Sweden) 55
Latvian Forestry Cluster (Latvia) 56
West Pomerania Wood and Furniture Cluster (Szczecin, Poland) 56
University of Lodz (Poland) 56
University of Poznan (Poland) 57
Latvian Grey (Latvia) 57
Art Academy of Latvia, Design Department (Latvia) 58
Wood cluster (Lithuania) 58

Appendix 2 – Follow-up questions 59

Appendix 3 – Written references 62

Appendix 4 – Interviews 63

Summary

This report summarizes the lessons learned from four pilot projects on transnational cluster cooperation within the Baltic Sea Region. Cluster initiatives have started to identify joint agendas and actions within the areas of ICT, Wood/Furniture, Food and Bio energy. In total 21 cluster initiatives participated. The pilot projects were initiated within the BSR InnoNet (the Baltic Sea Region Innovation Network) and the pilots were running between X 2008 and October 2009. The aims with these pilot projects were to learn more about how to create links between clusters in the region and to identify early results. During this period representatives from cluster initiatives have met, learned about competencies and actors in the different clusters and worked on identifying joint future actions.

It can be noted that one year is not a long time when it comes to cluster development and when it comes to creating new relations between clusters over national boarders and agreeing on joint actions. Still the follow-up report shows that cluster representatives believe that links could be further strengthened in the region. The majority perceives long-term cooperation as a means to boost competitiveness of the region. One important result is that cluster consortia have developed post-pilot cooperation businessplans. Other concrete results seen are the initiation of R&D projects and business networking. Besides this identified results from cooperation are:

- Increased knowledge on competences in the clusters- relating to increased knowledge on companies and research institutions in the various clusters and what they can offer.
- New networks- contacts between clusters have been strengthened. New networks have been stimulated and people from different clusters now know each other.
- Somewhat stronger national coordination – international collaboration has provided stronger national links and promoted cooperation between actors nationally and within participating clusters.
- Increased dissemination of information- including spreading information about funding opportunities within the EU system (calls for proposals) or conferences/venues that could be of interest to other clusters.
- Increased bilateral cooperation – such as international cluster benchmarking and business trips.

The follow-up identifies success factors – critical issues when it comes to cooperation between cluster initiatives. It is important to build trust from the beginning. Transnational cluster cooperation has to be built on trust between individuals. This is often emphasised when it comes to cluster development and it also holds true for transnational cooperation. One of the most important success factors relates to leadership. Managing transnational cooperation between clusters is complex. There must be humility when confronted with cultural differences and still a clear vision

driving the cooperation. This is easier to achieve if one or two countries take a strong lead. The partners have to identify quick wins and at the same time seek a longer-term commitment. Short-term results are important in sustaining collaborative activities and, in time, helping, define long-term goals and activities. Long-term goals are important if there will be real economic results from cooperation. Another important aspect is that clusters need to be clear about what to offer. Even if cluster partners can identify quick-wins, the longer-term cooperation will depend on being clear about the competencies in the cluster and on what is needed from the outside. A strong strategy on internationalisation is an important prerequisite. Cluster managers' needs to secure the agreement and support of their own regional stakeholders whilst coordinating the transnational work.

Some recommendations for future transnational cluster programmes are presented in the report. These are:

- Involvement of different levels of actors is needed if transnational cluster cooperation shall create substantial benefits (Multi-stakeholder governance horizontally and vertically)
- Matchmaking of clusters is important at the same time as cooperation has to be driven by demand
- Social aspects of creating cluster collaboration should not be underestimated. Create platforms for people to meet and create resources so that cluster managers and cluster actors can spend time on networking
- Find the right leadership. This is a crucial success factor. Leadership in handling international cooperation requires certain skills, tools and strategic thinking.
- Analyse cluster competences early in the process. This creates a basis for defining joint action
- Create cooperation between executive boards. Cooperation between representatives from executive boards will be a crucial success factor as there has to be a clear mandate from the executive.
- Develop capacity-building for transnational cooperation and cooperation on innovation. This might involve training and support in how to make transnational cluster cooperation work and tools for working with innovation processes between clusters.

Develop practical tools that support cooperation. Developing and using different communication platforms would speed up cooperation. In this regard, it is important to work with multimedia tools and interactivity.

Introduction

Background

BSR InnoNet

BSR InnoNet (the Baltic Sea Region Innovation Network) is a transnational project supported by the EU PRO INNO Europe which promotes transnational cooperation on innovation and clusters. BSR InnoNet is one of four innonets[1] supported by the EU focusing on clusters and cluster-support programmes[2].

The project, which ran between September 2006 and October 2009 aimed to create operational and long-term links between innovation policymakers, implementing agencies and analysts in the Baltic Sea Region. There were three major objectives. Firstly, to establish a joint conceptual framework for cluster policy formation, evaluation and operational activities across national borders in the Baltic Sea Region. Secondly, to establish one or more joint innovation programmes focused on cluster development among partner countries in the Baltic Sea Region. Thirdly, to be one of the core European learning cases.

A number of activities were conducted during the project. Within the analytical part of the project, various analytical sub-projects were initiated so as to better understand the BSR cluster map, how clusters are located in the Region and how their value is created. Within the capacity-building part, various knowledge building activities were then conducted. The aim was to increase knowledge on how to work with cluster initiatives and cluster policy in the various countries. It was important to create networks among actors from different countries as a tool for sharing knowledge as well as experience. Target groups for the capacity-building activities were cluster facilitators, policymakers and consultants.

Pilot programmes on transnational cooperation between clusters

In January 2008, a pilot programme on cluster cooperation was initiated by BSR InnoNet. This was seen as vital in gaining practical experience on how to create links between clusters within the Baltic Sea Region. During the work with BSR InnoNet, more concrete action between clusters in the Region was deemed necessary as a "reality

[1] BSR InnoNet, CEE-ClusterNetwork, CLUNET, INNET.

[2] Partners of BSR InnoNet are: the Nordic Innovation Centre, the Nordic Council of Ministers, VINNOVA (the Swedish Governmental Agency for Innovation Systems), FORA (the Danish Enterprise and construction Authority's Division for Research and Analysis), Enterprise Estonia, the Estonian Ministry of Economics and Communication, Tekes (the Finnish Funding Agency for Technology and Innovation), Rannis (the Icelandic Centre for Research), LIDA (the Latvian Investment and Development Agency, Innovation Norway, ZARR (the West Pomeranian Regional Development Agency), LIC Lithuanian Innovation Centre and BTI (Mecklenburg-Vorpommern Technologie-Beratungs-Institut).

check". The cluster cooperation pilot was also important as a means of learning more and as a basis to define a full-scale programme by the end of 2009. Four different projects were run within the pilot, with clusters cooperating under four areas:

- Biotechnology, focusing on the environment
- Food
- ICT
- Wood production and furniture.

The process of developing the pilot is further described in section 2. This report summarises the follow-up on the four cluster cooperation pilots. The follow-up was conducted during the spring of 2009.

Why follow-up?

This follow-up to the cluster pilots had two main objectives: learning and monitoring. The first objective was to learn more about transnational cooperation between clusters. What are the potentials for transnational collaboration between participating clusters and how can they be stimulated? What obstacles are there to transnational collaboration between participating clusters and how can they be overcome? How can this type of collaboration be organised and what would be a feasible budget for process support? What capacity-building activities are required? The second objective of the follow-up was to monitor the pilot projects on results achieved and the goal of longer-term cooperation.

The areas of study were:

- Describing the pilot projects and clusters involved so as to increase understanding of what kind of cooperation is occurring and what different kinds of stakeholders are participating.
- Learning more about working with transnational cooperation in the BSR region within the area of clusters.
- Learning more about what happens in the national and regional context, i.e. how the different national initiatives use international links.
- Following up whether other early-stage results have been generated. (during the pilot).
- Monitoring the pilot projects' results and determining whether they can be expanded into full-scale projects (whether they result in areas of common interest)

Designing learning processes for the pilots

Different evaluation or learning methods were used to discover more about the results of the pilots and what can be learned about transnational cluster cooperation. Methods included independent follow-up research and innovation journalism as well as more traditional follow-up.

Independent follow-up research

Researchers were assigned to study two of the cluster pilots. In Sweden, Jerker Moodysson (PhD in Social and Economic Geography and Assistant Professor of Innovation studies) and Jens Sörvik (PhD student) both from CIRCLE[3] in Lund conducted research on international policy learning. Their study focuses on opportunities and challenges for public actors in promoting the internationalisation of firms through cluster initiatives and other types of innovation policies. The study applies qualitative methods and follows one of the BSR-InnoNet pilots in depth, the ICT-clusters pilot. The main objective was to explore various actor interests relating to internationalisation and examine ways in which international policies can support these. Another issue was examining the extent to which expectations and incentives for participating in the pilot project corresponded to the objectives defined by the project organisation. The study also examined knowledge-transfer activities between key actors in the cluster initiative.

Researchers Martti Lindman (University of Vaasa) and Mari Sandell (University of Turku) studied the Food pilot in more depth. Their task was to evaluate the overall progress of the pilot (i.e. how much value in terms of key pilot themes/functions was added by pilot members' activities) and examine the pilot from an academic perspective. Another task was to inform and update the Food pilot on important findings, improvements and academic research trends in the field of food marketing and consumption.

Innovation journalism

Another part of the learning activities was the use of innovation journalism as a way to reflect on certain phases of cooperation. An innovation journalist, Kajsa Linnarsson was commissioned to write an article about one of the pilot projects. Kajsa trained at Stanford University in the US. Innovation journalism deals with reporting on the whole innovation process and the systems involved in creating innovations, including interaction between main actors and what is happening in innovation value chains. Kajsa wrote an article in February 2009 on the challenges and opportunities facing furniture clusters.

Follow-up

The third part of the learning process was to follow up the pilot. This included desk research, interviews and taskforce reflections. Desk research was initially conducted to gain more information about the various participating cluster initiatives. Information was gathered from the Internet and cluster managers. Important areas of desk research included pinpointing the cluster geography, important stakeholders, vision and goals of the cluster initiative and principal ways of working. Other areas of interest were facts about the organisation acting as a cluster facilitator and whether the cluster initiative is

[3] The Centre for Innovation, Research and Competence in the Learning Economy.

part of a national programme or network. Desk research was also conducted on written reports from the pilot.

Interviews have been conducted with around 30 people who participated in different ways in the pilot. Almost all interviews were conducted on site. The remaining interviews were telephone interviews. See Appendix 3 for interviews conducted.

The interviews focused on different types of questions:

- Questions aimed at describing the pilot projects so as to increase understanding of the kind of cooperation that has taken place
- Questions aiming at selecting information on pilot projects' early and longer-term results and concluding whether they can be expanded into full-scale projects.
- Questions aiming at learning more about working with transnational cooperation in the BSR region within the area of clusters/innovations systems. It was also interesting to learn more about what is happening in the national and regional context, i.e. how different national initiatives utilise the international links.

See Appendix 2 for the detailed questionnaire. Interviews were conducted by Anna Zingmark from VINNOVA and Karin Nygård Skalman, also from VINNOVA. Bogumil Hausman VINNOVA was responsible for taskforce reflections and also involved in some of the interviews.

A taskforce comprising representatives of the various participating countries was responsible for running the cluster pilots. This is further described in Chapter 2. Each taskforce member was assigned to follow one of the pilot projects more closely. Throughout their meetings, the task force discussed important lessons learned from the cluster cooperation. These are presented in Chapter 4.

This report summarises results and lessons learned from the follow-up. The work of independent researchers is presented in separate articles.

How to read this report

Chapter 2 describes the process of working with the pilots on transnational cluster cooperation. Chapter 3 presents some theoretical aspects of international inter-cluster networking. Chapter 4 presents the various pilots: Food, Wood and Furniture, ICT and Bio energy. These are described in terms of results so far and lessons learned on cooperation between clusters. Finally, Chapter 5 offers some general observations on the results of the pilots and conclusions as to what lessons can be learned from them.

1 Cluster cooperation pilots in the BSR- describing the process

This section describes the process of working with cluster cooperation pilots in BSR InnoNet.

1.1 Creation of a taskforce

Within BSR InnoNet, a taskforce with representatives of Finland, Norway, Iceland, Latvia, Poland and Lithuania was commissioned to initiate pilots of cooperating cluster initiatives in the BSR. This taskforce was created in December 2007 and was a way to identify clusters in each country, initiate cooperation between cluster initiatives and fund the various pilots. It was also a way to make these countries commit themselves to the work.

The work of the taskforce was led by Bogumil Hausman and Karin Nygård Skalman, programme managers from VINNOVA. Other members of the taskforce were:

- Jukka Lähteenkorva, Head of the Foodstuff Cluster Programme, Finland
- Ottar Hermansen, Innovation Norway
- Sóley Gréta Sveinsdótttir Morthens and Thorvald Finnbjörnsson, the Icelandic Centre for Research (RANNIS), Iceland
- Toms Grinfelds, Ministry of Economics, Latvia
- Arkadiusz Kowalski, Ministry of Economic Affairs, Poland.

The mission for the taskforce (from the BSR InnoNet management team) was to verify the theories of transnational cluster cooperation by running concrete pilots. These were intended to result in learning, provide insights and serve as the basis for defining a full-scale programme on transnational cluster cooperation by the end of 2009. With the exception of Germany, Denmark and Estonia, all countries participating in BSR InnoNet were interested in participating in the taskforce. The taskforce and pilot projects were funded by the participating countries and the Nordic Council of Ministers. Taskforce representatives came from ministries and government agencies and provided competences in innovation and business development. The first step was to formulate a process for defining and implementing the planned pilot projects. Important consideration was given to the regional strongholds identified earlier through analysis and consultations with national policymakers within the BSR InnoNet project.

Earlier in BSR InnoNet, nine different strongholds in the Region had been identified: Energy and Environmental Technologies, Food Processing, Forestry and Wood, Health and Wellbeing, ICT (Information and Communication Technologies), Biotechnology,

Maritime, Nanotechnology and Tourism. The taskforce selected four areas identified by most countries as strongholds: Wood, ICT, Biotechnology and Food.

1.2 Identification and selection of clusters within the various countries

To gain important experience in creating a full-scale programme, the taskforce also chose pilot participants based on the following criteria:

1 Emerging clusters with research-intensive activities
2 Mature clusters
3 Value chain clusters
4 New business opportunities for mature industries.

It was important to include clusters at different stages of development and to define corresponding obstacles and opportunities.

Ministries and national agencies in each country then decided which clusters to include in different pilots. An invitation to participate in the pilot programme was designed and sent out. Different countries had different ways of picking the participating clusters. In Sweden, clusters that were already defined via Swedish national programmes like VINNVÄXT, Centres of Excellence and the regional cluster programme were chosen to participate. In Poland, universities and cluster initiatives were both singled out as potential partners. Iceland, on the other hand, had just started working on cluster development and designated two newly created clusters. The clusters' competences, collaborative abilities, willingness to cooperate internationally and capacity to find potential common commercial interests were also identified as important selection criteria. Table 1 presents the four established pilot projects and the participating countries.

