



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

### **Benchmark Report**

**Region: Novarra, Italy**

October 2010

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# 1 Description of chemical industry

## 1.1 Data for Chemical Industry and Rubber and Plastic 2002 – 2007

Turnover (Bn Euro)

2002	2003	2004	2005	2006	2007	2008
	8,7				9,9	

Istat, 2007

Turnover growth %

2002	2003	2004	2005	2006	2007	2008
100%						

Employment (number of employees)

2002	2003	2004	2005	2006	2007	2008
51.731	52.824	51.164	50.529	49.542	41.365	

<http://www.ispesl.it/addetti/leggiTab.php?q=2&nomefile=Piemonte&regione=Piemonte>

Employment Growth (%)

2002	2003	2004	2005	2006	2007	2008
100	102	99	98	96	80	

Investments (Bn Euro) **valori ai prezzi correnti 2007 (Bn=1000 MIO)**

2002	2003	2004	2005	2006	2007	2008
0,351	0,274	0,304			0,4	

Istat, 2007

Investment Rate (Investment / Turnover)

2002	2003	2004	2005	2006	2007	2008
	0,03				0,04	

**Wage Costs per Employee (Euro) retribuzioni lorde a prezzi correnti**

2002	2003	2004	2005	2006	2007	2008
29.586	30.559	31.959	32.550	28.438		

**Export (Bn. Euro) - (Bn=1000 MIO)**

2002	2003	2004	2005	2006	2007	2008
3,543	3,586	3,891	4,068	4,526	4,879	4,716

Istat

**Export rate (Export / Turnover)**

2002	2003	2004	2005	2006	2007	2008
	0,41				0,49	

**Industry Density (Employees per 10.000 Inhabitants)**

2002	2003	2004	2005	2006	2007	2008
5,17	5,28	5,11	5,05	4,95	4,13	

**Productivity (Turnover per employee)**

2002	2003	2004	2005	2006	2007	2008
	164.700				239.000	

**1.2**

### 1.3 General Indicators

GDP (Bn Euro)

2002	2003	2004	2005	2006	2007	2008
106,21	108,94	113,85	114,18	118,76	125,02	126,86

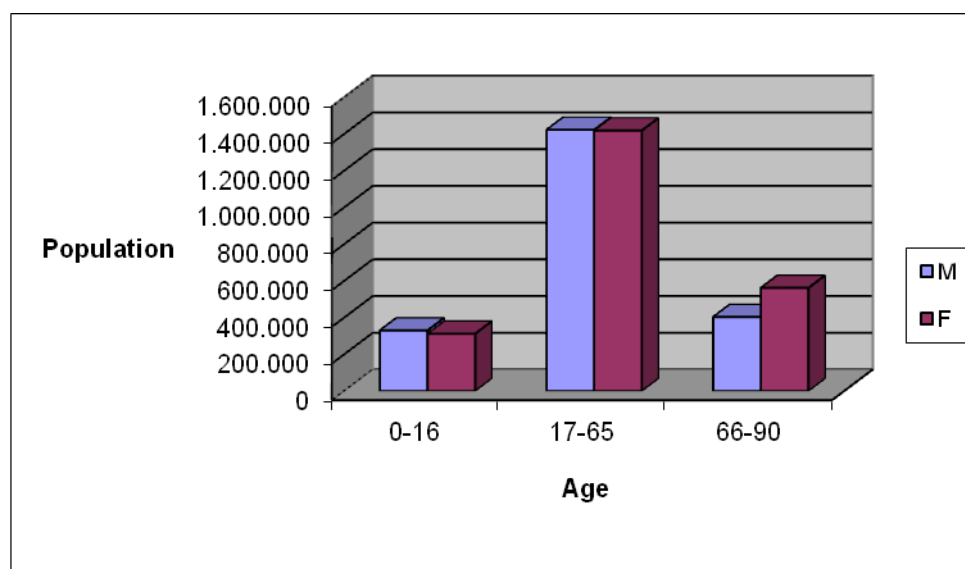
Istat

Population Development

1991	2000	2009
4.299.912	4.289.731	4.446.230

Piemonte in cifre - Istat

Age Structure (2009)



