



ChemClust

Chemical Cluster Development in European Regions



Benchmark Report

Summary November 2012



ChemClust

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2nd Benchmark Report

Summary

November 2012

www.chemclust.eu



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1. Description of chemical industry

1.1. General Economic Indicators of Chemical Regions in 2009

	CGE	AST	MAS	UST	NWE	NOV*	LIM	NEE	SWH	NRW
GDP bln €	243.3	22.4	67.9	9.5	145.0	121	33.7	49.2	73.4	518.0
Surface 1 000 km ²	84.0	10.6	35.6	5.3	14.2	25.4	2.2	8.6	15.8	34.1
Population Mln	11.5	1.1	5.2	0.8	6.7	4.4	1.1	2.6	2.8	17.9

1.2. Data for Chemical Industry and Rubber and Plastic in 2009

	CGE	AST	MAS	UST	NWE	NOV*	LIM	NEE	SWH	NRW
Turnover Bln €	17.6	0.6	4.7	1.3	12.7	9.8	n.a.	5.3	5.3	52.9
Aver. Yearl. Turnover Growth % 2002-09	+5.6	-3,4	+6.3	+7.2	+0.8	-1.1	n.a.	-1.0	+1.3	-0.2
Employees 1,000	73.2	3.0	40.9	6,8	54.2	50.2	14.2	19.5	17.2	167.1
Aver. Yearl. employees Growth % 2002-09	+2.6	+0.7	-0.2	-0.8	-4.9	-0.4	-1.9	-5.3	-2.0	-2.5
Productivity 1 000 €/E	240	191	115	198	236	195	n.a.	274	311	316
Aver. Yearl. Productivity Growth % 2002-09	+2.9	-4.0	+6.6	+8.3	+6.1	-0.7	n.a.	+4.6	+3.4	+2.3

*) Novara = Region Piemonte

1.3. Data for Chemical Industry and Rubber and Plastic in 2010

	CGE	AST	MAS	UST	NWE	NOV	LIM	NEE	SWH	NRW
Turnover Bln €	20.0	0.7	5.5	1.9	10.4	11.0	n.a.	6.5	5.6	64.3
Aver. Yearl. Turnover Growth % 2002-10	+6.6	-0,2	+7.5	+11.4	-1.9	+0.5	n.a.	+1.7	+1.7	+2.3
Employees 1,000	76.0	3.0	42.9	6,7	54.2	n.a.	13.4	20.2	16.9	167.9
Aver. Yearl. employees Growth % 2002-10	+2.7	+0.6	+0.4	-0.8	-5.7	n.a.	-2.4	-4.2	-2.0	-2.1
Productivity 1 000 €/E	263	239	128	288	215	n.a.	n.a.	325	332	383
Aver. Yearl. Productivity Growth % 2002-10	+3.8	-0.8	+7.0	+12.3	+3.5	n.a.	n.a.	+4.6	+3.8	+4.5