Table 1. Pilot projects selected for the BSR InnoNet cluster cooperation programme

	Pilot 1	**Pilot 2**	**Pilot 3**	**Pilot 4**
Focus	Emerging clusters with research-intensive activities	Mature clusters	Value-chain clusters	New business opportunities for mature industries
Area	Biotechnology with focus on environment	Food	ICT (entire value chain of mobile devices)	Wood production and furniture
Participants	Finland Norway Poland Sweden	Finland Iceland Poland Sweden	Denmark Finland Latvia Poland Sweden	Finland Latvia Lithuania Poland Sweden

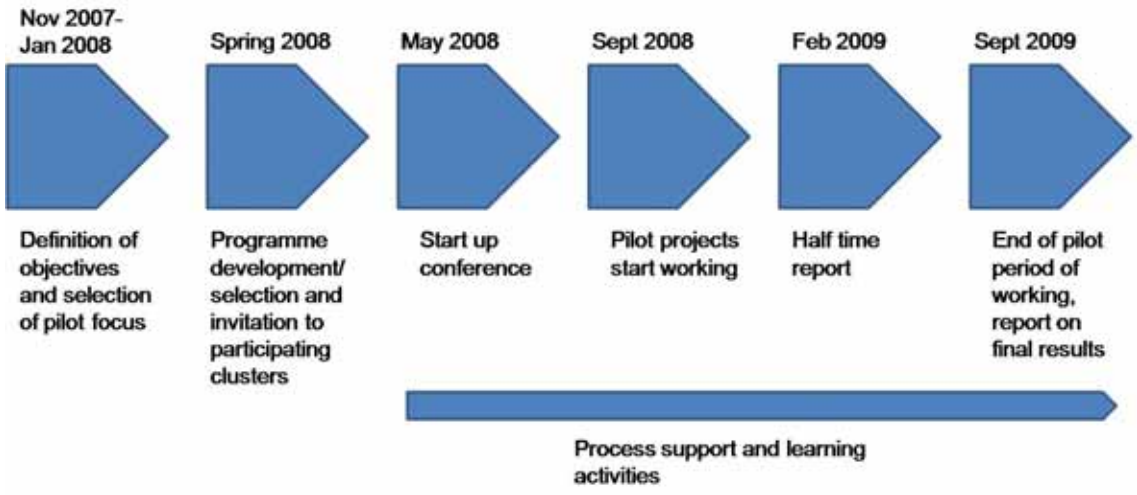
The chosen cluster initiatives were then invited to a planning conference in Stockholm during May 2008. The aim of the conference was to find common ground for future cooperation and initiatives. The groups of cluster representatives started discussing possible joint activities. During the conference, pilot project managers were discussed and nominated, drawn from different countries air. It was decided that the Biotechnology pilot would be managed by Norway, the Food pilot by Finland, and ICT and Wood by people from Sweden. Some initial areas of mutual interest were identified and people from the different clusters began getting acquainted. The aim was to establish commercial cooperation, improve research and political cooperation and discuss the mobility of human resources and new marketing opportunities.

With the conference in Stockholm, the cluster cooperation pilots started working on an action plan for the pilot phase (starting 1st September 2008 and ending in September 2009). A common aspect of all four action plans was to enhance knowledge and survey competences in each country. Workshops were seen as a tool for deeper understanding of the clusters and actors involved. Some of the pilots had already identified important activities at the Stockholm conference. For others, work began on finding a common strategic concept and once a decision had been made by the taskforce, the pilots could commence activities.

The various projects were closely monitored during their one-year pilot. They had to submit progress reports every three months and a reporting meeting was arranged for in January. All participating cluster managers were invited to participate in capacity-building activities. Three training modules were specially developed for transnational cooperation in the BSR. These courses concentrated on advanced cluster management or facilitation, branding and value chain analysis. The purpose of these activities was to increase competence in cluster facilitation.

The pilot programme process is summarised in the following diagram.

Figure 1. Pilot programme process



The work of the various pilots will be further described in section 3.

2 Creating links between clusters in different countries

This section gives a brief introduction to the underlying rationale of linking clusters transnationally, plus the current knowledge on how to make this type of cooperation work.

2.1 Why is transnational collaboration between clusters considered important?

Research shows that clusters provide an environment that stimulates innovation, create stronger incentives to innovate and provides a fertile ground for entrepreneurship. They are also a crucial factor in attracting capital, people and knowledge. Clusters and economic development are regarded as strongly interlinked. Dynamic clusters emerge and develop in open markets where there is cooperation as well as competition.

Governments all over the world have launched cluster programmes in the last few years. This is also an important component of business development and innovation policy in many European countries. In some countries, cluster policies have been in use for up to twenty years whilst elsewhere, they have just begun developing.

Internationalisation of clusters has become a key cluster policy priority in the EU as a way of increasing competitiveness. This is part of the EU's broad-based innovation strategy adopted in 2006. The European Cluster Memorandum of 2008 emphasises the need for stronger clusters based on innovation and excellence in Europe[4]. There are several ways for the Union to strengthen cluster polices: Improving framework conditions, promoting research and education, promoting entrepreneurship, fostering better links between businesses and research institutions and promoting cluster cooperation across Europe[5]

The underlying rationale is that links can be created between clusters in Europe for increased competitiveness. For example, these might be aimed at accessing complementary skills and knowledge, cooperating with research and testing facilities elsewhere or finding business partners in other clusters. Globalisation means that clusters need to act locally whilst still having solid links with clusters and markets

[4] The European Cluster Memorandum - Promoting European Innovation through Clusters: An Agenda for Policy Action.
[5] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Towards World-Class Clusters in the European Union, Brussels 17.10.2008, COM (2008) 652.

elsewhere. Policies on both EU and national level are seen as important instruments in support of this.

To date, a few steps have been taken within the EU towards practical cluster policy cooperation with the European Cluster Alliance, as well as more concrete programmes aiming at transnational cluster cooperation, such as the Regions of Knowledge, Europe INNOVA initiative and Pro INNO Europe initiative. Various InnoNets have been working within PRO INNO Europe on policy development for cluster cooperation. BSR InnoNet is one.

There are also examples of cross-border cluster initiatives such as the Öresund region (Medicon Valley, Öresund Logistics, Öresund Food Network, Öresund IT etc.) which serve as examples of transnational cooperation.

2.2 What are the lessons learned so far?

There are few studies on how to create transnational links between clusters, or rather how actions can be taken to improve links between clusters transnationally. There are even fewer follow-ups and evaluations on what results and effects can be expected from clusters cooperating across national borders.

However, there are studies on how national and regional cluster programmes are handling the issues of internationalisation. A report from Clusterland Upper Austria analyses existing policy measures supporting international cluster cooperation[6]. In this study, 48 national or regional cluster programmes (from 20 participating countries) provided data on how internationalisation is handled. Within the cluster programmes analysed, there were different types of internationalisation strategies for identified clusters. Some aimed at developing internationally competitive sectors and maximising the international potential of the Region's science and innovation, RTD and educational assets. Others aimed at increasing the international competitiveness of entrepreneurs or developing a framework for strong research and innovation environments so as to work more strategically on international challenges. Strategies are also identified that stimulate international cooperation between business actors or aim to develop larger cluster initiatives by linking various initiatives.

Another study from Kompetenznetze Deutschland examines the internationalisation of networks[7] and identifies various reasons for internationalisation. According to network managers of the German programme to strengthen its worldwide market position, the four strongest reasons are gaining easier access to target markets, gaining access to

[6] "Existing policy measures to support international cluster cooperation – within Europe and worldwide – and the role cluster organisations play in this process". Lucia Seel's (Clusterland Upper Austria) presentation to the Second General Assembly of the European Cluster Alliance, 8th May 2009, Copenhagen.

[7] Federal Ministry of Economics and Technology, Kompetenznetze Deutschland, Internationalization of Networks- Barriers and Enablers. 2007.

know-how or technologies that are unavailable within the domestic network and exchanging information and experience on an international level.

2.3 How can it be done?

There is no recipe for clustering and probably no standard recipe for international collaboration between clusters. Still, there is experience on working with cluster initiatives and research on how to create networks and cluster initiatives in a national setting. Quite a few of the important components in regard to clustering may also be relevant in creating international links between clusters in the BSR.

Most cluster processes go through the same general phases such as building social capital, developing links, defining a vision and a strategy on where to go and undertaking various cluster actions[8]. A hypothesis is that this is also important in building transnational links between clusters.

Trust-building is vital to the success of cluster processes. When it comes to building trust, it is important to have open communication between the key actors. Trust is also something that must be sustained; it is not something static[9].

Very often, an important aspect in developing links and relationships is analysing and singling out the various competences in the network. This may also be important in creating cooperation between clusters. In other words, identifying cooperation and possibilities for it as well as identifying gaps in competences or common interests.

Ifor Ffowcs-Williams, CEO of Cluster Navigators, has extensive experience on cluster initiatives and emphasises the importance of offering benefit to cluster stakeholders quite early in the process. Other success factors include whether the cluster initiative can develop a portfolio of projects. This spreads any pay-offs when the projects succeeds as well as any risks when it fails. It is also important for there to be a cluster facilitator, a person able to bridge the divide between the various participating organisations and companies. These factors probably also hold true for transnational cooperation between clusters as well.

Among the challenges or don'ts of cluster development are (with reference to Ifor Ffowcs-Williams) not expecting short-term results. Most clustering or networking processes are about building relations and there should be a long-term commitment. Ffowcs-Williams also points out the importance, not merely of involving a few stakeholders but also of having transparent decision-making involving stakeholders across the cluster. The Cluster Initiative Greenbook[10] presents data from 250 cluster initiatives around the world. The Greenbook also offers lessons learned on why cluster initiatives fail. This is often linked to a failure in getting consensus drafting a vision for

[8] The Cluster Policies Whitebook.
[9] The Cluster Policies Whitebook.
[10] The Cluster Initiative Greenbook.

the initiative. Another important factor in failure is insufficient budgets and a lack of resources.

Few studies link people and organisations in terms of cooperating clusters. The Swedish National Programme for Development of Clusters and Innovations Systems (Visanu 2002-2005) initiated a pilot for cooperating clusters within the manufacturing industry of southern Sweden. Research fellow, Caroline Wigren makes some conclusions in her final report, indicated below.[11]

Wigren states that the following aspects should be taken into consideration when it comes to cluster cooperation:

1 *Efficient use of resources*
Cooperation should be initiated where it is possible to obtain more efficient use of resources.

2 *Relevance for participants*
Activities should be arranged based on the interests of the actors involved.

3 *Shared visions and common goals*
Quite early on in the cooperation process, it is important to create a common vision on why to cooperate, including short and long-term goals.

4 *Clear rules*
When clusters co-operate, it is important to agree clear on rules early on about how to cooperate.

5 *The time perspective*
Cooperating between different clusters takes time. Projects that support cooperation are often very short.

6 *Cooperation for all participants*
When there is cooperation between cluster initiatives, it is important for this to take place on different "levels", both within management of the initiative and on a more operational level.

It may be concluded that cluster cooperation involves several aspects. The above are some of them and we need to learn more. Knowledge needs to be developed on what is really happening, describing what kind of processes that are taking place.

[11] Samverkande kluster och innovationssystem – Ett följeforskningsprojekt inom Visanu (Cooperating Clusters and Innovation Systems – a Research Report within Visanu).

3 Lessons learned from the pilots

3.1 Pilot: Food

3.1.1 Establishing collaboration on sustainable food development in the BSR

FOOD - Mature Clusters

1 The Food Development Cluster (Finland)

2 Northeast Iceland Culinary Experience (Iceland)

3 Skåne Food Innovation Network (Sweden)

4 Warsaw University of Life Science (Poland)

5 Öresund Food (Denmark Sweden)

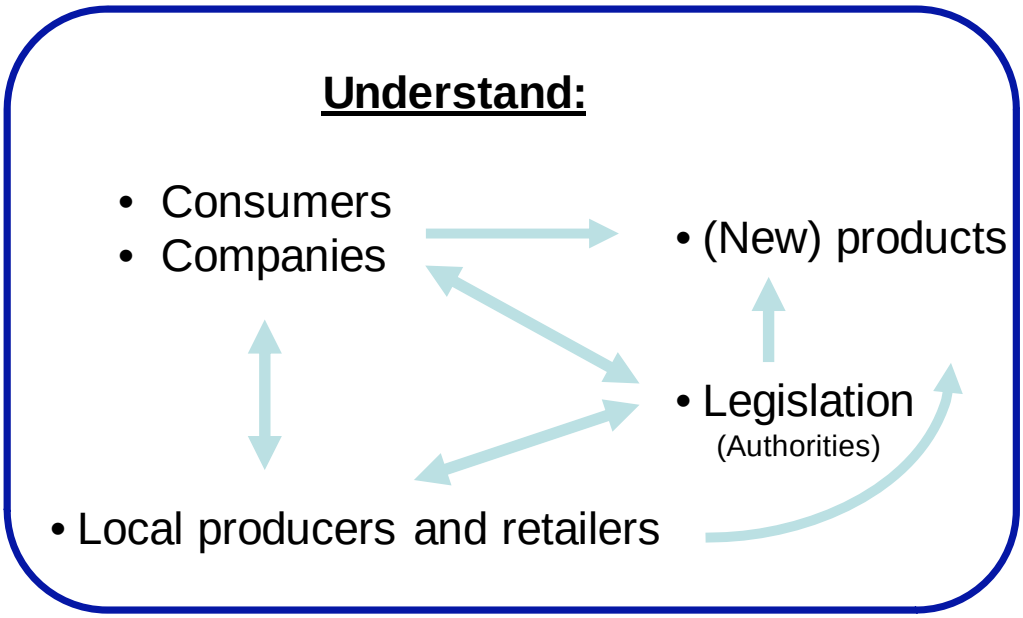
The Food pilot was chosen as a good example of mature clusters working together within a well-established area. Finland, Sweden, Iceland, Norway and Poland initially decided to participate (Norway subsequently decided not to continue). The overall objective of the pilot was to assemble researchers, food companies and development organisations from the BSR and establish a platform for better understanding of the changes taking place in the BSR food and packaging industries. The pilot was seen as a starting point in establishing collaboration on sustainable food development in the Region.

The Finish participant was Foodwest Oy, a national Centre of Expertise and competence cluster on food development focusing on healthy and safe food. The Swedish participant was Skåne Food Innovation Network. As an innovation system, the initiative focuses on strengthening the food industry by creating food products, services and future concepts. The Icelandic partner was the Northeast Iceland Culinary Experience, a network organising local food projects and researching new food products in the northeast of Iceland. The Polish participant was Warsaw University of Life Science. After the initial phase of the pilot, there were also discussions on adding new partners to the pilot consortium. Öresund Food Network from Denmark became a partner and clusters from Estonia and Lithuania were also invited to participate in the pilot. (These cluster initiatives were not funded by the pilot)

See Appendix 1 for a description of participating cluster initiatives.

3.1.2 Pilot development review

The Food cluster initiatives group decided to focus on three main themes. Firstly, highlighting the challenges of nutrition and finding health-promoting solutions. Secondly, understanding consumer needs and expectations. Thirdly, contributing to internationalisation of the food industry.



It was also decided quite early in the cooperation process that the role of the Food pilot should be seen to:

1 Provide knowledge for society (industry, public, and academia).
2 Offer solutions for the needs of the consumers, industry, producers, retailers, etc.
3 Increase the competitiveness of industrial actors.
4 Enhance health and wellbeing in general.

Workshops were arranged to discuss the above areas of the food industry in, detail. The pilot partners met in Lund (Sweden), Helsinki (Finland), Warsaw (Poland), Copenhagen (Denmark), Husavik (Iceland) and Seinäjoki (Finland). At the first meeting in Lund companies and researchers from the cluster presented themselves and their competences. This was considered a good way of working and generating a good understanding of Triple Helix structures in the various countries. It was decided that the meetings should result in even broader networks between the countries.

The work of the pilot can be described in terms of different stages. In the initial period, the cluster initiatives determined the most important outlines to be discussed and executed. This was a way to explore the most interesting and relevant issues in order to

create common goals and a shared vision for the pilot partners. The meetings also focused on the existing knowledge, strengths and resources of the respective clusters. In the second phase of the pilot, the aim was to collect information and create a full-scale project plan for future activities in the food sector. The pilot partners generated a final plan on how the cluster initiatives can cooperate on a long-term basis and how to generate long-term impact in the BSR. This final plan was presented in September 2009.

Regarding activities during the project, one of the most important activities was the development and distribution of a questionnaire targeting food companies in the various countries. The questionnaire was entitled "Food Innovations in the BSR countries". It aimed to establish key factors essential to working in the food sector in each country. Its ultimate goal was to create good conditions for SMEs to gain larger markets in the BSR by learning more about consumer demands.