Istat, 2009

Forecast Population Development

2020	2050
4.329.457	3.861.970

Regione Piemonte, modulo PRE.D. (PREvisioni Demografiche a medio-lungo periodo), May 2010

## 2 Analysis of Chemical Clusters

### 2.1 Description of Chemical Cluster provided by Cluster Organisation

#### 2.1.1 Cluster Structure

- **Name of Cluster:** *Consortium IBIS (Innovative **B**io-based and **S**ustainable products and processes)*
- **Geographic coverage:** *Piedmont Region (North West Italy)*



- **Established:** *2009*
- **Organisation Structure:** *Enterprise Consortium*
- **Cluster Manager / Speaker / Personal:** *Dott. Franco Pellacini - President*
- **Cluster Members:**

BRACCO IMAGING S.P.A.
F.A.R. S.P.A. DIVISIONE POLIOLI
FN NUOVE TECNOLOGIE E SERVIZI AVANZATI S.P.A
GARBO S.R.L.
ISAGRO RICERCA S.R.L.
CHEMTEX ITALIA S.R.L.
MEMC ELECTRONIC MATERIALS S.P.A.
NOVAMONT S.P.A.
PROCOAT – CONSORZIO PER LA PROMOZIONE DEI PRODOTTI VERNICIANTI
PROGE FARM S.R.L.
RADICI CHIMICA S.P.A.
POLIRESIN S.R.L.
IRIS VERNICI S.R.L.
POINTER S.R.L.
CAGE CHEMICALS S.R.L.

GEOL S.A.S.
MYBATECH S.R.L.
PROVINCIA DI NOVARA
CENTRO DI COMPETENZA PER L'INNOVAZIONE IN CAMPO AGROAMBIENTALE (AGROINNOVA)
UNIVERSITA' DEL PIEMONTE ORIENTALE

– **Contact Information:**

AIN Industrial Association of Novara 0321674684

Address: Corso Cavallotti . 25 – 28100 Novara

Website:

### 2.1.2 Cluster Activities

Marketing	No
Innovation promotion	Yes
International cooperation	No
Inward-Investment promotion	No
Public Relation – Knowledge Dissemination	Yes
Human Resource Development	No
Political dialogue	Yes
Facilitation of Cooperation (technology)	Yes
Organisation of thematic Congresses and Workshops	Yes
Project Development / Consulting Services	No

### 2.1.3 Cluster Stakeholders

Enterprises	X
SME	X
Large companies	
Universities and R&D Organisations	X
Industry Associations /	
Member of Associations	
Networks	
Member of Networks	
Political Entities	X

Chamber of Commerce	
Other Organisations (Human Resource, Consulting, etc.	



**Description of important Cluster stakeholders**

Enterprises: (Name, Location, Turnover, Employees)

Name	Location
BRACCO IMAGING S.P.A.	VIA RIBES, 5 10010 COLLERETTO GIACOSA (TO)
F.A.R. S.P.A. DIVISIONE POLIOLI	VIA ETTORE ARA, 48 13100 VERCELLI (VC)
FN NUOVE TECNOLOGIE E SERVIZI A- VANZATI S.P.A	S.S. 35 BIS DEI GIOVI KM. 15 15062 BOSCO MARENGO (AL)
GARBO S.R.L.	VIA PRATI NUOVI, 9 28065 CERANO NO)
ISAGRO RICERCA S.R.L.	VIA FAUSER 4 28100 NOVARA (NO)
CHEMTEX ITALIA S.R.L.	STRADA SAVONESA, 9 15050 RIVALTA SCRIVIA (AL)
MEMC ELECTRONIC MATERIALS S.P.A.	VIALE GHERZI, 31 28100 NOVARA (NO)
NOVAMONT S.P.A.	VIA G. FAUSER, 8 28100 NOVARA (NO)
PROCOAT – CONSORZIO PER LA PRO- MOZIONE DEI PRODOTTI VERNICIANTI	VIALE T. MICHEL, 5 15100 ALESSANDRIA (AL)
PROGE FARM S.R.L.	LARGO DONEGANI, 4/A 28100 NOVARA (NO)
RADICI CHIMICA S.P.A.	VIA G. FAUSER, 50 28100 NOVARA (NO)
POLIRESIN S.R.L.	VIA ALESSANDRIA, 55 15068 POZZOLO FORMIGARO (AL)
IRIS VERNICI S.R.L.	VIA NOVE, 42 15060 BASALUZZO (AL)
POINTER S.R.L.	VIA ALTA, 28 10046 POIRINO (TO)
CAGE CHEMICALS S.R.L.	VIA QUARELLO 11/A 10135 TORINO (TO)
GEOL S.A.S.	VIA MONTE BO, 2 13100 VERCELLI (VC)
MYBATECH S.R.L.	VIA BOVIO, 6 28100 NOVARA (NO)