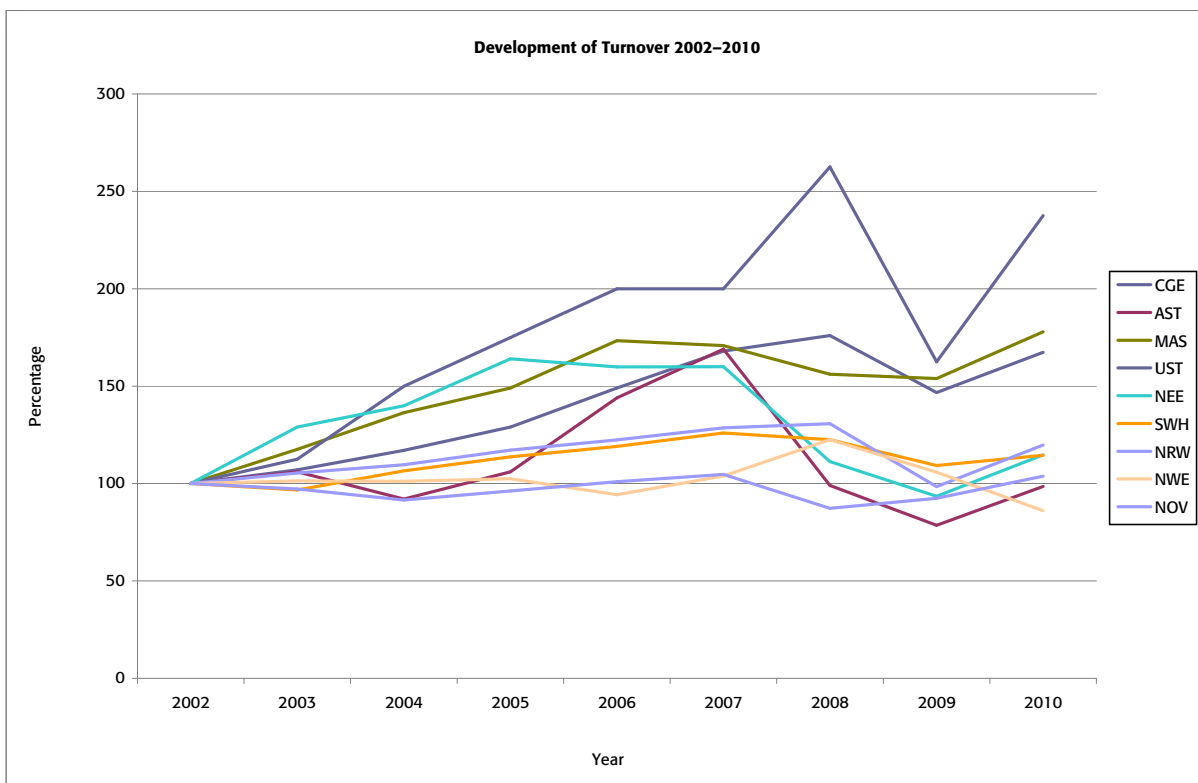
*) Novara = Region Piemonte

The above mentioned data are calculated on the basis of turnover and employment figures from the chemical and pharmaceutical industry and the plastic industry. From 2002-2007 categories DG24 chemical industry (including pharma) and DH25 rubber and plastics after NACE Code 1.1. and from 2008 – 2010 20 Chemical industry, 21 Pharmaceutical Industry and 22 Rubber and plastics after NACE 2.0 have been used. The transfer between NACE 1.1 to 2.0 is not fully compatible. Therefore a tolerance rate has to be taken into account by comparing the development alongside the timeline with the break in 2008.