Amongst other things, response to the questionnaire showed that SMEs prefer any of the neighbouring countries as the most attractive non-domestic marketplace. It also showed that companies need more information in order to start activities abroad. Another interesting aspect was that companies expect to find different taste and flavour preferences outside their own country. This indicates a need for deeper knowledge of consumer behaviour around the BSR.

3.1.3 What results can be seen?

The most tangible result of the pilot is that partners see a clear potential in further cooperation. A future programme has been developed comprising areas such as consumer behaviour and market research, legislation and quality management, food tourism and sensory advice. The results of the questionnaire sent out during the pilot phase have been used as input for future initiatives.

The cluster managers interviewed also indicated other results. One of the most important was the network and connections created between the cluster initiatives within the food area. As one interviewee put it,

> "*we now have a working network whose members have a common vision*".

There is also increased knowledge of key actors and competences within the food area in the various participating countries. Relationships have been created between food clusters that were unaware of each other before the pilot project started. There are new relationships with countries where previously there was no contact before the pilot. One example of this was the Icelandic partner which says it now has completely new relationships with Poland and Denmark.

The cluster managers interviewed also emphasise that new contacts have been initiated between companies and research centres in the various countries. The work of the pilot

also included actors other than "just" cluster managers. Companies and research institutions were invited to the workshops in each country.

> *"We have learned a lot about issues concerning the food market in this region. We have also gained knowledge about company strategies in our country and elsewhere. We would never have been able to gather this much information on our own. There is a clear added value in cooperating."*

Another result of the cooperation is that cluster managers say they have benefited from learning more about the clustering processes in the other countries. In other words, how different local cluster initiatives are constructed and processed.

> *"We have different backgrounds but it gives us new perspectives on each other's areas"*

The partners in the Food pilot succeeded in creating a basis for longer-term cooperation.

3.1.4 What are the lessons learned?

All the cluster managers interviewed mentioned commitment from all partners in the pilot project. The project succeeded in creating a joint consensus and a vision for the future. The meetings and workshops in the various countries seem to have been a good tool for creating an understanding of the knowledge and expectations of each partner cluster. Finland and Sweden took the initiative and pushed the process forward. These cluster initiatives are mature in terms of Triple Helix (Business, Society, Academia) development work and have a long track record of collaboration on research and innovation. These initiatives are also leading national actors within the food area. A success factor in the Food pilot was the creation of an open collaborative environment.

According to those interviewed, there are cultural differences and time is needed in order to understand these.

> *"Each partner has contributed their ideas and as we started we were all focused on one subject. However, now that we've learned more about each area and culture it seems we can establish our work. When different partners start working together, there is a need for them to familiarise themselves with cultures and backgrounds."*

According to the interviews, success factors in reaching this common agenda have included active project management with ideas, good communication and meetings arranged so that people could get to know each other. Another success factor, according to one of the interviewees, was the development towards a commercial outlook on the Food pilot. It was agreed that the project should not be too research-orientated but that companies should be involved and have their needs identified for future efforts.

"We have different backgrounds and come from very different areas but this gives us more possibilities and different approaches to the project, which is a very positive thing."

One challenge of working together is cultural differences and differences in the cluster concept. According to those interviewed, the countries have different ways of working with cluster development and the Triple Helix concept is more developed in the Nordic countries compared with the Baltic States and Poland. Cluster organisations that can act as intermediaries between business, societal actors and academia are seen as important. These kinds of intermediaries are not present in all countries.

"There has to be a translator in the middle. From different countries we have to find more partners and the right people."

The pilot has worked on involving different partners from the clusters. The emphasis has been on gaining more knowledge on company needs so as to create a good base for future cooperation.

"It's not just about cooperation between clusters. It has to be innovative. For our cluster, we have to cooperate on issues that create added value for our companies."

Regarding the capacity-building activities arranged during the pilot phase, the cluster managers interviewed were positive. The best part was the exchange of experience between cluster managers on different cluster initiatives and success factors and challenges in clustering. Networks between cluster managers have been created through the different capacity-building modules. When it comes to future capacity-building activities, there is the suggestion that the courses could supply tools for transnational cluster cooperation. Another suggestion is that courses could have different themes, such as the communication workshop held in Copenhagen in the spring of 2009.

3.1.5 Opportunities for future cooperation

Within the Food pilot there is a strong belief in that future collaboration between food clusters in the BSR will create added value. The cluster managers interviewed can see clear potential in cooperating between countries within the food area. Sharing knowledge and building new business relationships are two areas that are emphasised. Markets for food companies can be expanded by increased knowledge on consumer needs and behaviours in the BSR.

The partners will continue working under the umbrella of "BSR Food Programme on Innovation Systems and Clusters in the Baltic Sea Region". This programme aims at developing a new way of viewing consumer behaviour, brand research, food tourism, nutrition and health as well as sensory analysis and taste mapping. The suggestion is that the programme will provide new tools for companies and R&D organisations. Amongst other things, this networking will result in increased use of knowledge as well

as opening up ways of importing and exporting food products. The partners' ultimate aim for the programme is that food companies in the BSR will see the whole region as their home market.

3.2 Pilot: Furniture

3.2.1 Creating new business opportunities in the wood and furniture sector

WOOD PRODUCTION FURNITURE AND DESIGN – New Business for mature Industries

1 Möbelriket – The Kingdom of Furniture (Sweden)
2 West Pomerania Wood and Furniture Cluster (Poland)
3 Latvian Forestry Cluster (Latvia)
4 Art Academy of Latvia Design Department (Latvia)
5 University of Lodz (Poland)
6 Lithuania (Lithuania)

The overall aim of this pilot was to create new business opportunities for a mature industry like the BSR wood sector. Furniture and design is looked upon as a means of future development for sectors in the Region. Participating countries were initially: Finland, Poland, Lithuania and Sweden. Finland subsequently left and Latvia joined.

The Lithuanian wood cluster participating in the pilot unites more than 350 companies, municipalities, incubators and universities mainly in the south of Lithuania. Latvia was represented by the Agency for Investment and Development as the country's furniture industry is not organised as a cluster. Latvia decided quite early in the development phase not to continue in the pilot but then returned to the cooperation with great interest. From Latvia, the Art Academy of Latvia has participated as well as Latvian Grey, a newly established cluster initiative.

The participating cluster initiative from Sweden was Kingdom of Furniture, an association promoting collaboration between furniture and design retailers in southern Sweden. In the beginning, there was also a partner from Finland, Centria Research Center, but it subsequently decided to leave the pilot. From Poland, the West Pomeranian wood-furniture cluster initially participated. The initiative is fairly new and was established to create cooperation between wood and furniture SMEs and larger companies in areas such as new technologies, personnel, communication, internationalisation and marketing. This initiative subsequently decided to withdraw

from the project. Instead, Poznan University has taken this role and there was also a participating PhD student from Lodz (focusing on the furniture and design industry).

Within the pilot, contact was also made with Estonia where a cluster initiative has shown interest in participating in the cooperation.

See Appendix 1 for a description of participating cluster initiatives.

3.2.2 Review of pilot development

After the start-up conference in Stockholm, in May 2008, the participating cluster initiatives decided to work together and apply to join the pilot programme.

The goals set up for this pilot were:

- Assembling cluster representatives from every country for the planned activities.
- Accomplishing market activities to inspire future market presences in the actual country were the activity is held.
- Establishing initial business relationships between companies in the participating countries.
- Evaluating the potential for collaboration between participating clusters.
- Defining areas of collaboration to be stimulated for a successful full-scale programme.
- Being able to apply for a full-scale EU cluster programme for knowledge regions.

Poland was proposed to lead the pilot at the Stockholm conference. It was later agreed that Sweden should take this responsibility.

An important element of this pilot's activities was the ongoing discussion to find collaborative possibilities for the countries involved. From the start of the pilot, there was a wish on the part of participating cluster initiatives to find and establish business relationships between the countries.

From the very beginning, the participants expressed different opinions as to what the pilot should focus on. The Swedish initiative promoted design as the collaboration focal point. Other initiatives were more interested in other business areas of the furniture sector. Over time, more and more partners accepted design as the main focus of the pilot's activities. Quite early in the pilot, it was understood that there were people and initiatives from various backgrounds participating and that their experience of working with cluster development differed. An important element in the common work was sharing time together and creating an understanding of how cluster development is conducted in the various countries.

The partners in the cluster pilot decided to hold meetings in conjunction with various market activities such as fairs and exhibitions. This was done to make it easier for companies to join the activity. The first meeting was arranged for December 2008 in Copenhagen. There was discussion at this meeting on how to agree on a common

agenda. There were also different expectations within the group, but even so it was agreed to meet again. The partners then met at the furniture fair in Stockholm in February 2009. Representatives of Latvia's design society were present as well as those from design universities in Poland. A Swedish group of designers also gave a presentation. The next meeting was at a building fair in Vilnius in April 2009. There were seminars and matchmaking activities. Delegations from Poland and Sweden participated in the meeting.

At the beginning of June 2009, the pilot partners met in Poland during a national furniture show held at Poznan. A design seminar was arranged at this meeting. There were representatives from Poland, Sweden, Lithuania and Latvia. This meeting also focused on areas of future collaboration. One area introduced at this meeting was the idea of working with interiors for tomorrow's elderly people.

The last meeting was arranged in Oslo in September 2009 in conjunction with the Designers Saturday event. Latvia, Poland, Lithuania, Finland and Sweden all took part. At this meeting, discussions continued and there was a lecture from Professor Martti Lindman on consumer patterns and expectations from the Finnish market.

3.2.3 What results can be seen?

When joint work began on the Furniture pilot, there was no real consensus as to what the common future agenda would look like. By the end of the pilot, this had changed. Participating cluster initiatives expressed more interest in working together and saw potential for future cooperation. More trust between the partners was apparent. As one of the cluster managers put it,

> *"an arena of collaboration has been started between the countries."*

The Wood and Furniture pilot resulted in new networks between clusters in the BSR.

> *"The project was important and has gathered specialists and different people. We can now collaborate more easily. You know who to contact. Finding these people was crucial. We can share knowledge on different levels."*

The pilot has also resulted in bilateral contacts between participating countries. For example, the Swedish representative was invited to lecture for graduating students in Riga.

According to interviews, since the pilot there has been increased interest in what different countries can offer the wood and furniture sector. In the cluster pilot, there was an emphasis on design issues resulting in design being raised as a competitive factor.

3.2.4 What are the lessons learned?

One of the most important lessons learned from this pilot is that cooperation takes time and that reaching a common agenda for activities requires time to get to know each

other and understand different clusters. Willingness to understand different needs is important in order to create commitment. The Furniture pilot has very much been a development process with new joint interest involving mainly in the last phase of cooperation.

> *"Initially, ideas and intentions in Copenhagen were at odds, but now everything feels good."*

> *"After the meeting in May, the objective changed. However, I think it's very positive now. We haven't yet achieved many contacts for the companies, but we did gain experience from the cooperation. It's been interesting to have bilateral contacts between the counties too. We've got to know a lot of people and made new personal contacts within our own country. We've identified interesting research that we want to conduct."*

There is a difference in collaboration by sectors which has to be taken into consideration. According to the project partners, mature and more traditional industries such as the wood and furniture sector tend to be more reluctant to collaborate than new and more innovative ones. This can affect both the activities chosen and the timeline for the joint agenda.

At the start of the pilot, it was considered important to involve companies from the different clusters and create new opportunities to do business. This has proved difficult at this early stage of cooperation. A lesson learned from the pilot is that the joint work should focus on joint market opportunities to get the companies involved.

As identified in the project, there are different ways of working with cluster development in the BSR countries. There are also different views on the cluster manager/facilitator role on such issues as how active the cluster manager can be.

Capacity-building activities are considered important. "To have the cluster reality described in an objective way is helpful and brings clarity to your own situation." It is also important to have a common view of what can be described as clusters, networks and initiatives.

3.2.5 Opportunities for future cooperation

In October 2009, the partners in the Furniture pilot saw potential for future Collaboration and identified a possible market area of interest: Interior solutions and furniture for older people. Within this area, there is potential for new products. There is potential to use a joint research base and knowledge flow when it comes to social structures and needs for this target group. It is thought that the market area has market potential in other parts of the world beyond the BSR region. The partners plan to develop a joint programme within this area.

3.3 Pilot: ICT

3.3.1 Supporting growth potential in the ICT sectors by clusters working together

ICT – Valuechain Clusters

1 Öresund IT (Denmark/Sweden)
2 Ubiquitous Computing Cluster (Finland)
3 Mobile Heights (Sweden)
4 Latvia IT Cluster (Latvia)
5 ICT West Pomerania (Poland)
6 Brains Business ICT North Denmark (Denmark)
7 RFMPolis (Finland)

Participating countries in the ICT pilot were Sweden, Finland, Latvia, Poland and Denmark. From Sweden, Mobile Heights took part. This is a cluster initiative in Skåne working with research, innovation and entrepreneurship in mobile communications. Another partner was Öresund IT, a cluster initiative in the ICT sector covering the Öresund region and comprising companies from both Denmark and Sweden.

The participating Finnish cluster was the Ubiquitous Computing Cluster with its vision that by the end of 2013, "Finland will be the global know-how leader in the development, commercialisation and capitalisation of embedded intelligence in human-centred, distributed, mobile and constructed environments". Latvia's partner in the pilot was the Latvian IT Cluster. The initiative was established to promote collaboration among IT companies and related organisations and increase competitiveness and export growth for Latvian IT products and services. From Poland, the ICT Pomerania initiative was involved in the pilot. This is a cluster initiative aiming to support innovation process in SMEs in the Region. Denmark's participating cluster initiative was Brains Business – ICT North Denmark. North Denmark's areas of strength include intelligent logistics solutions, wireless and mobile solutions and ICT-solutions for the health sector.

Norway was a partner at the beginning of the pilot but decided not to continue.

See Appendix 1 for a description of participating cluster initiatives.

3.3.2 Review of pilot development

The overall purpose of the pilot was to develop sustainable collaboration for the Baltic Sea Region ICT clusters that support growth potential in the area.

During the first meeting of the cluster initiatives at the Stockholm conference in May 2008, four action points were agreed for the pilot: The first was to contribute to a sustainable environment by using ICT solutions for low-energy living. The second was to develop models on how to support regional ICT companies at European trade fairs. Thirdly, it was considered important to encourage more women to be leaders of ICT industry in the BSR. Fourthly, the pilot aimed to build a sustainable platform of knowledge-sharing to aid internal and external project communication.

The participating cluster initiatives met six times during the project. Meetings were held in Stockholm (at the start-up conference), Jyväskylä (Finland), Riga (Latvia), Barcelona (Spain), Lund (Sweden) and Szczecin (Poland).

Early on in the pilot, communication between clusters was identified as important. To create a knowledge-sharing platform, the ICT pilot developed a project Wiki (Wikipedia) where communication about the project and clusters took place. According to project participants, this has enhanced the activities of all the pilot stakeholders as well as the pace of collaboration.

A workshop was arranged in Riga on the area of ICT solutions for low-energy living. Researchers from different universities were invited to discuss possibilities for cooperation within the field of low-energy living. The main goal was to build a consortium of research environments that could submit joint applications in new EU calls for proposals within the field. The Riga meeting resulted in researchers from Lund University, the Technological University of Riga and the University of Aalborg starting collaboration within the area. A project entitled SOLECOM (Solutions for Low Energy COnsuMption) was initiated as a platform for joint applications. The plans also included support for commercialisation of project results.

In February 2009, the pilot partners attended the Mobile World Congress (MWC) in Barcelona. A round-table meeting was held in conjunction with the conference regarding co-localisation issues at trade fairs. An ambition of all the various participating cluster organisations was co-localising enterprises from each region at trade fairs. The underlying rationale was that by combining forces in the BSR, there would be a greater probability of finding more suitable collaborations. These would be based on the company's interests rather than those of national/regional actors. The participation in the MWC in Barcelona gave cluster facilitators a better understanding of the conditions facing SMEs when entering export markets. Faster internationalisation of SMEs is looked upon very positively by the cluster facilitators since it helps the companies grow faster. Although different companies had very different support issues, all of them were positive about support from cluster initiatives.