PROVINCIA DI NOVARA	PIAZZA MATTEOTTI 1 28100 NOVARA(NO)
CENTRO DI COMPETENZA PER L'INNOVAZIONE IN CAMPO AGROAMBIENTALE (AGROINNOVA)	VIA LEONARDO DA VINCI, 44 10095 GRUGLIASCO (TO)
UNIVERSITA' DEL PIEMONTE ORIENTALE	LARGO DONEGANI, 2 28100 NOVARA (NO)
Associazione Industriali di Novara	NOVARA (NO)
Bioindustry Park del Canavese	COLLERETTO GIACOSA (TO)
Camera di Commercio Novara	NOVARA (NO)
Comune di Novara	NOVARA (NO)
Consorzio Proplast	ALESSANDRIA (AL)
Federchimica Confindustria	MILANO (MI)
Incubatore di Impresa del Polo di Innovazione di Novara S.c.a.r.l.	NOVARA (NO)
Incubatore Università di Torino 2i3t	TORINO (TO)
Parco Scientifico Tecnologico “Galileo” – Divisione Matech	PADOVA (PD)
Politecnico di Milano – Dipartimento di Chimica, Materiali ed Ingegneria Chimica “Giulio Natta”	MILANO (MI)
Politecnico di Torino – Dipartimento di Scienza dei Materiali e Ingegneria Chimica (**)	TORINO (TO)
(*) PRA Coatings Technology Centre	MIDDLESEX (UK)
(*) CoRI Coatings Research Institute	LIMELETTE (BELGIUM)
(*) Instytut Przetwórstwa Tworzyw Sztucznych METALCHEM	<u>GLIWICE</u> , (POLAND)
(*) CIDEMCO Centro de Investigacion Tecnologica	AZPEITIA (GUIPUZCOA) (SPAIN)
(*) Università Cattolica del Sacro Cuore	PIACENZA (PC)
(*) Università di Trieste	TRIESTE (TS)

(*) CATAS SpA	SAN GIOVANNI AL NATISONE (UD)
Università degli Studi di Milano – Dipartimento di Chimica Fisica ed Elettrochimica	Via Golgi, 19 20133 Milano (MI)
Università degli Studi di Torino (**)	TORINO (TO)
Università di Torino – Dipartimento di Chimica IFM – Centro di eccellenza NIS sulle nanotecnologie	TORINO (TO)

Chemical Parks: (Name, Location, Size)

Universities and Research Institutions: (Name, Research Focus, Number of Researchers)

Politecnico di Torino – Dipartimento di Scienza dei Materiali e Ingegneria Chimica (\*\*)

UNIVERSITA' DEL PIEMONTE ORIENTALE
Politecnico di Torino – Dipartimento di Scienza dei Materiali e Ingegneria Chimica (**)
Università degli Studi di Milano – Dipartimento di Chimica Fisica ed Elettrochimica
Università degli Studi di Torino (**)
Università di Torino – Dipartimento di Chimica IFM – Centro di eccellenza NIS sulle nanotecnologie

Networks: (Name, Thematic Focus, Number of Members)

ECRN

## 2.2 Innovation focus of cluster

### 2.2.1 Activities of the cluster to promote innovation

IBIS is the name of the company which manages the Innovative Pole for Sustainable Chemistry of Piedmont and Novara. IBIS has no other mission but innovation and it gathers research activities carried out by young chemical enterprises as well as by companies with an historical presence in the area. The only activity of IBIS consists in researches devoted to innovative results in many chemical sectors and implemented through the collaboration among the enterprises and the research institutions taking part to the Pole.

