



## **Chemical Cluster Development in European Regions**

### **Final Implementation Report**

### **Pilot Project “Open Chemical Innovation”**

July 2012

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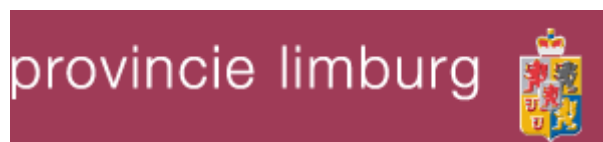
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## 1 Overview

The pilot project “Open Chemical Innovation” has been implemented in the framework of the Interreg IVC project ChemClust from March 2011 until June 2012. Project Partners from Limburg, Schleswig-Holstein, Novara and Asturias have discussed the Open Chemical Innovation Model and possibilities for transfer of (parts) of the system to the respective regions. Also the regions have agreed on a joint approach on lobbying for a European Open Chemical Innovation Policy. The following partners have been involved:

### Limburg, the Netherlands



### EGEB, Schleswig-Holstein, Germany

Landesregierung  
Schleswig-Holstein**Jetzt online bewerben für das WS2012/13!**

Zulassungsbeschränkte Studiengänge: 01.05.2012 bis 15.07.2012, freie Studiengänge: 01.05.2012 bis 31.08.2012

WT SH

**Novara, Italy****Fondazione Novara Sviluppo****PROVINCIA DI NOVARA****Asturias, Spain**

CLUSTER DE  
INDUSTRIAS  
QUÍMICAS  
Y DE PROCESOS DEL  
PRINCIPADO DE ASTURIAS

**AIQPA**  
Asociación de Industrias Químicas  
y de Procesos de Asturias

**IQPA**  
CLUSTER de Industrias Químicas y  
Procesos del Principado de Asturias



## Objectives

The pilot project “Open Chemical Innovation” has defined the following objectives:

- Improvement of innovation capacity of chemical companies by initiating open innovation processes
- Developing open culture of exchange of experience and cooperation between companies, politics and universities
- Promoting Business to Business cooperation for development of innovative products, sharing of R&D Infrastructure, Intellectual Property Rights
- Improving innovation cooperation alongside the value added chain for the development of future promising markets (chemical industry and users)
- Development of innovative funding instruments to promote access of SME to R&D infrastructure, Providing Venture capital
- Strengthening entrepreneurship and development of spin off companies
- Support of initiation and implementation of concrete activities for the application of the open innovation method in the partner regions in the framework of joint cooperation process
- Development of recommendations for the shaping of regional economic promotion and innovation policy for the strengthening of chemical companies as active driver of innovation development

## 2 Thematic Priorities

### 2.1 Limburg

#### 2.1.1. Open Innovation on Chemelot Campus (Sittard-Geleen)

- Start of policy in favour of open innovation, chematerials and triple helix in 2005 with Acceleration Agenda.
- Declaration of intent in 2012 between DSM, University of Maastricht and Province of Limburg with elaboration of a masterplan and business case for Chemelot Campus. Commitment for 10 years with the goal to foster and organise open innovation more.
- Description of theoretical concept of Open Innovation Model
- Stimulation instruments in order to get innovative product ideas: vouchers, I-zone approach, external business developers, crossborder SME oriented subsidies
- Supporting infrastructure for Open Innovation: innovation subsidies, revolving funds, venture funds
- Creating a system to calculate the added value of working with open innovation
- Discussion on how to foster more open chemical innovation and how to get more European attention for the necessity of European policy for open innovation in the chemistry
- Recommendations to partner regions on how to implement Open Innovation process in their region

### 2.2 EGEB, Schleswig-Holstein

#### 2.2.1. Development of a cluster “Chemistry and Mineral oil”

- The Schleswig-Holstein chemistry cluster is under construction
- The industry in this cluster is mostly production units of international concerns. This is why R&D is not being applied right now.

- In collaboration with the Technology Transfer firm WTSH the call for innovation strategies in SMEs could be demonstrated. However, open innovation is far from being applied.
- Identification of concrete approaches on how Open innovation in the framework of the existing work of WTSH can be fostered.
- Description of the innovation tools in SH. There is no special focus on innovation in the chemical sector.
- Identification of open innovation projects in SH
- Formulate suggestions to foster the (open) innovation spirit in SH and to transfer this to the SH State Politics

## 2.3 Novara

### 2.3.1. IBIS: Pole for Sustainable Chemistry in Novara

- IBIS is one of the 12 innovation poles in Piedmont funded by the regional ERDF program
- Target is to develop bio-based products and reduce the environmental impact through three routes: innovative coatings, bio-based products, more eco-compatible products and processes
- Lobby needs on European and regional level.
- Need for ERDF to foster open innovation processes
- Establishing a lobby approach in order to create awareness at European level for the need of a European chemical policy with room for open innovation

## 2.4 Asturias

### 2.4.1. Establishment of clusters AIQPA and IQPA

- Innovation has become a crucial issue for companies and their business strategies. Commitment towards Open Innovation is growing. Companies with workplaces and headquarters in Asturias should have a future commitment towards open R&D&I which encourages companies to improve competitiveness and access new markets



- Some companies who are members of IQPA highlight the open and promoting attitude of the Regional Government, research centres and University of Oviedo towards R&D&I. However the relationship should be more open and active
- Identification of the elements present in Asturias concerning the Open Innovation Model
- Establishing a sense of urgency and awareness with Asturias companies that Open innovation can contribute to future growth of the chemical sector.