During the spring of 2009, the pilot worked on a joint paper on women in leadership, authored by Professor Merle Jacob of Lund University. The aim was to present the paper to the labour market ministers of the Region. The background rationale of this part of the pilot was that in future, many of the BSR regions will experience a major

personnel shortage in the ICT industry. As an industry, it is therefore important to use the full potential of the talent pool and start attracting more women to the ICT industry. A gender-balanced workplace fosters a more creative atmosphere and opens the door to better products and services for end-users.

3.3.3 What results can be seen?

The ICT project implemented all the activities planned at the Stockholm conference of May 2008. One result of the project was the research cooperation that has been commenced in the area of low-energy living. Others include the paper on women in ICT leadership in the BSR and the communication tool that has been brought into use.

In the follow-up, the cluster managers who were interviewed emphasised the network that was created between ICT cluster initiatives in the BSR and how people from different clusters have become acquainted. This is seen as a very important result which will hopefully be sustainable and have future impact. According to those interviewed, this has led to an increased flow of information between the clusters as well as increased opportunities for joint applications to various funds, including from the EU. One example is the application to the Nordic Baltic Mobility Programme. There are also plans for future cooperation between the clusters.

> *"For us being like a spider, we have really made new networks for instance when it comes to applying for research projects".*

According to the cluster managers, another result is increased knowledge about the different participating ICT clusters. Many clusters did not know about each other before the pilot project. Knowledge has increased when it comes to the participating clusters, companies and other partners involved. The same applies concerning different ways of working with cluster initiatives.

The creation of these networks has also led to the planning of business trips. An example is the Latvian ICT cluster which is planning a corporate visit to Sweden.

3.3.4 What are the lessons learned?

One of the most important aspects emphasised by all the project managers interviewed is that transnational cooperation between clusters is about people. It is important that people get to know each other and build trust. The ICT pilot has spent time on getting project partners to know each other, as well as arranging activities. All those interviewed said that they had made friends with people from other ICT clusters. Personal relationships are a basis for good results.

Communication has been an integrated tool for cooperation. A dedicated Wiki was developed early in 2008 once the pilot had started and has been used for information-sharing between clusters. One lesson learned is that good communication tools and a good project structure are key success factors.

Another lesson learned from the cooperation is that participating ICT clusters' initiatives differ in both scope and maturity. One of the cluster managers interviewed argues that some cluster initiatives take a bottom-up perspective whilst others are more top-down. This means that some cluster initiatives are more anchored in the business and research society and others less so. The "forced" cooperation during the pilot has fostered some unlikely collaborations. Even so, other cluster initiatives in the Region may also be relevant.

Regarding the arrangement of international cooperation between cluster initiatives, the cluster managers emphasised that a success factor in the pilot was early agreement between the partners as to deliverables. As one of the cluster managers puts it, "concrete activities make people work together". There must also be strong leadership and commitment from the partners when it comes to contributing to the project. The goals should be set up jointly by the participating cluster initiatives. According to the cluster managers, there should also be a bottom-up perspective regarding joint activities. For example, within the area of low-energy living the ideas must come from the researchers and companies within the clusters.

One way of getting commitment from the partner clusters is to share some of the responsibility in managing the different areas of the cooperation. Within the ICT pilot, support has been given by Mobile Heights and Öresund IT in the form of project management. Still, Finland and the Ubiquitous cluster have led the area of low energy consumption.

According to those interviewed, when it concerns challenges and obstacles to cooperation between ICT clusters in the BSR it is very much a case of finding the right partner clusters. There are limitations to the model of a top-down selection of clusters from the national agencies and ministries. According to one of the cluster managers, there is still a role for the public sector (and an important one) in creating meeting places and thus aiding the matchmaking process.

3.3.5 Opportunities for future cooperation

The cluster managers interviewed see potential for further cooperation between participating cluster initiatives. This will also mean the involvement of other important ICT clusters in the Region such as Germany, Norway, Sweden (Kista) and Finland (Helsinki). There may be possible future collaborations in the submission of joint applications for EU programmes and in arranging for more research groups to meet. There may also be a potential open door for business activities in the Russian market, given the Baltic States' knowledge of the Russian language. The role of ICT is important in other sectors and clusters. There is potential to create cross-sectorial collaborations in which ICT can develop new products and services.

3.4 Pilot: Bioenergy

3.4.1 Bioenergy - Finding answers to BSR challenges within energy

BIOENERGY – Emerging Intense Research Clusters

1 Arena Bioenergy (Norway)
2 Græn Orka Cluster (Iceland)
3 Biorefinery of the Future (Sweden)
4 Baltic Eco-Energy Cluster (Poland)
5 Finnish Cleantech Cluster (Finland)

The participating clusters in the Bioenergy pilot had different strengths and focuses. The participating countries were Finland, Sweden, Norway, Poland and Iceland. The Swedish initiative entitled Biorefinery of the Future is a venture involving the future bio-refinement of forest raw materials and energy crops in the north of Sweden (Örnsköldsvik/Umeå). Arena Bioenergy Inland is a cluster of Bioenergy companies in the counties of Hedmark and Oppland in Norway. The Baltic Eco-Energy Cluster in Poland is situated in the northern part of the country and focuses on promoting small and medium-scale production of thermal energy and electricity from renewable energy sources. This mostly involves biomass, but also includes the conversion of water, solar and wind energy. The Arkea Technology Park in Iceland offers facilities and support to start-up companies operating in the fields of environmental science, health sciences and energy biotechnology. The Finnish initiative was the Finnish Cleantech Cluster, comprising four centres of cleantech expertise in Finland, located in Kuopio, Lahti, Oulu and Helsinki and environs. Each of the four centres of expertise specialises in different aspects of cleantech and strives to promote growth and internationalisation in associated businesses.

See Appendix 1 for a description of participating cluster initiatives.

3.4.2 Review of pilot development

The pilot on Biotechnology was chosen by the BSR InnoNet taskforce as an interesting case of collaboration of emerging research intensive clusters in the Baltic Sea region. The argument was that Bioenergy is a stronghold in the whole macro region that has major growth potential. The initial objective was for the cluster initiatives to get to know each other, identify common research activities and then apply for a EU FP7 programme to identify common commercial interests.

Workshops with the participating clusters were arranged during the pilot. The first workshop was held in Stockholm in May 2008, at a conference in which common themes of interest were expressed. Areas identified included bioenergy in general, biofuels and biorefineries, renewable heat and power generation and feedstock. Another area of interest was how to build successful clusters around these themes.

The group of cluster representatives decided to arrange workshops on specific themes so as to get even deeper into what might be of mutual interest. It was agreed that a workshop on bio fuels and bio refineries would be arranged by the Swedish cluster initiative. The Norwegian cluster initiative decided to host a workshop on feedstock and Poland decided to one on renewable heat and power generation.

The first workshop was arranged in Örnsköldsvik (Sweden) for November 2008. At the meeting were representatives from Poland, Norway, Iceland, Finland and Sweden. This first workshop was very much about getting to know the different clusters. Each cluster had the opportunity to introduce its initiative and the strongholds and different companies from the Örnsköldsvik initiative introduced their activities. During the workshop, there was also a discussion about possible future projects. Areas of interest for future efforts included bio fuels, bio refineries, feedstock raw materials, renewable heat, electricity – right or wrong, biotech, hydropower, CO2 applications and education. There was also a discussion about how to generate corporate interest in joining the pilot activities.

The second workshop was arranged in Norway for January 2009. This workshop included presentations from various experts as well as study visits and was themed on feedstock and torrefication. The third workshop was arranged in Gdansk, Poland for April 2009 focusing on energy cogeneration – the simultaneous generation of electricity and useful heat. There were presentations and study visits to different cluster stakeholders.

The pilot partners also met in Iceland at the end of May 2009. The theme was geothermal energy cogeneration. One of the issues discussed was the long-distance transportation of heat, steam and electricity. Various presentations and study visits were arranged and discussions continued between the partners at the meeting. At this meeting, the partners decided to survey principal capabilities and primary interests in the different clusters. This would create a clear picture of competences within the bioenergy area in the BSR. At the time of writing this report, the survey was not complete.

3.4.3 What results can be seen?

As of September 2009, there is no full-scale programme plan for the Bioenergy pilot. There are ideas on how to proceed, but no definite joint action plan.

In terms of results generated, as with the other cluster cooperation pilots the cluster managers interviewed emphasised the network that has been created. One of them stated that this larger network will definitely be useful in the future.

The Bioenergy pilot has also resulted in increased knowledge for participating actors on what is being done regarding bioenergy in the various countries. This is something that those interviewed found very important and which might lead to different business and research exchanges in the future.

According to those interviewed, different countries see potentials in cooperating with certain other countries depending on the area of bioenergy and that country's strengths and competences. Thus, the pilot may lead to deeper bilateral cooperative links between countries. Because of the pilot, understanding has been created regarding different countries' Triple Helix structures and it has been shown that countries differ in regard to their focus.

3.4.4 What are the lessons learned?

Most of the participating clusters see internationalisation and international links as something of great importance. According to those interviewed, there is also interest in and potential for cooperation within the BSR and with the participating countries. Since all the countries are working with bioenergy but in different ways, there is opportunity for knowledge exchange as well as buying and selling of different services. The possibilities are there when it comes to the bioenergy area but according to those interviewed, it is important to find the right partners.

There are also differences when it comes to cluster initiatives within this sector, with some countries more advanced in their Triple Helix-based initiatives and thus more mature. A representative of one of the clusters said that cluster cooperation on a general level can be somewhat difficult but there are no problems in finding more specific areas.

During the pilot, there were some challenges in finding a common future agenda. In that sense, there are many lessons to be learned about cooperation between clusters in the bioenergy area. Several of the cluster managers interviewed highlighted the importance of getting the business community involved early on. There are business opportunities and it is important to have the back-up and support from the business partners in the cluster initiative. In that regard, the executive boards for the initiatives are important as a means of anchoring international activities.

Internationalisation activities should be grounded in the executive board and seen as strategic. It may be hard for cluster managers to spend time creating relationships with actors and activities in other countries without the support of key stakeholders. Another challenge to cluster cooperation is that funding for cluster initiatives is often somewhat short-term. This can make long-term cooperation harder as finances make it difficult to agree joint long-term actions.

According to one of the clusters, one lesson learned was the importance of having several people involved in internationalisation activities. Member companies should be involved in the activities and broader networks created.

3.4.5 Opportunities for future cooperation

Within this pilot it has been shown that there are many interesting strengths within the bio energy area in this region. There are different approaches on bioenergy in the different countries and there are also different ways of working depending on historical reasons and on natural resources available. Pilot partners have shared experiences and the whole value chain has been identified. There are great possibilities for cooperation between the countries within the bio energy area. Many ideas have been identified on common research projects. Many ideas have also been identified on services and shared services that could create business opportunities. There could be joint system delivers sold outside the BSR region. Still there has been no joint initiative in implementing these ideas. Future consortia's within this area will be important and there has to be commitment from the different countries and strong leadership.

3.5 Lessons learned from the international taskforce

The taskforce that was initiated to coordinate the cluster pilot met ten times during the pilot. Two of the meetings (during the spring of 2009) were dedicated to reflecting on the lessons learned during the pilot. This section presents the main conclusions of those meetings.

First cooperation phase

To start the pilot projects, the national governments were asked to choose relevant clusters. The main advantage of this top-down process was that the governments vouched for the importance of participating clusters and ensured regional mobilisation within a cluster initiative. Another advantage was that it helped link cluster initiatives which would not otherwise have been aware of each other.

The main disadvantage was that "arranged marriages don't work", in other words cooperation should be driven by demand and there should be a commercial interest when creating links between different regional clusters. A conclusion would be that in future, clusters should choose their own partners and the role of governments should be limited to assisting the matchmaking process to assure quality.

The Taskforce representatives generally held that the matchmaking had been rather successful as the participating cluster initiatives were unaware of each other prior to the pilots. An important result from the pilot projects is that clusters now have more knowledge about clusters in the other BSR countries and a network of cluster managers has been established in the BSR region.

Management of transnational cluster cooperation

Another lesson learned is that clusters look different in different countries. For example, the cluster initiatives in Sweden differ from those in Poland and Iceland. In consequence, the strategies for supporting cluster initiatives are also different. This insight is very important when designing future cluster collaboration programmes.

When it comes to managing transnational cluster cooperation in the BSR, the person appointed as project manager has a very important role. He/she should not just have the national perspective but should also be able to cope with language and cultural differences.

Another important factor is communication of ideas and visions. There are cultural differences between the countries participating in the BSR cluster cooperation. But as one of the taskforce members put it, "there is a cultural difference. The important thing is to find ways to deal with it and develop collaboration."

It is important that there should be the time and financial resources for networking. At the start of a cluster cooperation, people have to meet and trust has to be built. In future programmes, it is important that both managers and partners should have time and money for more networking. This will help build trust and create understanding of different national and regional cluster competences.

Another lesson learned is how important it is for the board of the participating cluster initiative to support internationalisation of the cluster and take international cooperation seriously. Creating networks with partners abroad has to be a part of the existing cluster strategy. Having a strong mandate from the executive board of the cluster initiative facilitates international action.

Reaching a common agenda

As noted, if cluster cooperation is going to be successful it must be driven by demand. There has to be the potential to identify common commercial interests.

Yet another lesson learned is that cooperation goes smoothly if strong key partners are involved. Strong partners act as intermediaries between different sectors such as business, academia and local government. If there is no strong base and commitment from different local partners then it is much more difficult to create links with milieus in other countries.

The pilot projects had different strategies for reaching common agendas. For some, it was important to find common ground for all the participating cluster initiatives. In other pilots, two or three countries agreed a common agenda and the other countries just followed.

A conclusion by the Taskforce is that there is no need for overall consensus between all participating clusters. The important point is that cooperation really creates value. In

some cases, two or three countries can agree a common agenda and other countries or clusters can join the process later.

A cluster cooperation is very much about building trust. An important lesson learned is that there should be people clearly assigned to work on international cooperation. Too many changes of personnel are not good for building mutual trust as people need time to get acquainted.

The role of national agencies and ministries

The Taskforce itself is an important result of the international collaboration in the BSR and an important tool in knowledge-sharing and trust-building between participating countries.

> *"Clusters across the BSR actually talk to each other. We've learned a lot and developed ways of working together. We've got to know each other and there's a much better understanding of existing possibilities."*

For example, the national agencies like Innovation Norway, VINNOVA and RANNIS now have a year's experience of international collaboration and can act as bridge between different countries (process support, credibility, working with regulations, etc.).

A general conclusion from the Taskforce collaboration is that transnational links between clusters in the BSR create added value.

> *"It feels as if this way of working is a good thing. It's important to continue connecting people in the Region."*

4 Conclusions

The BSR InnoNet pilots proved that cooperation between clusters in the BSR could be implemented in many different ways. The ICT pilot started their cooperation by picking quick wins and creating internal communication tools. The ICT pilot clusters also participated in the global ICT fair in Barcelona in February 2009. These are examples of activities that can be used to build communication platforms and trust between partners. The Food pilot focused its efforts on analysing and identifying common commercial interests and consumer behaviours in the various countries. The focus of the Food pilot was identifying what services cluster initiatives can provide to companies in the BSR so as to reach a larger home market. The Bioenergy pilot's activities were very much focused on learning more about national/regional cluster characteristics. This enabled them to identify complementary competences within the energy field and ways that these could be used for a common agenda. Within the Furniture pilot, one of the cluster initiatives had a strong idea about design as a competitive factor for SMEs in the wood industry. This idea has influenced the work and discussions in the group.

The participating cluster initiatives differed greatly in level of maturity, scope, way of working, and national and regional innovation policy framework. Understanding these differences was an important part of this initial phase of cooperation. Time and activities were focused on learning more about how clusters are being developed in different countries, what role cluster organisations take and what the business and cooperative climate is like.