### 2.2.2 Description of selected best-practice solutions for innovation development in the cluster

The pathway that IBIS had to follow, both because it is been chosen it and for a strong indication of Piedmont Region, included as a first step the common elaboration of research ideas among all enterprises and research institutions involved in the Consortium. So, the companies and universities set up technical commissions with the task to focus common interests and find out possible common projects. More than 20 ideas were that way elaborated and in the second phase a common effort of synthesis was begun and it, at last, bought the Consortium to produce four shared research projects which could be presented under the calls of Piedmont Region POR (structural funds of Objective Competitiveness) to get financings.

### 2.2.3 Successful solutions for financial support of innovation development

The final result of the elaboration process includes the following research sectors:

1. innovative coatings, aimed at elevating the environmental performances of varnishes;
2. bio-based products from renewable rough materials;
3. more eco-sustainable processes and products, including different kinds of interventions to reduce the environmental impact of chemistry.

The studies and the confrontation of different backgrounds and experiences brought to the following research projects:

1. elimination of volatile organic compounds from varnishes – budget €

1,287,300;

2. development of polymers from monomers obtained with renewable agricultural sources – budget € 2,532,700;
3. biodegradable products through sustainable chemistry and biotechnologies – budget € 2,096,000;
4. reduction of the environmental impact of chemical industry through more sustainable processes and the recovery of sub-products and scraps – budget € 2,650,200=.

Total IBIS annual plan budget € 8,566,200=. Total ERDF contribution € 4,320,180=.

#### **2.2.4 Successful policy approaches and cluster strategies with focus on innovation development**

All what has been described above is the first annual activity plan of IBIS. Presently, the Consortium is engaged in the elaboration of its second plan.

The first success factor was the achievement of a specific financial line dedicated to chemistry in the regional ERDF planning. This was not simple because chemistry, although important, is considered marginal in Piedmont Region economy and the financing could be achieved only through a common and synergic political pressure carried out for years by all economic and political actors of the areas where chemistry is predominant, the Province of Novara in particular.

But something more happened and it is testified by the exceptional success of IBIS' proposals which were totally approved.

Once got the money, enterprises and research institutions multiplied their efforts for presenting common and shared research projects and avoiding divisions and particularisms that could damage the proposals.

Also the presence of some advanced companies, who steered the common work, helped bring the projects to success.

## 2.3 Integration in networks

### 2.3.1 Integration of Cluster in regional innovation landscape (Research networks, regional partnerships)

IBIS itself is a regional network and it has been established under the Piedmont regional plan for Objective Competitiveness, in the part devoted to the “Poles of Innovation”, which financed IBIS as the managing structure of the Pole of Innovation for Sustainable Chemistry.

Other eleven Consortia were established and they are dedicated to analogous Poles of Innovation acting in other productive sectors like textile, agro-food, ICT etc.

They formed the network of the Innovative Poles of Piedmont and dialogue with other similar network created by further financing lines which intervene on research and other innovative activities and are based on other regulations (regional and national laws supporting research and development).

### 2.3.2 National integration / partnerships of cluster

The task to create a level of collaboration of IBIS Consortium with national and European realities acting in similar field has been assumed by the only local authority participating in the Consortium: the Province of Novara.

At national level IBIS has been inserted in the organisations supporting actions for the development of chemistry which belong to the territories of the local authorities taking part to the National Observatory for Chemistry, which is a structure created by the Italian Ministry for Economy aimed at elaborating indications for the improvement of public national laws related to chemistry.

Furthermore, IBIS has opened a confrontation and a collaboration, with the scope of increasing the quality and the quantity of the Italian participation to European programs supporting research in chemistry, with IT SusChem, which is an association, led by the University Alma Mater of Bologna and formed by other Universities, national research centres, entrepreneurial associations and local authorities, aiming at being the Italian version of the European Platform for Chemistry.

### 2.3.3 International integration / partnerships of cluster

Through the Province of Novara and beyond the insertion in CHEMCLUST project as its only Italian cluster, IBIS has the chance to take part to the debates, the elaboration of position papers and the carrying out of projects at European level, which are the usual activities of ECRN network.

Moreover, with the support of Piedmont Region, IBIS has created a relationship with the partners of the project INTERREG IV B MED “IC – MED Innovation clusters in the Mediterranean”, dedicated to build research collaborations in common fields of activities among many different industrial clusters settled in the Mediterranean area.