### 3 Implementation of concrete Activities

<b>2011</b>	
Jan Feb	Agreement on methodology and thematic priorities within the ChemClust Working Group
Mar	Presentation of methodology and thematic priorities during ChemClust Workshop in Novara, Italy 2-3 March 2011  Start of pilot projects
April	<p>Pilot Project Workshop – Lübeck (Schleswig-Holstein, Germany) 13-14 April 2011</p> <ul style="list-style-type: none"> <li>• Presentation Open innovation Model – Theory and components – planning of work in the Pilot Action – Results to be expected (Dirk Plees – Province of Limburg and Theo Hommels - LIOF)</li> <li>• Focus: Innovation in Schleswig-Holstein – presentation and reaction on answers given in questionnaire, examples from S-H (Jens Wrede - EGEB and Rudolf Zettler from Schleswig-Holstein Technology Transfer Corporation)</li> <li>• Innovation in Asturias – presentation and reaction on answers given in questionnaire, examples from Asturias (Jaime Fernández Cuesta – IDEPA)</li> <li>• Innovation in Novara – presentation and reaction on answers given in questionnaire, examples from Novara (Silvano Brustia – Provincia di Novara)</li> <li>• Site Visit to Competence center for advanced plastics at the Fachhochschule Lübeck (University of Applied Science) (Prof. Dr. Olaf Jacobs)</li> <li>• Discussion of primarily outcomes of Pilot Action (Dirk Plees – Province of Limburg and Theo Hommels – LIOF)</li> </ul>

June	<p>Pilot Project Workshop in Novara, Piedmont, Italy, 20 June 2011</p> <ul style="list-style-type: none"> <li>• Introduction on Open Innovation Pilot Action and the goal of the day “Lobby for innovation” (Dirk Plees - Province of Limburg (NL))</li> <li>• Novara’s experience, how we came to IBIS (sustainable chemistry innovation pole) (Silvano Brustia - Provincia di Novara (I))</li> <li>• How to prepare a lobby for innovation: preliminar studies, past experiences, synthesis of different interests (Giovanni Pieri – Garbo SRL)</li> <li>• Partners experience on lobbying/structural funds: Limburg, Asturias</li> <li>• Focus: Discussion and reaction on showed experiences and definition of the joint lobby goals in the field of Open innovation towards the EU Debate on meeting’s results, proposal on how to continue the activities of the OI pilot action and how to connect this to ECRN activities</li> </ul>
Sept	<p>Seminar Open Innovation and Pilot Project Workshop in Gijón, Asturias, Spain, 29 and 30 September 2011</p> <ul style="list-style-type: none"> <li>• Seminar Open Innovation in presence of AIQPA, Asturias chemical companies, ChemClust Open Innovation Group with a presentation on Open innovation in Limburg and Asturias and discussion</li> <li>• Site visit to Bio Incubator</li> <li>• Pilot project workshop with wrap-up on lobby, issuing a joint position</li> <li>• Further discussion on the activities and end goals</li> <li>• Site Visit to Dupont</li> </ul>
Nov	<p>Presentation of activities during ChemClust Dissemination Conference and ChemClust Workshop in NRW on 14 November 2011 in Leverkusen</p>
<b>2012</b>	
Feb	<p>Pilot Project Workshop in Maastricht, Limburg, the Netherlands, 22 and 23 February 2012</p>

<p>March</p>	<ul style="list-style-type: none"> <li>• Open innovation Model in all regions: presentation, based on all home-works from the regions so far (Theo Hommels - LIOF)</li> <li>• Discussion and finetuning of the final document incl. agreements on further procedures</li> <li>• Continuation on the lobby aspects (Theo Hommels - LIOF)</li> <li>• Delivering input for the EU benchmark on chemical regions (Dirk Plees)</li> <li>• Delivering policy recommendations from the pilot action (Dirk Plees)</li> <li>• Discussion on finalisation of the pilot action and final steps</li> </ul>
<p>June</p>	<p>Presentation of Results during ChemClust Workshop on 8 March in Warsaw</p> <p>Open Innovation Workshop in Asturias</p>
<p>July</p>	<ul style="list-style-type: none"> <li>• Introduction on Open Innovation by Theo Hommels - LIOF</li> <li>• Examples on Open Innovation in Limburg by Theo Hommels and Dirk Plees</li> <li>• Brief presentation of companies attending to the seminar and their experiences on Open Innovation</li> <li>• Discussion on the applicability to the Asturias Chemical sector</li> </ul> <p>Finalisation of activities and development of recommendations</p>