Those who participated in the pilots had various organisational and theoretical backgrounds. Some came from within the research community and others from the business sector. This created dynamism and influenced the cooperation agenda towards more business-orientated goals or more research-orientated ones.

Workshops were an important tool in learning more about the different competences in the participating clusters. They also served as important meeting point for people. Several workshops were held within each pilot project (often in each partner country). These provided an excellent opportunity for people to get to know each other, understand each other's cluster initiatives, meet experts and cluster companies and identify topics for future cooperation and joint activities.

Building trust was a crucial part of each pilot project; crucial in clustering and in international cooperation. Transnational cluster links are very much about people and about building social capital. Much time has been spent on deepening networks and creating personal relationships.

Strong cluster initiatives were chosen for participation in order to start up the pilot programme; these were cooperating for a year. It took time to find common activities

and business opportunities within the pilots. In some pilots, participating cluster managers agreed on activities very quickly. In others it took almost a year. Still, it can be concluded that all cluster managers and others involved see clear added value in working together and a potential for future cooperation, business-making, joint R&D projects, joint corporate services, creation of larger BSR clusters etc.

4.1 What are the overall results of the pilots?

Regarding concrete results from the pilots, it must be considered that the cluster initiatives have only been cooperating for a year. This is rather a short time when it comes to clustering, creating trust between cluster initiatives and developing new products and technologies.

Most clusters that participated in the pilots believed that transnational links between clusters in the Region could be further developed. The majority of the pilots and partner clusters perceived long-term cooperation as an important tool in boosting the competitiveness of the Region. One important result was that pilot partners have post-pilot cooperation plans. There were also examples of concrete results such as the initiation of R&D projects and business networking.

Other results were:

- *Increased knowledge on competences in the clusters*
  Knowledge on different cluster competences in the BSR has increased significantly. This relates to how different clusters and countries are working on development issues plus increased knowledge about companies and research institutions in the various clusters and what they can offer. As the various partners learned more about the business environment of other countries, business competence has increased. There has also been increased insight into the value of cooperating in the BSR as a way of meeting global competition.
- *New networks*
  New networks between clusters have been stimulated and people from different clusters now know each other. Contacts between clusters have been strengthened. An indirect impact is that these networks have also led to new networks. Furthermore, new networks have been created between cluster managers and between cluster organisations and research organisations. Some companies were directly involved in various activities but not to a very great extent as the cooperation were in its initial stages.
- *Somewhat stronger national coordination*
  There are good examples from the pilots that this international collaboration has provided stronger national links and promoted cooperation between actors nationally and within participating clusters.
- *Increased dissemination of information*
  New networks have led to an increased spread of information between the clusters. This dissemination takes different forms, including spreading information about

funding opportunities within the EU system (calls for proposals) or conferences/meeting venues that could be of interest to other clusters.

- *Side-effects such as increased bilateral cooperation*
  As well as the meetings arranged within the pilot activities, different forms of bilateral meetings have taken place. An example of this is international cluster benchmarking trips.

4.2 Identified success factors

It may be concluded that the cluster cooperation pilots have been running for quite a short time in terms of producing results and the anticipated effects of long-term transnational cluster cooperation. Still, a few success factors can be identified which are important in making this type of cooperation work.

Programme level

- *A broad programme framework*

On a programme level, one conclusion is that frameworks for cooperation should be broad. Different business logics, sectors and of course people and their ideas demand a programme framework that supports various forms of collaboration between clusters. In this regard, the pilot programme has been successful due to its wide support of different kinds of cooperations.

- *The use of taskforces*

The use of taskforces comprising representatives of ministries and national innovation agencies was an important factor in making the pilot projects work. Taskforces provided crucial cooperation support for the entire duration of the project. The taskforce was also an important learning platform on how policy should be developed to support transnational cluster cooperation in the BSR. It also meant that representatives at national level could directly "act upon" cooperation obstacles that were identified.

Cluster level

- *Leadership is crucial*

Managing transnational cooperation between clusters is complex. One of the success factors identified is that a collaboration manager should be humble but also take the lead. Humility is needed when confronted with cultural differences and also when listening to the needs and ideas of the various countries and clusters. At the same time, there must be a clear idea or vision driving the cooperation. This is easier to achieve if one or two countries take a strong lead and push the process forward. In other words different tasks should be delegated to different clusters, thus making them more active and directly involved.

Another important issue is that those involved should have competence and a deep knowledge of "their" cluster milieus. Linking different actors transnational also means there is a need to link people regionally and nationally within the Triple Helix. Entrepreneurship is another important aspect when creating something new and

innovative. If a cluster manager can be "the entrepreneur of entrepreneurs" (as one cluster manager put it), then new forms of cooperation can lead to renewal in the Region.

- *A clear offer to other clusters*

In order to make international cooperation work and generate results, each cluster needs to be clear on what to offer. What competences are in-house? Even if cluster partners can identify quick wins, the longer-term cooperation will depend on being clear about what you have and what you need.

- *Building trust takes time while people get to know each other*

Clustering takes time since human-to-human relations have to develop. As one cluster manager put it: "It's a people thing, and people are getting to know each other. Collaboration takes place between people, and they have to be able to relate to one another." When creating links between clusters in the BSR, it is important to build trust from the very beginning. This is often emphasised when it comes to clustering on a regional and national level. It also holds true for transnational cooperation.

- *A strong strategy on internationalisation helps*

For cluster managers, it seems very important to secure the agreement and support of their own stakeholders whilst coordinating the transnational work. This makes transnational cooperation complex as relationships have to be worked on nationally as well as internationally. Cluster initiatives with an internationalisation strategy will most likely be more successful as they have a mandate from their stakeholders.

- *Importance of identifying quick wins and seeking a longer-term commitment*

Despite international cooperation being a relatively new concept for the participants, the importance of identifying common interests and short-term activities – so called quick wins – has been proven. Short-term results are important in sustaining collaborative activities and, in time, helping define long-term goals and activities. Cluster managers have had to secure their own stakeholders' agreement and support while coordinating the transnational work.

- *Longer-term cooperation must involve several important stakeholders*

Since building trust and cooperation is about relations between people, it is very important that clusters should be represented by others apart from the cluster manager. In the initial phase of mobilisation and transnational cluster cooperation, it is important that cluster managers meet. However, it is also important that regional and national stakeholders are involved in the long term. Actors from various levels of the cluster governance structure and from different stakeholder groups should be involved, such as companies, research institutions and the public sector. Sufficient funding should be allocated from the outset to facilitate wider involvement. Linking clusters should not be limited to interactions between a few actors.

- *International cooperation should be driven by demand*

One of the major lessons learned is that cooperation should be driven by demand. This is a clear statement from cluster facilitators. In the pilot programmes, clusters were chosen by the national ministries and agencies. This has been shown to have both advantages and disadvantages. The main advantage is that there is national legitimacy when governments are responsible for the selection. Another advantage is that it can help to link cluster initiatives that would otherwise not know about each other. The main disadvantage is that 'arranged marriages don't work'. Future collaborations should probably encompass a mixture of the two perspectives. Clusters should have the opportunity to choose their own collaborators, but governments can assist by matchmaking to ensure quality.

- *Understand and respect cultural differences and different ways of working*

An understanding of cultural differences is essential for clusters working together in the Baltic Sea Region. Ten different countries are participating in the BSR InnoNet project. Countries in the Region are similar in many ways but also different in terms of history, ways of doing business and so on. A lesson learned for future cluster programmes is that capacity can also be developed when it comes to understanding the various countries, their national strongholds and business climates.

- *There are enablers to make cooperation work more smoothly*

One such enabler is communication tools and platforms. As the ICT pilot shows, easily accessible communication tools can be an important platform for international cluster cooperation. This makes communication easier and more transparent. It can also be a tool for marketing various cluster competences in respective countries. This also helps to promote the branding of transnational cluster collaborations. Capacity-building activities have also served as an enabler. At the training sessions, people met from various clusters, both within the same sector and from others. This gave people the opportunity to get to know each other and understand clustering polices and practice in different countries.

4.3 Implications for future programmes on linking clusters in the BSR

So, based on the lessons learned from the pilots what will be the important components of future transnational programmes?

- *Multi-stakeholder governance*

The involvement of different levels of actors will be needed in future programmes. Ideally, cluster development should involve stakeholders from different policy areas. This will also be important in future activities. Besides cluster initiatives and involved actors as the main target group, national and regional government and innovation/ business development agencies will also be important. (Some researchers define this as multi-stakeholder governance horizontally and vertically). There are different roles for

national governments and agencies. As has been seen in the BSR InnoNet and taskforce work important tasks might be: 1) Developing a stable programme framework which gives clear guidelines; 2) supporting capacity-building activities; 3) providing platforms for matchmaking nationally and internationally; 4) initiating learning and evaluation; and 5) intervening when there are obstacles to cooperation.

- *Matchmaking clusters is still important*

As stated above, clusters should have the opportunity to choose their own collaborators. It will be important for future cooperation to be based on market potentials and driven by demand. For there to be an economic impact in the long run requires clusters that have a strong vision for development and international cooperation in the BSR. Governments and national agencies can still assist with matchmaking to ensure quality. Identifying strong milieus in the countries can be done from cluster initiatives as well as from regional and national level. It may also be important to coordinate national initiatives and actors for each country in order to be even more interesting internationally.

- *Support increased networking*

Cluster development is about soft as well as hard measures. One of the most important "softer" aspects is building trust. Future programmes should not underestimate the social aspects of creating cluster collaboration in the BSR. This can be supported by creating platforms for people to meet and creating resources for transnational cooperation managers to spend more time on networking. Future programmes should support increased networking both bilaterally and between multiple countries etc. A future programme can also create process support to speeds up knowledge-sharing on country-specific aspects.

- *Find the right leadership*

Leadership in handling international cooperation requires certain skills and tools. Two types of leadership have proved successful. The first is the one in which one or two countries take the lead in working together with a strong idea of what can be achieved. Other countries and clusters can then join. The other is more of a facilitating leadership which helps the various cluster initiatives find common ground. In the early stages of Corporation, it seems good to have one cluster initiative that wants to take the lead. When there are more clusters with strong ideas, facilitation might work better. It is important to incorporate leadership issues into future collaboration. The cluster managers should be given opportunities to participate in leadership training, focusing on transnational cooperation.

- *Analyse cluster competences early in the process*

As has been seen in the various pilots, an important element is learning more about cluster competences and actors in the other countries. This creates a basis for defining joint action. From a cluster perspective, it is important to be clear about what to offer others. In future programmes, analysis of capacity and competences in the different

clusters might be done even faster. Having resources for analysing the cluster initiative landscape in the beginning would certainly help speed up the process.

- *Create cooperation between executive boards*

For international cooperation to succeed between clusters, it is important that internationalisation is given priority by the executive board of the initiative. It has been shown that some clusters have a clear internationalisation strategy with well-defined goals whereas others are less clear about their strategies. If cluster management is to be active in the international work, it is important for them to have a clear mandate from the executive. Involvement from many actors will be important in future programmes. Cooperation between representatives from executive boards will be a crucial success factor. One way of achieving this might be to create transnational steering groups that meet two or three times a year.

- *Develop capacity-building for transnational cooperation and cooperation on innovation*

The capacity-building modules were appreciated by the cluster managers. The training courses provided platforms for people to get to know each other and an understanding of cluster development in different countries. The network both within and between sectors has provided new ideas for cooperation. Capacity-building will continue to be an important element of future programmes. Components of future capacity-building could be:

- Support in how to make transnational cluster cooperation work
- Tools for innovative thinking and the creation of new ideas
- Language and definitions
- Communication of cluster competences.

- *Develop practical working tools that supports cooperation*

Developing and using different communication platforms would speed up cooperation. In this regard, it is important to work with multimedia tools and interactivity. This activity could actually be a promising tool for the telecommunications industry in the Region as well as diminishing environmental impact through less travelling. The platform might also enable more remote clusters to participate.

It is important to have tools for matchmaking and access to databases describing the different clusters. This kind of tool will probably also speed up the process and.

4.4 Need for knowledge development

Further steps needs to be taken when it comes to clusters cooperating over national borders. A lesson learned from the cluster pilot programmes in the BSR is that there are possibilities for clusters cooperating in the region. Some initial results have been created during the one year period.

One of the conclusions is that cooperation needs to involve a broader spectrum of participating actors if real economic results will be created. When it comes to needs for further knowledge development, this need can be considered as significant. There are today few studies on how to cooperate transnationally between clusters and also on what results and effects could be created by this cooperation. Studies both on networks of clusters (like in the pilot programmes) and on transnational cluster initiatives (like Scanbalt or Medicon Valley) should be further studied. Interesting areas are many. One example would be success factors when creating value added transnational cooperation between clusters- Another example would be analysing the tool box for making cooperation work where issues like leadership and international strategies are of importance.

Appendix 1 – Cluster initiatives in the various pilots

Food

The Food Development cluster (Finland)

Foodwest Oy is part of the Centre of Expertise Programme (OSKE) in Finland. The Programme runs from 2007-2013 and focuses on regional resources and activities that are also of national importance. It includes 13 national clusters of expertise and 21 regional Centres of Expertise. One of the competence clusters identified is Food Development. The Food Development Competence cluster is aimed at developing the competitiveness of the food industry with an emphasis on developing healthy and safe foods. Foodwest wants to partner with companies within the field to develop business operations. Services offered to companies include expertise in product development, market research, quality management and manufacturing process design. Foodwest also works to link companies with both a domestic and international cooperation network. The main owners of Foodwest are: Atria Ltd, Seinäjoki city, Altia Ltd, Kauhajoki City. The companies jointly own about 55 percent and the cities and municipalities about 45 percent.

The Food Development cluster covers southern and central Finland. The Centres of Expertise are situated in Seinäjoki (Foodwest), Turku (Functional Foods Forum), Helsinki (Viikki Foodcentre), Jokioinen (Agropolis) and Kuopio (Kuopio Innovation). Foodwest Ltd acts as the cluster facilitator.

All the Centres of Expertise have at least one special area where their focus is on the whole cluster. In Foodwest it is consumer behaviour, in Functional Foods Forum it is sensory analyses, in Viikki Foodcentre it is commercialisation, in Jokioinen it is small company networking and in Kuopio it is clinical nutrition.

The vision of the cluster is that Finland will be the leading country in developing health-promoting and safe food by 2013 when the programme ends. The goals of the cluster initiative are to produce and develop health-promoting food and understand consumer needs. A third goal is managing risks (HACCP, building quality systems etc). Focus areas for the cluster are product development, market research, quality development and managing projects.

Northeast Iceland Culinary Experience (Iceland)

There is a strong cultural tradition in food production, farming, and fishing in the Northeast Iceland development region. The increasing importance of tourism to the region has led the Atthing (Northeast Iceland Development Agency) to initiate a five-

year strategic tourism plan to clarify a development strategy for the sector that will take into account the role of local food and tourism. Culinary tourism has been identified as one of the fastest growing segments of cultural travel and a tool of economic and community development. For Northeast Iceland, the tourism industry and local food producers have an opportunity to take advantage of the cultural heritage of the region to define a shared vision of product development and marketing linked to local food and food production. Following an initiative and preparatory work by Atthing, a group of local companies have formed a cluster around local food called *Þingeyska matarbúrið* in Icelandic.

The cluster initiative is in an early phase, and Atthing in consultation with the companies wants to develop and clarify an innovative strategy. This strategy will include a shared development vision for local food products aimed at tourism and to identify the possibilities this area has to offer regarding food and food culture. Other important parts of the strategy relate to integrating food into the tourist experience and increasing local participation in the sector. The aim is to create market-ready products linked to food by such means as festivals and markets and thus extend the length of stay of visitors. Tools within the strategy include increasing local knowledge and skills about the potential for culinary tourism, building networks and improving cooperation between companies within and outside the region. It will also be a matter of improving promotion and marketing strategies linked to the food tourism. One of the goals of this strategy is to increase the economic contribution of food and food culture to the tourism sector.