### 3 Need for Actions and future potentials

*Please answer following questions with the help of expert interviews.*

#### 3.1 Need for actions for further development of the cluster

##### 3.1.1 Which activities should be further developed in the future for the cooperation inside the cluster?

The research activities will be further developed and they will last until 2013. Moreover the Consortium will carry out dissemination initiatives related the reached results and it will consolidate its structure appointing a responsible director. The integration among the different competences and expertise of the companies and other organizations forming IBIS is the greatest result to be tackled in the future and that can be pursued both through the collaboration in common researches and development of other level of collaboration like supplies, training, export, promotion etc.

##### 3.1.2 How can you improve the work of the cluster and the cluster management?

The management structure of the cluster is light and that is an advantage because the whole financial contributions available can be dedicated to the cluster's activities, in particular researches, but it can be a disadvantage when the limited expertise of the managing structure do not allow it to plan and carry out new and useful initiative. The appointment of a general director will be a partial solution to this problem. But the best prospective for management competences is to involve the partners in the development of new fields of action, using their expert and personnel, as it has been already done for IBIS researches. When this will not be enough, another solution can be hiring new personnel developing national and European projects, that can provide the money to pay it, in the fields of activities where the cluster's interests are focused.



### **3.1.3 Which stakeholders will be further integrated, which new members will be acquired and which networks should be further developed in the cluster?**

In this kind of cluster (whose features are established by the Piedmont regional regulation of ERDF's objective Competitivity) only members participating to research activities are admitted. The only exception are local public authorities which, on the other hand, can only be member without using ERDF money. Because of that the main internal network to be developed is the one related to researches that implies collaborations between enterprises and between enterprises and research institutions like Universities and high Technical Schools. At the moment two groups of researches are carried out and until 2013 other groups will be planned with the involvement of further enterprises and High School which will be included in the cluster. Other activities interesting the cluster (like training, common supplies, export, national and international promotion) can be developed charging them on the local authorities involved in the cluster (for the promotion) or establishing external collaboration with companies and other organizations that are able to provide the required services.

## **3.2 Need for action for strengthening innovation profile of cluster**

### **3.2.1 How can you improve the cooperation between academia and industry?**

The collaboration between Universities and companies is an essential element of the cluster's life. It already occurs for the researches presently carried out and must be further developed. This cooperation depends fundamentally on two conditions: the good planning of the activities allowing an appropriate matching between companies' need and Universities' abilities and the availability of adequate personnel and structures (laboratories) to carry out researches. Partially, ERDF plan makes these conditions respected but, on the other hand, a further development of the collaboration between academia and industry needs more trained personnel and more structural resources, to tackle other financings for researches at national and European levels.

### 3.2.2 How can industry and academia develop a joint research agenda?

In IBIS Consortium this common agenda is compulsory if both Universities and companies want to receive ERDF contribution. But the cluster needs to overcome its current horizon and look at further possibilities like elaborating and presenting research projects under the 7FP's calls. To do this a closer collaboration and a transnational dimension are necessary and this is the future perspective of the development of the common agenda between academia and industry in the cluster.

### 3.2.3 How can we improve framework conditions for the financing of innovation activities?

About this topic IBIS Consortium can be considered an example of best practice as it is totally financed by a devoted financial line of the Piedmont Region's ERDF Plan. Anyway something better can be done. For instance, either that ERDF Plan has some uncertainties in concentrating funds for research, energy, international promotion etc., that at time, are divided in too many financial lines not enough focused on innovating industrial sectors like chemistry. So, both the plan structure and the implementing procedures can be improved. Furthermore a connection should be created with the other financial sources at national and European levels to increase the amount of the money available and to complete local actions with initiatives at upper stages.

### 3.2.4 How can chemical parks be further developed as knowledge sites?

Knowledge is the fundamental element of IBIS Consortium, as it has been born and still lives on the base of research activities. Anyway this knowledge profile, which is characteristic and differs this cluster from the traditional ones based on territorial aggregation of enterprises, cannot be enough because it does not include the technical and scientific knowledge of many study domains affecting chemical production. The collaboration between academia and industry, as well as the innovation stimulated by collaboration with actors external from cluster, are the pathways to be followed for a further development as knowledge site.