## 4 Involved Stakeholders

### Limburg

#### Chemelot Consortium & DSM

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### Schleswig-Holstein

#### EGEB

Jens Wrede

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### University of Applied Sciences (FH) Lübeck

Prof. Dr. Olaf Jacobs

[www.fh-luebeck.de](http://www.fh-luebeck.de)

**Schleswig-Holstein Technology Transfer Corporation (WTSH)**

[www.wtsh.de](http://www.wtsh.de)

**Novara**

**Provincia di Novara**

Silvano Brustia

Luca Lorenzini

[www.provincia.novara.it](http://www.provincia.novara.it)

**IBIS**

Giovanni Pieri

[www.novarasviluppo.it/consorzio-ibis](http://www.novarasviluppo.it/consorzio-ibis)

**Fondazione Novara Sviluppo** [www.novarasviluppo.it/consorzio-ibis](http://www.novarasviluppo.it/consorzio-ibis)

**Asturias**

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**IQPA** <http://www.clusterasturias.es>

## 5 Achievements and Recommendations

### Achievements for Open Innovation in Limburg

- The Chemelot Campus Consortium has intensified collaboration and hence open innovation activities on the campus. Three stakeholders have committed themselves for 10 years in this development.
- A business case has been elaborated for Chemelot Campus with positive results in terms of growth, added value and number of companies settled on the campus.
- A collaboration with RWTH Aachen University and Fraunhofer is reached to strengthen the knowledge component and research capacity in the chematerials sector.
- 150 million of euros have been allocated to the future developments. World leading companies have developed innovative elements of their products with partners on Chemelot Campus
- Chemelot Campus became a Campus of national importance for the Ministry of Economic Affairs, Agriculture and Innovation and is one of the top technological sectors Limburg has to offer within Brainport 2020.
- A model has been developed to calculate added value from open innovation approach
- A lobby scheme for open chemical innovation has been developed.

### Recommendations

- The success of open chemical innovation relies on the cooperation between the triple helix partners: private (DSM, Chemelot, the companies), knowledge (Maastricht University, Aachen University, Fraunhofer) and public authority (Province, LIOF) by establishing a business case for open innovative product development – existing best-practice solutions should be transferred also to other chemical regions
- The role of open innovation in the chemical sector should be reflected in the shaping of future innovation and cluster policies and instruments, therefore a

deeper discussion in the ongoing policy making process should be implemented

### **Achievements for Open Innovation in Schleswig-Holstein**

- Innovation policy in Schleswig-Holstein is not focussed solely on chemistry
- Innovation in Schleswig-Holstein is stimulated by WTSH (Schleswig-Holstein Technology Transfer Corporation), Innovation Club SH and University of Applied Sciences (FH) Lübeck
- Since 2004 a cluster policy is foreseen. The cluster for chemistry has not been formalised as yet. However in order to foster open innovation processes the cluster development is absolutely necessary.
- Some experiences have been made with open innovation: a workshop by the Helmholtz Geesthacht and WTSH, InTra-Net Innovation (Interreg IVA Project), Open Innovation contest on plastics extrusion

### **Recommendations**

- In order to foster open innovation processes in Schleswig-Holstein, the formalisation of a chemical cluster is a condition. The creation of such a fixed cluster structure will express the political will on collaboration in the chemical sector.
- SMEs can be put on the right track towards open innovation through the organisation of dedicated workshops on the theme.
- The chemistry cluster should optimise processes together with all partners, exchange best practices with other clusters, work closely with VCI and with Region Unterelbe (Hamburg and Lower Saxony).
- The Innovation Club SH should be revitalised with new activities such as congresses, seminars, workshops on themes like innovation, trends, ideas.
- The WTSH and their innovation advisors will have to be promoters of the Open Innovation process.
- Finances to stimulate this process should be made available from the means of the new structural funds programs.