NICE – Þingeyska matarbúrið, presently comprises 18 members. Participating companies include Reykkofinn Hella (a smoke hut by Lake Mývatn),

Rifós fish farm, Viðbót meat processing, Vogafjós (Cowshed Café and Guesthouse by Lake Mývatn), Fjallalamb (meat processing), Sælusápur – sensory soaps, Nordlenska Ltd (a production and marketing firm for agricultural products), Íslenskur kúfiskur – Maredis Ocean Claim, Hótel Reynihlíð by Lake Mývatn and Búgarður (a consultant agency for farmers).

NICE collaborates closely with Húsavík Academic Center (HAC) and two other food clusters in northern Iceland – Local food in Akureyri area and the Food cluster in Skagafjörður.

The management of the cluster is in cooperation with Búgarður, a consultancy agency for farmers in north-eastern Iceland and supervised by Atthing, the Northeast Iceland Development Agency. Atthing is jointly owned by the Institute of Regional Development, seven regional municipalities, and several labour organisations and companies in the region. The purpose of Atthing is to support development, employment and business life in the district by working with local communities, companies, organisations and individuals to promote and encourage innovation, co-operation and networking.

Skåne Food Innovation Network (Sweden)

Skåne Food Innovation Network (Skånes Livsmedelsakademi) is an innovation system in Skåne and Sweden focusing on strengthening the food industry by creating food products, services and future concepts. This is done by establishing an open meeting place for ideas and fresh approaches, and working proactively to create multi-disciplinary innovation projects at the interfaces between fields of knowledge. The vision is to create the future food industry through cooperation and innovation. The initiative is financed over a ten-year period by the national VINNVÄXT programme (VINNOVA). From 2007-2010 focus areas include healthy and tasty food products, innovative food service concepts and value-added food concepts based on authenticity and consumer wellbeing. The initiative is also working in an innovative development arena for food producers and merchants with international bench learning to create a good basis for the long-term development of Skåne Food Innovation Network. Another area of interest is enhancing knowledge of innovations systems as such. The initiative is based on the participation of researchers, companies, organisations and existing networks.

The Skåne food cluster includes companies like Bergendahlsgruppen, Lyckeby Culinar, Atria, Oatly, Probi, Procordia Food, Pågen, Skåne Dairy, Kiviks Musteri, Dr Persfood, Frigoscandia, Leaf, Nestlé, Rexam, Svalöf Weibull, Swedish Meats, SydGrönt and Tetra Pak.

Various research and development competences are available within the cluster, particularly around the major universities in the region. At Lund University there is Lund International Food Studies, the Antidiabetic Food Centre and Next Generation Innovative Logistics (a research and competence centre). The region also has the Swedish University of Agricultural Sciences at Alnarp, Malmö University College, Malmö and Lund University Hospital and Kristianstad University College with a number of important food-related competences.

In addition to these, there are several organisations within the cluster brokering contacts between academia and industry such as Skåne Food Innovation Network, Ideon Agro Food, Teknikbron and Almi. Skåne Food Innovation Network leads the Innovation at Interfaces project and is broadly involved in developing the food industry in Sweden.

Warsaw University of Life Science (Poland)

Poland is represented by researchers from Warsaw University of Life Sciences (SGGW), the oldest agricultural academic school in Poland dating to 1816. At present, the University consists of 11 faculties and six interfaculty units and there are 25,000 students enrolled. Students can choose from 23 disciplines and 61 specialties. The research and education covers the entire field of agriculture-related sciences, including: Landscape Architecture, Biology, Biotechnology, Economics, Finance and Banking, Regional Planning, Informatics and Econometrics, Environmental Engineering, Forestry, Environment Protection, Horticulture, Agriculture, Sociology, Agricultural

and Forestry Techniques, Wood Technology, Commodity Sciences, Tourism and Recreation, Food Technology, Human Nutrition, Veterinary Medicine, Management and Production Engineering, Management and Marketing and Animal Science. The mission of the University is to provide society with knowledge and education characterised by multidisciplinarity and internationality in the wide area of environmentally-orientated sustainable development.

Øresund Food (Denmark/Sweden)

Øresund Food Network (ØFN) is a knowledge-based Danish-Swedish network uniting research, business and authorities within the food value-chain. The network coordinates and participates in several multidisciplinary projects within food, pharma, ICT and environment. Examples of activities arranged by the network are competence mapping, analysis, matchmaking, seminars and other meetings. An overall aim is to make the Öresund region visible within food-related issues and to increase collaboration between the two countries (Denmark and Sweden). The network is part of the broader Øresund Science Region initiative, focusing on Triple Helix collaboration between academia, industry and authorities across Øresund. The Øresund Science Region was established by Øresund University, a collaboration between universities in the Øresund Region.

ICT

Mobile Heights (Sweden)

Mobile Heights is a cluster initiative in southern Sweden. The cluster's vision is to "establish Mobile Heights as the core of research, innovation and entrepreneurship in mobile communications", leveraging the entire value chain of mobile devices – hardware, software and services. The cluster initiative has partners from the Triple Helix with industry, academia and the public sector. Founding members are in the private sector i.e. Ericsson, Sony Ericsson Mobile Communications and Telia Sonera. Universities participating are the Faculty of Engineering at Lund University, Blekinge Institute of Technology and Malmö University. Within the public sector VINNOVA, Region Skåne and Nutek are supporting the cluster initiative.

The objectives of Mobile Heights are to strengthen the competitiveness of member organisations and attract new talent and human resources to the region. Other objectives are to attract new companies, increase relevant research at the universities and colleges in the region and increase the number of students within the area. Mobile Heights has initiated three research and innovation centres in the areas of:

1 System design on silicon (SOS), at the Faculty of Engineering at Lund University (LTH). Participation of industry organisations such as Ericsson, Sony Ericsson, Cadence, Infineon, Perlos and UMC.
2 Embedded software applications (EASE) at the Faculty of Engineering at Lund University (LTH) and Blekinge Institute of Technology (BTH). Its industrial partners are Sony Ericsson, Ericsson, ABB, Axis and Softhouse Consulting.

3 Mobile Service Innovation (IXC3) at the faculty of Blekinge Institute of Technology (BTH), the Faculty of Engineering at Lund University (LTH) and Malmö University. Participants from industry include Ericsson, Sony Ericsson and Telia Sonera.

Øresund IT (Denmark/Sweden)

Øresund IT is a cluster organisation for Swedish and Danish IT actors focusing on the Øresund region, a region that comprises Greater Copenhagen in Denmark and Skåne in southern Sweden. It is a non-profit organisation centred on the Øresund IT cluster. The overall aim is to create an optimal environment for the development of business, education and research in the IT sector. The vision is an internationally competitive and attractive ICT cluster in the Øresund Region where the best of Danish and Swedish industry and research meet to set common agendas in cooperation with other global ICT actors. The goal is to make the region more attractive by facilitating access to knowledge and contacts. Areas of activity for Øresund IT include the creation of meeting places for business and higher education in the IT sector, starting projects to support innovation in conjunction with companies, universities, authorities and investors.

Members of the cluster represent all areas of the IT industry including electronics and telecommunication. Companies like Microsoft, IBM, ST-Ericsson, Sony Ericsson, IKEA, Anoto, Apptus Technologies, Axis Communications, BearingPoint, Cap Gemini, HiQ, Sogeti and many more Øresund IT companies are members of the organisation and benefit from individual services. Other members include universities like Lund University, Technical University of Copenhagen, Copenhagen Business School, Copenhagen University and Malmö University.

Ubiquitous Computing Cluster, (Finland)

This cluster consists of five Centres of Expertise in Finland (the Helsinki Region Centre of Expertise, the Jyväskylä Region Centre of Expertise, the Oulu Region Centre of Expertise, the Satakunta Region Centre of Expertise, and the Tampere Region Centre of Expertise). The Ubiquitous Computing Cluster Programme is coordinated by Technology Centre Hermia Ltd, which is described in more detail below. The cluster is part of the Finnish Centre of Expertise Programme whose main objective is to create a long-term strategy for the full utilisation of the top-level expertise present in the regions. The vision of the cluster is that by the end of 2013, Finland will be the know-how leader in the development, commercialisation and capitalisation of embedded intelligence in human-centred, distributed, mobile and constructed environments. The assignment of the cluster is to generate new, globally competitive ICT business activity. This will be achieved by combining a strong research core with companies that represent the global frontline and by fostering close networking between companies, academia and public stakeholders. Thus, the cluster constitutes a Triple Helix and by strengthening its core competences within this framework, it has the ability to achieve a competitive advantage in the ICT market. Each region demonstrates specific areas of

expertise in its own right and, when provided with the necessary collaborative framework, leads to the exploitation of synergies and complementarities. The Ubiquitous Cluster Programme Finland accelerates the commercialisation of ICT-based ideas and products in the global business arena and supports the development of new technologies that bear risks for business.

Key focus areas include: Mobile information communications, Human-Centred, User-Driven Planning, Human-Computer Interaction, Analysis and Data Acquisition Tools, Seamless End-User Experiences, Network Convergence, Wireless Applications and Services, Technology Brokerage Activities, Technology and UBI Application Pilots, New electronics, Ubimedia, Software Engineering and Open Source Development, Living Lab Environments, Innovation Arena Processes and Theme-Specific Virtual Incubators.

In the fields of research and technology, platforms, pilots and solutions are being developed in Living Lab environments, all based on the latest wireless and ambient intelligent technologies. Moreover, Living Labs are being established in order to support the development of user-driven applications as well as speeding up business innovation and product-to-market processes. The cluster concentrates on promoting networking between businesses in different ICT domains in order to generate product concepts and applications which are better suited to leading market needs. Internationalisation is a key focus of the Ubiquitous Computing Cluster Programme Finland. The Programme aims to bridge the gap between domestic and global markets. Finnish industry can use the cluster framework to access key foreign markets and international networks in which to build new business partnerships and strive for foreign business growth. The Ubiquitous Cluster Programme recognises the potential for transnational cross-cluster collaboration.

The Ubiquitous Computing Cluster Programme Finland is implemented and coordinated (2007-2010) by Technology Centre Hermia Ltd, from its offices in Tampere. The company is owned by the City of Tampere. Hermia is an implementer of business development policy in Tampere and environs. The mission of the organisation is to develop new business activity and expertise in high-tech industries in the region and promote competitiveness in the region's clusters. Services offered to companies include activities in support of business development, product development, training and professional skills, sharing knowledge and experience, wellbeing at work, recruitment, foresight and funding.

The company's cluster development activities include development projects and networking initiatives. Hermia coordinates the Tampere Region Centre of Expertise Programme. The Tampere Region Centre of Expertise is one of 21 Centres of Expertise in Finland focusing on industries of national importance in Finland. The programme also focuses on 13 nationally significant expertise clusters and 21 Centres of Expertise in different regions. Hermia is participating in five of these clusters: Intelligent

Machines, Ubiquitous Computing, Digital Contents, Energy Technology and Nanotechnology.

Latvia IT Cluster (Latvia)

Latvian Information Technologies Cluster (LITC) has been operating since 2001. Latvian IT Cluster is located in Riga. The Cluster has been established to promote collaboration among IT companies and related organisations to increase the competitiveness and growth of export of Latvia IT products and services in international markets. One of the aims is to offer a platform for development of innovative IT solutions and products. Another is to strengthen the image of Latvia as a provider of high quality, reliable products and services for export. It is also important to facilitate joint marketing and project implementation activities, support the creation of an industrial software development culture in Latvia, and attract new cluster members.

The initiative consists of 18 IT and electronic equipment companies, employing around 2,500 IT specialists. Cluster companies include Baltic Computer Academy (BDA), CityCredit, Cluster Point, Data Pro, Datorzinibu Centrs, DEAC, DPA, Exigen Service, FMS Group, iSoft Solutions, Lattelecom Technology, Oracle Latvija, Rix Technologies, SAF Tehnika, TietoEnator, TietoEnator Alise, Tilde and ZZDats. The initiative is cooperating with eight higher education establishments and research and science institutions. A Memorandum of Understanding has also been signed with two technology parks (Ventspils High Technology Park and Belarus High Technology Park), and two regional business incubators.

ICT West Pomerania (Poland)

ICT West Pomerania cluster was started in 2007 as an initiative of Science and Technology Park of Szczecin to build strong cooperation between companies and academia and promote regional ICT potential. ICT West Pomerania cluster associates comprise 100 companies located mainly in Szczecin. This is a group of active and innovative companies looking for partners to develop new business ideas.

The region has 350 ICT companies that employ 4,000 people. There are also three tertiary education colleges offering IT courses (web design, network administration, IT technician. There were 350 students, 105 graduates and 100 new students in 2008. Three universities in the region are offering Master's and Bachelor's degrees; there were 2,750 computer science students, 450 graduates and 900 new students in 2008.

Major ICT actors in the region are Unizeto, BLStream, TietoEnator, Game Lion, Byss and Espol. The huge majority of ICT companies in West Pomerania region are microenterprises with between one and 10 employees. The SME segment makes up 22% of the whole group of employees in sector. As a capital of both region and voivodeship (province), Szczecin is the most popular place for establishing an IT company. Important reasons for investors are the close proximity of universities and tertiary education colleges training IT specialists, as well as good communications and

proximity of Berlin and Goleniów airports. Almost half the companies localised in the region operates in area of software development. Of these, 37% are very active in the multimedia sector (web service design, computer graphics and e-commerce).

The vision of the cluster initiative is to encourage corporate cooperation in creating unique, competitive and socially beneficial ICT solutions at European level. The cluster initiative also has a number of goals. One is to develop R&D activity in SMEs and another is to improve the standard of ICT professionals and management. The initiative works with qualifications and education programmes and aims to increase the number of new ICT solutions for strategic market sectors in the region (tourism, agriculture and fishery and renewable energy).

Bioenergy

Biorefinery of the Future (Sweden)

The Biorefinery of the Future is the name of an innovation system that clusters companies, universities and public organisations within the Örnsköldsvik and Umeå area around a vision of sustainable growth based on forest raw materials and energy crops. Biorefining is a comprehensive process industry aimed at obtaining the greatest possible added value from renewable raw materials. New products, fuels and energy solutions are being developed from raw materials and industrial process streams.

The vision behind the Biorefinery of the Future is to create sustainable growth through development of new knowledge and biobased green products, chemicals, fuels and new energy solutions from the raw material and industrial process streams. The key is to combine and use these resources in an innovative and energy-saving way.

The innovation system consists of members throughout the whole Triple Helix system, with Processum Biorefinery Initiative AB (Processum) and its member companies representing the companies; Umeå University, Luleå University of Technology, the Swedish University of Agricultural Sciences and Mid-Sweden University representing the academic sphere and the County Administrative Board of Västernorrland and municipalities of Örnsköldsvik and Umeå representing the societal sphere.

Processum is the host company behind this strategic idea and its task is to coordinate collaboration between the various members. The business concept is to support existing companies by joint marketing activities and support the development of new industrially-orientated process activities. Another important area is supporting the development of R&D.

Members of the Processum cluster include manufacturing companies such as Domsjö fabriker AB, Akzo Nobel Functional Chemicals AB, SCA Packaging, Övik Energi, Umeå Energi and Sekab. Other members are consultants and suppliers such as Eurocon, Holmen Skog, Metso Power. MoRe Research Örnsköldsvik AB, an R&D company, is another type of member.

The Biorefinery of the Future is involved in networks such as VINNOVA and the VINNVÄXT programme, BioFuel Region, Regional Growth programmes and the National Research Agenda.

Arena Bioenergy (Norway)

Arena Bioenergy Inland comprises 80-100 companies within the bioenergy sector. The cluster is located in south-eastern Norway and consists of small-scale bioenergy heating plants, large-scale bioenergy heating plants, biofuel companies, waste treatment companies, forest owners associations, and forestry and agribusinesses (raw materials suppliers). The cluster covers the counties of Oppland and Hedmark representing about 50% of the forestry in Norway.