### **3.2.5 Which strategies for human resource development must be developed in view of future innovation development and changing demographic framework conditions?**

The close collaboration between Academia (including high technical Schools) and industry is the best start condition to reach the improvement of the training system able to match training activities and industry skill needs.

Moreover change in the planning procedures of ESF funds is absolutely necessary because the current methods are too slow to produce courses that can train people fit for the actual companies' needs. As these procedures are managed by the Province which takes part to the cluster this objective is meant to be easy to reach.

### **3.2.6 How can we support innovation development of especially small and medium-sized companies?**

In Italy this is a rhetorical question because the great majority of enterprises are small or medium. In fact, up to 20 companies participating to IBIS cluster, only two are big and, for one of these, this "big" is due to the fact that it has another plant near Rome marking it greater than 250 employees. Because of that we can say that IBIS is mostly composed by SMEs which work for themselves and develop and improve their activities from the point of view of SMEs needing to collaborate together to overcome common problems.

## **3.3 Need for actions for strengthening cooperation with other industry clusters**

### **3.3.1 Which theme and joint interests are existing between different industry clusters as attractive innovation topics?**

IBIS has been created to develop research activities, so researches in a number of scientific topics (new materials, bio-degradable plastics etc.) are for sure among the themes and interests about which the Consortium intends to establish collaboration with other cluster, especially with regards to the construction of partnerships to reach European programs like the 7FP. Furthermore IBIS is starting to extend its interests to other topics like skill development and international promotion where the exchange of experience with other cluster can be very useful.

### 3.3.2 Which form of cooperation between different industry clusters can be further developed?

The joint participation to partnerships implementing European projects is the most natural, the cheapest and the most effective form of collaboration between IBIS and other cluster on common and shared themes. The simple exchange of experience can be a useful introduction and pathway to reach common projects. Beyond that, or as a collateral result of that, other collaborations can be established among enterprises in the sectors of production, trade etc.

### 3.3.3 Which future innovation areas are priorities for your cluster development?

Because of the nature of IBIS Consortium the main fields of development of its innovating activities are the different scientific and productive sectors where its researches have already been started in areas near and around them. Beyond that the main interests of the participating enterprises remain what already mentioned in the previous boxes and among them, as main innovative topics, there is skill development.

## 3.4 Need for action for cooperation of clusters at European level

### 3.4.1 Which objectives and joint activities should be developed by an international cluster cooperation?

#### **Innovations promotion**

- joint research activities (new material, bio-degradable plastics etc.)
- faster application of innovation results to production and market
- better integration between research activities and productive needs

#### **Chemical park development**

- improvement of transport connections and logistic
- exchange of common activity management models
- improvement of the financial support system for enterprises

#### **Human Resource Development**

- better system of development skill forecast
- flexible and effective methods to plan and implement training activities
- effective systems of professional orientation
- better methods of follow-up survey.

### **3.4.2 Which organisation form for international cluster cooperation should be developed? How can regional clusters be integrated in international networks?**

The best form to establish a stable collaboration between chemical cluster at European level is the creation of a specific network including, at the beginning, all the cluster participating to CHEMCLUST project, as one of the final results of the same project.

The new network should have the same priority and sub-section of CHEMCLUST (open innovation, knowledge sites, skills) but it should be ready to include new topics when needed.

As the start of such an organization will probably be rather expensive, it would be better to find new financial sources through further European projects (for the whole cluster or for some sectors of it), the elaboration of which should be a part of the final phases of CHEMCLUS projects.

### **3.4.3 Which joint activities towards external stakeholders (EU, international organisations, EIB) can be developed?**

The initiative to be undertaken towards external stakeholders at European level are various. During the CHEMCLUST project and afterwards, European, national and regional authorities, must be involved to implement the regulation changes (about ERDF management etc) that the project will suggest. A lobby action must be undertaken towards them with the scope to increase the possibilities of success of the projects that will be presented to provide financial support for the new network. Finally a general confrontation with these authorities must be established about the strategic themes affecting the development of chemical cluster in Europe (raw materials, energy, logistic, skills, etc).