### **Achievements for Open Innovation in Novara**

- IBIS started to exist as one of the 12 Innovation Poles in Piedmont, the first Pole of Novara and the first chemical Pole in the Region with the target to develop bio-based products and reduce the environmental impact through three strategic routes: innovative coatings, bio-based products (materials, pesticides), more eco-compatible products and processes.
- Strengths of IBIS: Cooperation prevails over mistrust among potential competitors, many cooperation areas have been identified, while only few cases of real competition arose and were easily settled, member companies realize synergies never thought before, an unexpected high level of innovation become conspicuous (e.g. Garbo Srl), IBIS shows a strong capacity to plan complex projects, well over the capacity of other poles
- Weaknesses of IBIS: The structure is too «light»: no service to the member companies has today supplied, in spite of this role is foreseen by the Regional regulation, no strategic guidance has been offered to the member companies, low lobbying capacity to further promote chemical research by the regional government, no attempt to tackle the problem of applied research in SMEs, although the preliminary study evidenced this is the core problem of enhancing innovation and its solution is necessary, too detailed regulations on project proposals (according to EU) oppose the development of real innovation.

### **Recommendations**

- Lobbying must start involving stakeholders as extensively as possible
- In spite of initial and occasional scepticism, in the long term they become supporters
- Managing of stakeholder meetings should be aimed to produce formal reports rather than to gather sparse opinions
- Expert people should participate in the meetings along with stakeholders
- Reports should suggest a span of alternatives in order to respond flexibly to various sources of financial support
- Lobbying should not stop when a first objective is accomplished

### **Achievements for Open Innovation in Asturias**

- By discussing the Open Innovation Model in Asturias can be concluded that that a lot of the OI key elements are already present. Concerning Idea generation the stakeholders work with interviews, creativity sessions, workshops, dedicated workshops, external business developers, feasibility studies, innovation vouchers and innovation scans. Business feasibility is promoted by joint business development, R&D Services, Licensing in/out and venturing. Good examples can be mentioned from Fertiberia, DuPont, Ence and Industria Quimica del Nalon.
- The University of Oviedo already plays a major role in the valorisation of knowledge.
- Some good examples can be mentioned, such as “Nalon Pro System” for achieving excellence in the value chain.
- In the Pharmaceutical Chemistry Bayer has established an initiative called “Operational Excellence” with the purpose of improving innovation in generating innovative ideas from employees.
- Also, the Spanish company Ence uses two fundamental methods for internal analysis and stimulate innovation: the Ishikawa diagram and the PDCA diagram.
- Two seminars have taken place with the Asturias chemical companies to look for transfer of knowledge and ideas. The industries have been invited to think further than what they were used to and they were very pleased by the refreshing way of thinking with open innovation processes in their mind.

### **Recommendations**

- IDEPA can investigate whether a triple helix collaboration with University of Oviedo and the chemical industry of Asturias is feasible. Once the partners find themselves the industry should be in the driver seat.
- IDEPA can continue offering open innovation work sessions for their chemical industry

## General Recommendations

- Chemistry is an important enabler for many branches, not only for chemical regions but for ALL regions in Europe. Open innovation will help to innovate and to create more added value in chemicals Change of culture inside SMEs is needed in order to work with the open innovation model
- Leadpartner in open innovation can be a big company, a group of companies, a cluster, an university or combinations of these
- Creating a business case/model for open innovation is key
- Organising a dedicated workshop on open innovation with specialists and good examples can lead to enthusiasm and new ideas for the industry
- The development of open innovation model for chemical industry is an interesting tool for the strengthening of innovation capacities at regional, national and European level
- The settlement of triple helix players like research institutes, companies and public authorities on chemical sites enhance the development of open innovation activities. The public authority had an incentive role but in the end the industry is in the lead.
- The concept of open chemical innovation should be actively integrated in the future innovation and cluster policy at European level – especially in the Regional Innovation Strategies (smart specialisation in the framework of EU 2020 Innovation Union)
- The allocation of future open innovation funding on chemical sites can result in higher impact and more added value.
- The results of this Pilot Action should be connect to the High Level Group Recommendations.
- ECRN should build a TWG dedicated to Open Innovation and with the goal to prepare new project proposals for ECRN partner collaboration
- ECRN will have to adopt the Open Chemical Innovation Policy en present it towards the EU as a meaningful instrument to foster innovation in the chemical regions. A demonstration project on this topic in the next structural funds period should be organised.
- Open innovation is a priority to be focussed on in the next Structural Funds Period.

- The Open Chemical innovation model should have a financial paragraph with a high leverage effect.
- All chemical regions interested in using the Open Innovation Model should lobby on regional and national level for use of Structural Funding in order to implement the elements of the Open Innovation Model. ECRN is needed to support this approach.
- A part of the Open innovation system is a monitoring and control system in order to constantly monitor the results of the funded actions.
- The Open innovation Model is an answer to the most heard critics on Structural Funds, such as slow and complicated procedures, too much paperwork and ineffective for SME's. The Open innovation Model provides simple and effective measures close to the goal public: SME's.
- In the end, the importance of Open Innovation and of the chemicals in Europe should lead to more attention for chemicals by the European Commissions and to a separate EU-approach for the sector. Open innovation must play a key role in this policy and the Structural Funds can then be used to support this EU-policy.