Both SMEs and big companies are involved in the cluster. An example of a big company is Moelven. This company is regarded as a significant actor in the sawmill industry and one of Scandinavia's leading suppliers of building products. Another example is Eidsiva, a leading regional energy company focusing on hydropower and bioenergy. Moreover, there are well developed relations with R&D institutions, universities and the public sector at regional level.

The Arena Bioenergy cluster initiative was established in 2008. This cluster's vision is to play a leading role in the development of the bioenergy market on both regional and national level. The main objective is to contribute to increased competitiveness, growth and profitability within the bioenergy cluster, through collaboration between individual companies and between R&D-actors, companies and public sector. The main challenges in the bioenergy sector are linked to raw material and logistics, market development, profitability, and development of expertise.

Main business areas are: small-scale bioenergy for heating, large-scale bioenergy for heating, biofuel, bio resources and biowaste. Strategic focus areas for the initiative are innovation, commercialisation and internationalisation. Other areas are competence, education and R&D including international collaboration. The initiative also focuses on networking, cluster-building, various information activities and public relations.

Arena Bioenergy Inland is part of the Arena Programme run by Innovation Norway in cooperation with The Research Council of Norway and Industrial Development Corporation of Norway (SIVA). Arena is a national programme for long-term development of regional business clusters. The programme offers advisory and financial support. The objective is to strengthen the clusters' innovative ability through a stronger and more dynamic interaction between the industry, R&D institutions, universities and the public sector.

Baltic Eco-Energy Cluster, BKEE, (Poland)

The consortium is a common initiative of the Institute of Fluid-Flow Machinery PAS, University of Warmia and Mazury, Gdansk University of Technology, Koszalin

University of Technology, Marshals and Self-Governments of the Pomorskie and Warmińsko-Mazurskie Voivodeships, as well as the economic units and associations located in those voivodeships. Geographically, BKEE's activity covers the area of northern Poland from Koszalin through Pomorskie Voivodeship and on to the eastern confines of Warmińsko-Mazurskie Voivodeship. The main mission of BKEE is to introduce and promote a widely understood idea of distributed co-generation, i.e. simultaneous small and medium-scale production of thermal energy and electricity from renewable energy sources, mainly biomass, but also by converting water, solar and wind energy. Actions taken by BKEE include those addressed in reducing the proportion of fossil fuels used as primary energy sources and a simultaneous significant increase in the use of biofuels aimed at developing ecological awareness.

(Up to now) the BKEE consortium is an open non-profit agreement of 37 partners (six research institutions, 11 self-governmental institutions and 19 companies from three Baltic Sea voivodeships of Poland) signed in July 2007. The funds for all the present organisational activities, i.e. attempts to balance the potential of partners, preparation of new projects, organisation of Baltic Eco-Energy Forum (November 2007), etc. are covered by partners engaged in a given activity. The future legal status of BKEE and its role in implementing innovative economy in northern BS regions of Poland is yet to be developed.

Græn Orka cluster (Iceland)

Græn Orka is a bioenergy cluster in Iceland managed by Arkea Technology Park and stationed on the Reykir campus of the Agricultural University of Iceland. Its members are located in different parts of Iceland. The vision is for Iceland to be a global leader in renewable energy with 72% of its total energy use coming from hydro and geothermal energy. About 90% of all houses are heated with geothermal water and nearly 100% of the electricity is generated from renewable sources. Due to the large distances involved, plus major automotive, fishing, cargo and aircraft fleets, Iceland is still highly dependent on imported fossil fuels. Developing new renewable energy forms which could replace fossil fuels for transport is therefore Iceland's next step towards a total renewable energy society.

The goals of the Græn Orka cluster are therefore to add various forms of bioenergy to the Icelandic renewable energy arsenal. The aim is to do this by using known methods of harvesting bioenergy and using biology to convert current waste energy streams like geothermal gas, low temperature water and off-peak electricity into high-priced fuels and chemicals.

The cluster group contains the main actors working in the bioenergy field in Iceland today, representing universities with a long track record of research, the key engineering firm in the field and high-tech SMEs developing novel energy solutions. The cluster members also take part in international collaboration projects in this field and work closely with large energy companies in Iceland and abroad.

Finnish Cleantech Cluster (Finland)

The Cleantech cluster in Finland is one of 13 competence clusters within the OSKE programme. The objective of these clusters is to promote regional specialisation in Finland and encourage collaboration between Centres of Expertise.

The Finnish Cleantech cluster is made up of four centres of expertise within the cleantech sector in Finland. These centres are located in Kuopio, Lahti, Oulu and Helsinki and the surrounding areas. Each of the four Centres of Expertise specialises in different aspects of cleantech expertise and strives to promote the growth and internationalisation of the associated businesses. Today there are around 200 companies involved in the cluster.

The cluster's mission is to promote interaction between Finnish enterprise and the research community so as to boost demand for selected products and services both in Finland and internationally. The stipulated goals are to boost cleantech business in Finland, create new jobs and take advantage of the global market by setting up international networks. Another goal is to make use of Finnish expertise in business and services both in Finland and abroad. The cluster also strives to generate new, expertise-intensive business either through the incorporation of new enterprises or by establishing new units within existing enterprises in cooperation with foreign enterprises and organisations whenever possible.

The vision of the cluster is that by 2013 the growth of the industry and mergers amongst cleantech businesses will have generated new export drivers that take advantage of cutting-edge research findings. The high quality of the research will also lure in new enterprises from outside Finland's national borders.

Wood production, furniture and design

Möbelriket – Kingdom of Furniture (Sweden)

Kingdom of Furniture is a cluster initiative in southern Sweden (Småland region) which has existed for about 15 years. In the beginning, it was a smaller association aiming to create collaboration between furniture and design retailers in Lammhult. Today there are about 40 companies, two municipalities (Växjö and Värnamo) and Växjö University are participating. There is also a network of designers linked to the initiative. The partners in the Kingdom of Furniture are furniture stores such as Norrgavel and Svenssons in Lammhult, furniture producers such as Lammhults Möbler, Bruno Mathsson and Källermo, subcontractors, designers, hotels and restaurants and municipalities. The Kingdom of Furniture is creating networks between design and furniture companies and markets the area for tourists and other visitors. Thus, there are two areas of focus: destination development and industrial development for the furniture and design industry.

Latvian Forestry Cluster (Latvia)

Latvia joined the pilot in November of 2008. The wood and furniture industry is important in Latvia with several hundred companies belonging to the sector. There are also two independent research institutes conducting contract R&D on wood materials, and the Latvian Academy of Art has a furniture specialisation. Even though the companies belonging to the wood and furniture industry in Latvia are not organised as a cluster, Latvia was offered the opportunity to join through its Agency for Investment and Development so as to learn more about the advantages of clustering.

West Pomerania Wood and Furniture Cluster (Szczecin, Poland)

West Pomerania is one of the most dynamic regions of Poland, with a well-developed wood and furniture industry. The number of companies belonging to this sector and located in this area exceeds 300 and there are 150 other companies cooperating with them. Moreover, the main characteristic of this sector is a great number of microbusinesses and geographic dispersal.

The West Pomeranian Wood and Furniture cluster was established to start the cooperation between wood and furniture SMEs and big companies in the area of new technologies, personnel, communication, internationalisation, marketing and PR. The "West Pomeranian Wood and Furniture" Association provides a platform for joint actions and new innovative initiatives, especially to micro and small producers.

The cluster associates 20 micro, small, medium and large companies as well as representatives of Szczecin trade college and two biggest West Pomeranian universities of technology. The Vice-Marshal of the West Pomeranian Voivodeship awarded an honorary patronage to the "West Pomeranian Wood and Furniture" Association.

The cluster is a relatively young initiative launched some years ago. Its current activities are focused mainly on: consolidating the cluster; opening closer relationships with research institutes; finding cooperating companies from abroad; raising awareness of certificates and joint applications for certificates required in the industry; and raising the awareness of intellectual property rights and design related issues. There are also the issues of finding sources of financing for cluster activities, promoting technology transfer among cluster members and common exhibitions at furniture fairs.

The cluster is involved in R&D relations with various universities. There are currently no specific research activities involving it. However, it is cooperating with Koszalin University of Technology (especially the Design Institute), Szczecin University of Technology and the Building Research Institute in Warsaw especially in the area of design and wood and processing machinery.

University of Lodz (Poland)

The faculty of management at the University of Lodz focuses on various aspects of management. There are 126 academic teachers employed at the faculty. The number of

students has doubled from 2050 to nearly 4200 over a period of thirteen years. The department of marketing has participated in the furniture pilot. Research areas within the department are:

- Marketing evolution in relation to changes in environment – modern marketing concepts, customer relationship marketing and value marketing
- Marketing and consumer in a global information society – consequences of the globalization process and the technological boom for consumers and marketing
- Marketing in selected markets – evaluation of marketing strategies, identification of factors affecting the development of marketing function in an enterprise operating on international markets of financial services
- Information as a key input to marketing processes – identifying the role of information in the decision-making process, marketing research as a prerequisite of the decision-making process in an enterprise, integrated marketing information systems
- Measurement in marketing – methodology of marketing efficacy and efficiency measurement
- Modern trends in trade and distribution – e-commerce

University of Poznan (Poland)

The main fields of research for Department of Furniture Design at the Faculty of Wood Technology at the Poznan University include analysis of furniture construction; technical examination of mechanical properties of materials; certification of furniture; numerical optimisation of furniture construction; image correlation analysis of furniture construction; construction principles of ergonomic furniture intended for sitting and lying; numerical analysis of ergonomic function of furniture; design of furniture and design management in furniture manufacturing companies as well as CAD/CAM systems; MRP/MRPII/ERP/ERPII systems for furniture industries; and integrating MRP/ERP systems with CAD/CAM. Moreover, the Center of Innovation and Technology Transfer for the Furniture Industry was established in 2007 to ensure the optimal level of cooperation and knowledge transfer between the Department of Furniture Design and the furniture industry. From 2009, the Department of Furniture Design is a member of the Swarzedz Carpenters Cluster. The educational activity is focused on teaching furniture design principles based on guidelines relating to ergonomics, strength requirements and safety of furniture use.

Latvian Grey (Latvia)

The Project “Latvian Grey” is an informational platform for design products created in Latvia. The goal of the project is to be a creative background for Latvian design products. The projects support popularity and sales in Latvia and abroad by using different kinds of activities (round table discussions, lifestyle exhibitions and a website). The project assists users in making a choice by convincing them that Latvian design product are aesthetic, high quality and reasonably priced.

The members of project are producers, designers and design product developers. There are micro-entrepreneurs and major factories from various industries (wood, metal, textile, paper, etc). The project also collaborates with universities, design media and officials.

Art Academy of Latvia, Design Department (Latvia)

The Art Academy of Latvia is one of the most prestigious art and design schools in the Baltic States. Over the years, the academy has prepared numerous young professional designers for successful careers in the field. Students in functional design, environmental design and metal design programs at the design department develop creative and innovative design solutions for everyday life and help forge a stylish, modern environment for all of us. Since 1961, the Art Academy of Latvia has offered undergraduate and graduate programs in design, where students learn the theory and practice of design from a renowned faculty of experienced professionals. Throughout the course of their studies, students can explore and put into practice both their utilitarian design concepts and their utopian visions. These programs are just the first step for our students towards discovering and realizing their plans in the thriving field of design.

Wood cluster (Lithuania)

The wood cluster in Lithuania unites over 350 enterprises in the sector. The initiative was established in 2004 by the Business Association of the Alytus Region. The cluster was established in response to small and medium-sized enterprises growing challenges in order to create added value, stay competitive and survive on a global market. Objectives were set in dialogue with representatives from the academy, municipal government and wood processing and logistics enterprises. With active participants from the companies, municipalities, incubators, chambers of commerce and other public institutions, as well as universities and professional training centres, the Lithuanian cluster has adopted a Triple Helix approach.

Appendix 2 – Follow-up questions

Areas of interest, questions and collecting data

1 Description of cooperation

This part of the follow-up aims to provide a good picture of the different constellations of cooperation participating in the pilot programmes. The information in this section is also important in analysing opportunities and obstacles in regard to transnational cooperation.

Sample questions:

- What kinds of constellations of cooperation are participating? (For instance clusters, innovation systems, single stakeholders such as universities and so on)
- What kinds of stakeholders are participating in the identification of areas of common interest? (Assignment, goals, policy areas, local/national/regional context)
- How would the partners describe the common process?

Data collection: E-mail survey of those responsible in the different national initiatives. Desk research on participating organisations and categorise them. The PIC taskforce observations in the pilot programme have been collected.

2 Monitoring whether the different pilot projects would result in full-scale projects in September 2009.

This section aimed to have both a monitoring and a learning perspective. In other words, would the pilot projects achieve their goals of identifying areas of common interest?

Questions:

- Have the participating initiatives reached a common agenda?
- What possibilities have been identified when it comes to working together?
- Within what areas is there a consensus of cooperation (R&D, Education, Market development)?
- Have the most important stakeholders been identified?
- Have activities been defined for a full-scale project? What kind of common activities have been identified?
- What will be the most commercially interesting area?
- If there are no possibilities for common action, then why?
- How do the stakeholders regard the possibility and likelihood of running a full-scale programme starting in 2010? Are there any critical areas that must be considered?

Data collection: Formal report from project managers at VINNOVA and reports from the PIC taskforce.

3 Learning how to cooperate transnational

This part of the follow-up aimed to provide information on how this kind of transnational cooperation works.

Questions:

- Is there a common process?
- How was this done? What are the learning aspects?
- Has the dialogue/discussion been focused on long-term strategic issues or on more operative ones?
- What where the “low-hanging fruits”? What kind of early activities are important in order to reach a common understanding?
- What are the success factors when it comes to mobilising initiatives in the BSR?
- Obstacles for mobilising? How can these be overcome?
- What stakeholders are most committed to the work? What actors are less committed?
- What are the learning points when it comes to project management?
- What are the learning points when it comes to participating partners?
- How can this type of transnational cooperation be organised?
- In general, what potential is there for transnational collaboration between participating clusters and how can it be stimulated?

Data collection: Interviews (on-site) with project managers (cluster facilitators). Interviews (phone) with participating partners. From PIC taskforce data were collected.

4 National/regional absorption capacity

This part of the follow-up is aimed at developing knowledge on how the different national initiatives made use of the international cooperation in the regional clusters/innovation systems.

Questions

- How is the international cooperation anchored in the regions? When?
- What does the local “absorption capacity” look like when it concerns utilising international contacts?
- How does the initiative ensure that other actors in the region are utilising international cooperation, and on a strategic and operational level?
- What remains to be done when it comes to regional anchorage?
- What are the lessons learned linking the international work to the regional one?

Data collection: Interviews with project managers. Interviews (phone) with participating partners. Collection of data from PIC taskforce.

5 Early results

Even though cooperation only took place over a short period of time, the follow-up may also want to highlight some early results of cooperation.

Questions:

- What have the results of cooperation in the pilot project been so far?
- What kinds of relationships have been strengthened?
- What sort of new contacts have been initiated?
- What have the pilot projects learned from each other?
- New activities?

To what degree has working together led to these kinds of results?

- A strengthened market position
- Easier access to focused markets
- Access to knowledge not accessible in the national/regional network.
- Exchange of information and experience on an international level.

Data collection: Interviews with project managers and PIC taskforce. Telephone interviews with partners and formal reports.

Appendix 3 – Written references

Andersson T., Schwaag Serger S., Sörvik J., Wise Hansson E. 2004. The Cluster Policies Whitebook, IKED.

Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Towards World-Class Clusters in the European Union, Brussels 17/10/08, COM (2008) 652.

European Cluster Alliance 2009, Existing policy measures to support international cluster cooperation – within Europe and worldwide – and the role cluster organisations play in this process.

Meier zu Köcker G. and Bulh C. M. 2007. Internationalization of Networks- Barriers and Enablers. Federal Ministry of Economics and Technology. Kompetenznetze Deutschland.

The European Cluster Memorandum, Promoting European Innovation through Clusters - An Agenda for Policy Action.

Sölvell, Ö., Lindqvist, G. & Ketels. C. 2003. The Cluster Initiative Greenbook. Stockholm: Ivory Tower.

Wigren, C. 2005. Samverkande kluster och innovationssystem- Ett följeforskningsprojekt inom Visanu (Cooperating Clusters and Innovation Systems – a Research Report within Visanu), Nutek, VINNOVA, ISA.

Appendix 4 – Interviews

On-site interviews in Sweden

Anders Wisth, Kingdom of Furniture, Sweden

Inger Ahldén, Ideon Agro Food, Sweden

Lennart Lindahl, Ideon Agro Food, Sweden

Hans Grundström, Processum

Klas Engström, Processum

Eva Lundmark, Processum

Yvonne Söderström, Processum

Sune Brändström, Processum and SEKAB

Philip Stankovski, Mobile Heights/Öresund IT

Erik Stenberg, Mobile Heights/Öresund IT

On-site interviews in Finland

Johanna Kilpi Koski, Lahti Science and Business Park Ltd, Finland

Janne Lehtinen, Project manager Foodwest Ltd

Salme Haapala, Programme manager Foodwest Ltd

Antti Väliaho, Managing Director, Foodwest Ltd

Kirsi Lindfors, Ubiquitous Computing Cluster

Karen Thorburn, Ubiquitous Computing Cluster

Interviews in Poland

Jaśmina Solecka, Regional Centre for Innovation and Technology Transfer, Szczecin University of Technology Szczecin

Tomasz Lyzwinski, Regional Centre for Innovation and Technology Transfer, Szczecin University of Technology Szczecin

Katarzyna Papierkowska, ICT West Pomerania Cluster,

Science and Technology Park of Szczecin

Arkadiusz Kaminski, BTC

Pawel Fornalski, IAI

Sebastian Mulinski, IAI

On-site interviews in Norway

Ole Helmer Björlien, Arena Bioenergy Inland

On-site interviews in Iceland

Jakob Kristjánsson, Arkea and Matis

Jona Matthiasdottier, Northeast Iceland Development Agency (written interview)

On-site interviews in Latvia

Lilita Sparane, Latvia ICT Cluster

Janis Bergs, FMS (Financial Management Solutions)

Telephone interviews

Mie Berndsen, Öresund Food

Micael Gustafsson, Öresund IT

Taskforce meeting 19th March, Oslo

Participants:

Ottar Hermansson, Innovation Norway, Norway

Soley Greta Sveinsdottir Morthens, RANNIS, Iceland

Jukka Lähteenkorva, Foodstuff cluster programme, Finland

Arkadiusz Kovalski, Ministry of Economy, Poland

Bogumil Hausman, VINNOVA, Sweden

Anna Zingmark, VINNOVA, Sweden

Taskforce meeting 26th May, Helsinki

Participants:

Soley Greta Sveinsdottir Morthens,

RANNIS, Iceland

Jukka Lähteenkorva, Foodstuff cluster programme, Finland

Bogumil Hausman, VINNOVA, Sweden

Karin Nygård Skalman, VINNOVA, Sweden

Anna Zingmark, VINNOVA, Sweden

Furniture pilot meeting 4th September, Oslo

Aija Freiman, Art Academy of Latvia

Miks Petersons, Latvian Grey

Anders Wisth, Kingdom of Furniture

Aldona Matukiene, Business Association of Alytus Region

Tomasz Lyzwinski, Regional Center for Innovation and Technology Transfer, West Pomeranian University of Technology, Szczecin

Justyna Starostka, University of Lodz

Beata Fabisiak, Poznan University of Life Science

Anna Zingmark, VINNOVA, Sweden

Martti Lindman, University of Vaasa

VINNOVAs publikationer

April 2010

För mer info eller för tidigare utgivna publikationer se www.VINNOVA.se

VINNOVA Analys
VA 2010:

01 Ladda för nya marknader - Elbilens konsekvenser för elnät, elproduktionen och servicestrukturer

02 En säker väg framåt? - Framtidens utveckling av fordonssäkerhet

03 Svenska deltagandet i EU:s sjunde ramprogram för forskning och teknisk utveckling - Lägesrapport 2007 - 2009. *Finns endast som PDF. För kortversion se VA 2010:04*

04 SAMMANFATTNING av Sveriges deltagande i FP7 - Lägesrapport 2007 - 2009. *Kortversion av VA 2010:03*

VA 2009:

01 Svenska tekniker 1620 - 1920

02 Effekter av statligt stöd till fordonsforskning - Betydelsen av forskning och förnyelse för den svenska fordonsindustrins konkurrenskraft. *För kortversion på svenska respektive engelska se VA 2009:11 och VA 2009:12*

03 Evaluation of SIBED. Sweden - Israei test bed program for IT applications. *Finns endast som PDF*

04 Swedish possibilities within Tissue Engineering and Regenerative Medicine

05 Sverige och FP7 - Rapportering av det svenska deltagandet i EUs sjunde ramprogram för forskning och teknisk utveckling. *Finns endast som PDF*

06 Hetast på marknaden - Solenergi kan bli en av världens största industrier

07 Var ligger horisonten? - Stor potential men stora utmaningar för vågkraften

08 Vindkraften tar fart - En strukturell revolution?

09 Mer raffinerade produkter - Vedbaserade bioraffinaderier höjer kilovärdet på trädet

10 Förnybara energikällor - Hela elmarknaden i förändring

11 Sammanfattning - Effekter av statligt stöd till fordonsforskning. *Kortversion av VA 2009:02, för engelsk kortversion se VA 2009:12*

12 Summary - Impact of Government Support to Automotive Research. *Engelsk kortversion av VA 2009:02, för svensk kortversion se VA 2009:11*

13 Singapore - Aiming to create the Biopolis of Asia

14 Fight the Crisis with Research and Innovation? Additional public investment in research and innovation for sustainable recovery from the crisis.

15 Life Science Research and Development in the United States of America - An overview from the federal perspective. *Finns endast som PDF*

16 Two of the "new" Sciences - Nanomedicine and Systems Biology in the United States. *Finns endast som PDF*

17 Priority-setting in the European Research Framework Programme

18 Internationellt jämförande studie av innovationssystem inom läkemedel, bioteknik och medicinteknik

19 Investering i hälsa - Hälsoekonomiska effekter av forskning inom medicinsk teknik och innovativa livsmedel

20 Analysis of Chain-linked Effects of Public Policy - Effects on research and industry in Swedish life sciences within innovative food and medical technology

21 Research Priorities and Priority-setting in China

22 Priority-Setting in U.S. Science Policies

23 Priority-Setting in Japanese Research and Innovation Policy

VINNOVA Information
VI 2010:

01 Transporter för hållbar utveckling

02 Fordonsstrategisk Forskning och Innovation FFI

03 Branschforskningsprogrammet för skogs- och träindustrin - Projektkatalog 2010

04 Årsredovisning 2009

VI 2009:

02 Forskning om chefskap. Presentation av projekten inom utlysningen Chefskap; förutsättningar, former och resultat. *För engelsk version se VI 2009:03*

03 Research on the managerial tasks: condition, ways of working and results. *Finns endast som PDF. För svensk version se VI 2009:02*

04 Högskolan utmaningar som motor för innovation och tillväxt - 24-25 september 2008

05 VINNOVA news

06 Årsredovisning 2008

07 Innovationer för hållbar tillväxt. *För engelsk version se VI 2009:08*

08 Innovations for sustainable Growth. *För svensk version se VI 2009:07*

09 Forska&Väx

10 Ungdomar utan utbildning - Tillväxtseminarium i Stockholm 4 mars 2009

11 Cutting Edge - Swedish research for growth

12 Mobilitet, mobil kommunikation och bredband - Branschforskningsprogram för IT & telekom. Projektkatalog

13 Forskning och innovation för hållbar tillväxt

VINNOVA Policy
VP 2010:

01 Nationell strategi för nanoteknik - Ökad innovationskraft för hållbar samhällsnytta

VP 2009:

01 TRANSAMS uppföljning av "Nationell strategi för transportrelaterad FUD" åren 2005 - 2007. Två uppföljningar - en för 2005 och en för 2006 - 2007. *Finns endast som PDF*

02 VINNOVAs internationella strategi - att främja hållbar tillväxt i Sverige genom internationellt forsknings- och innovationssamarbete

VINNOVA Rapport
VR 2010:

01 Arbetsgivarringar: samverkan, stöd, rörlighet och rehabilitering - En programuppföljning

02 Innovations for sustainable health and social care - Value-creating health and social care processes based on patient need. *För svensk version se VR 2009:21*

03 VINNOVAs satsningar på ökad transportsäkerhet: framtagning av underlag i två faser. *Finns endast som PDF*

04 Halvtidsutvärdering av TSS - Test Site Sweden - Mid-term evaluation of Test Site Sweden. *Finns endast som PDF*

05 VINNVÄXT i halvtid - Reflektioner och lärdomar. *För engelsk version se VR 2010:09*

06 Sju års VINNOVA-forskning om kollektivtrafik - Syntes av avslutade och pågående projekt 2000 - 2006. *Finns endast som PDF. För kortversion se VR 2010:07*

07 Översikt - Sju års VINNOVA-forskning om kollektivtrafik. *För fullversion se VR 2010:06*

08 Rörlighet, pendling och regionförstoring för bättre kompetensförsörjning, sysselsättning och hållbar tillväxt - Resultatredovisning från 15 FoU-projekt inom VINNOVAs DYNAMO-program

09 VINNVÄXT at the halfway mark - Experiences and lessons learned. *För svensk version se VR 2010:05*

10 The Matrix - Post cluster innovation policy

11 Creating links in the Baltic Sea Region by cluster cooperation - BSR Innonet. Follow-up report on cluster pilots

VR 2009:

01 Affärsutveckling inom trämaufaktur och möbler - hur skapas effektivare värdekedjor? *Finns endast som PDF*

02 Användarna och datorerna - en historik 1960 - 1985

03 First Evaluation of the Berzelii Centra Programme and its centres EXSELENT, UCFB, Uppsala Berzelii & SBI Berzelii

04 Evaluation of SAFER – Vehicle and Traffic Safety Centre at Chalmers - a Centre of Excellence with financing from VINNOVA. *Finns endast som PDF*

05 Utvärdering av forskningsprogrammet SkeWood. *Finns endast som PDF*

06 Managing and Organizing for Innovation in Service Firms - A literature review with annotated bibliography. *Finns endast som PDF*

07 Den tjänstedominanta logiken - Innebörd och implikationer för policy.

08 Tjänster och relaterade begrepp - Innebörd och implikationer för policy.

09 Underlag för VINNOVAs satsningar inom transportsäkerhetsområdet. *Finns endast som PDF*

10 Utmaningar och kunskapsbehov - Om innovation, ledning och organisering i nio olika tjänsteföretag. *Finns endast som PDF*

11 De två kulturerna på Internet - En utmaning för företag, myndigheter och organisationer. Huvudrapport

12 Uppföljning av VINN NU-företag

13 Kartläggning av svensk FoU inom området IT och miljö - med fokus på teknikens indirekta och systemmässiga effekter. *Finns endast som PDF*

14 Forska&Väx - Hållbar tillväxt genom forskning och utveckling i Små- och Medelstora Företag

15 Tjänsteinnovationer för tillväxt

16 Behovet av genusperspektiv - om innovation, hållbar tillväxt och jämställdhet. Utvärdering. *Finns endast som PDF*

17 Ekonomisk omvandling och makrologistiska kostnader. *Finns endast som PDF*

18 En undersökning av innovativa företags syn på strategiskt utvecklingsarbete i spåret av lågkonjunkturen. *Finns endast som PDF*

19 The Public Sector - one of three collaborating parties. A study of experiences from the VINNVÄXT programme.

20 Från hantverkskilt till hästföretag - Genusperspektiv på innovation och jämställdhet

21 Innovationer för hållbar vård och omsorg - Värdeskapande vård- och omsorgsprocesser utifrån patientens behov. *För engelsk version se VR 2010:02*

22 Organising Work for Innovation and Growth. Experiences and efforts in ten companies

23 Mid Term Evaluation of the Institute Excellence Centres Programme

24 Process Support, Communication and Branding - VINNOVA´s VINNVÄXT programme

25 The Innovation Platform

26 Citizens´ Services - Nordic and Baltic Research Needs

27 Kina och internet - Tillväxt och tilltro

28 eGovernment of Tomorrow - Future scenarios for 2020

29 Organisationsformernas betydelse i klusterverksamhet - Att organisera klusterarbete är en ständigt pågående process som ställer höga krav på ledarskap och långsiktig strategi

30 Inomhusskidbacke i Lindvallen, Sälen. *Finns endast som PDF*

31 Kartläggning av svenska klusterinitiativ. *Finns endast som PDF*

32 Service Innovations in Sweden Based Industries - Aiming for 30-60% revenue increase/Tjänsteinnovationer i Sverigebaserad tillverkningsindustri - Med sikte på 30-60 % intäktsökning

33 Chinese Views on Swedish Management - Consensus, conflict-handling and the role of the team

34 First Evaluation of the second, third and fourth Round of VINNOVA VINN Excellemce Centres - FASTE, SUS, FUNMAT, CHASE, GHz, MOBILE LIFE, iPACK, HERO-M, PRONOVA, BIOMATCELL, WINQUIST, SUMO, BIMAC INNO, WISENET and AFC

35 International Evaluation of PLUS Competence Centre - at Chalmers. *Finns endast som PDF*

VR 2008:

01 Mot bättre vetande - nya vägar till kunskap på arbetsplatsen

02 Managing Open Innovation - Present Findings and Future Directions

03 Framtiden är öppen! Om problem och möjligheter med öppen källkod och öppet innehåll

04 First Evaluation of the Institute Excellence Centres Programme

05 Utvärdering av det Nationella Flygtekniska forskningsprogrammet - NFFP. Evaluation of the Swedish National Aeronautics Research Programme - NFFP

06 Utvärdering av Vehicle - Information and Communication Technology programmet - V-ICT

07 Kartläggning av ett halvt sekels jämställdhetsinsatser i Sverige

08 Politiken, offentlig verksamhet - en av tre parter i samverkan

09 Forsknings- och innovationspolitik i USA - Näringslivets fem roller

10 ”Born to be wild” - 55+... eller hur förvandla en global demografisk förändring till ett svenskt styrke- och tillväxtområde?

11 DYNAMO 2 i halvtid - Rapport från VINNOVAs konferens på Ulfsunda slott 10 - 11 april 2008

12 VINNVÄXT II - Generalist and Specialist Evaluation of process and knowledge development 2004 - 2007

13 Svensk makrologistik - Sammansättning och kostnadsutveckling 1997 - 2005

14 Leading Companies in a Global Age - Managing the Swedish Way

15 Chefskapets former och resultat. Två kunskapsöversikter om arbetsplatsens ledarskap

16 NRA Security - Swedish industry proposal for a National Research Agenda for security

17 University strategies for knowledge transfer and commercialisation - An overview based on peer reviews at 24 Swedish universities 2006

18 Vårda idéerna! - Trots många framgångsrika projekt inom vård och omsorg skapas inte varaktiga effekter. Varför förvaltas och utnyttjas inte idéerna?

19 Growth through Research and Development - what does the research literature say?

20 Sesam öppna dig! Forskarperspektiv på kvinnors företagande

Production: VINNOVA's Communication Division
Printed by: Arkitektkopia, Stockholm, www.arkitektkopia.se
April 2010
Sold by: Fritzes Offentliga Publikationer, www.fritzes.se

VINNOVA promotes sustainable growth
by funding needs-driven research
and developing effective innovation systems

VERKET FÖR INNOVATIONSSYSTEM – SWEDISH GOVERNMENTAL AGENCY FOR INNOVATION SYSTEMS

VINNOVA, SE-101 58 Stockholm, Sweden Besök/Office: Mäster Samuelsgatan 56
Tel: +46 (0)8 473 3000 Fax: +46 (0)8 473 3005
VINNOVA@VINNOVA.se www.VINNOVA.se