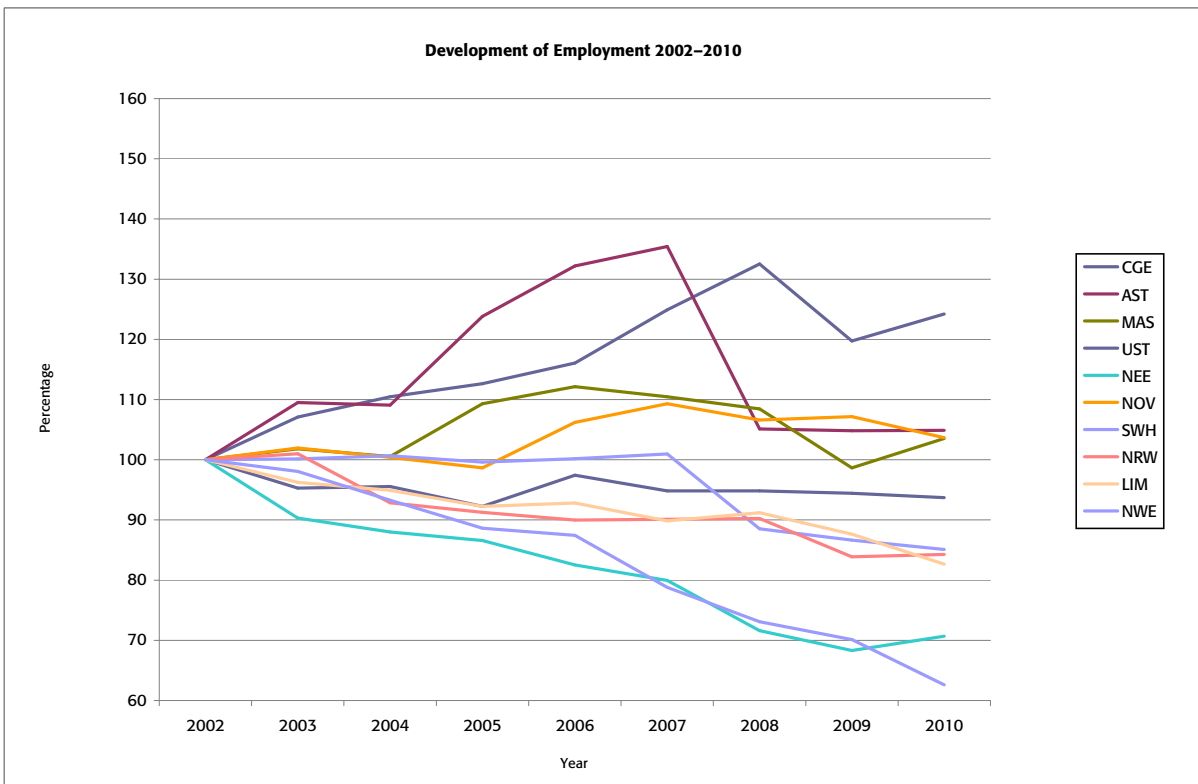
Abbreviations of regions

- CGE – Central Germany (Saxony-Anhalt, Saxony, Thuringia, Brandenburg),
- AST – Asturias,
- MAS – Masovia,
- UST – Ustecky Region,
- NWE – North West England,
- NEE – North East England,
- NRW – North Rhine Westphalia,
- SWH – Schleswig Holstein,
- LIM - Limburg,
- NOV – Novara

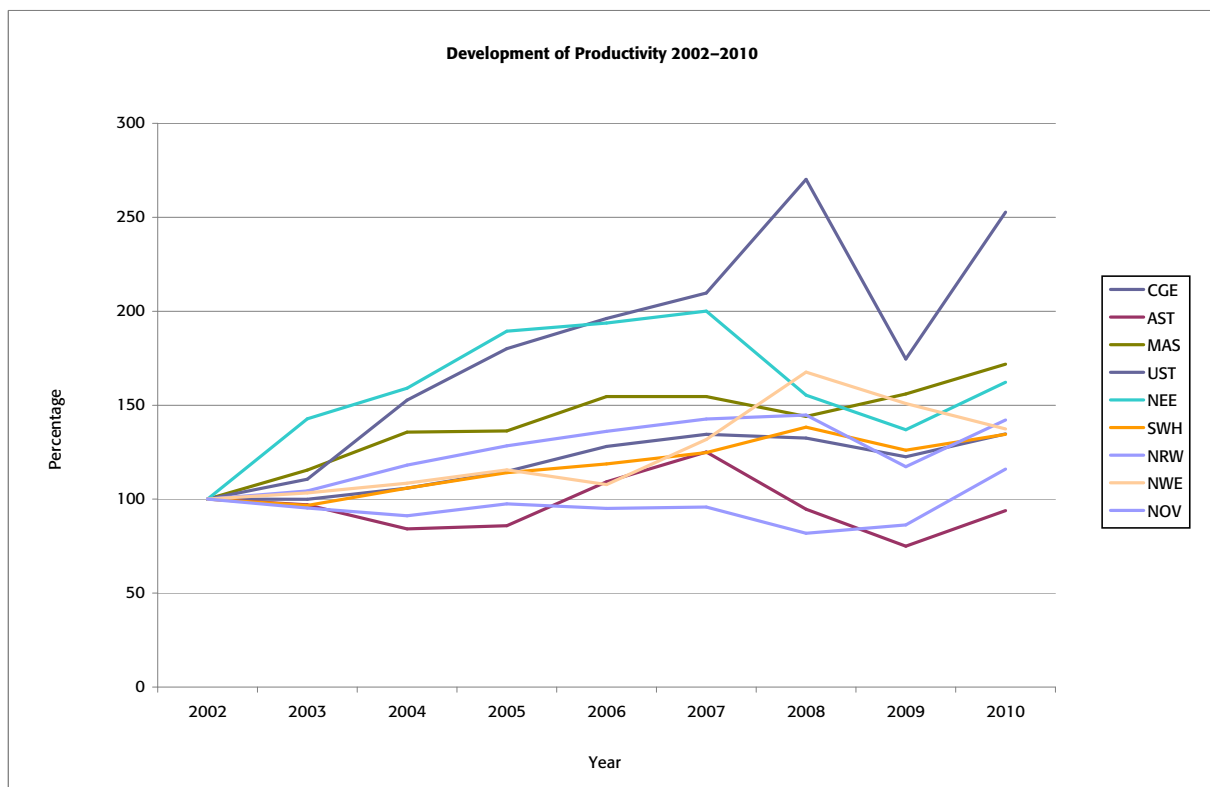
Development of Turnover 2002–2010



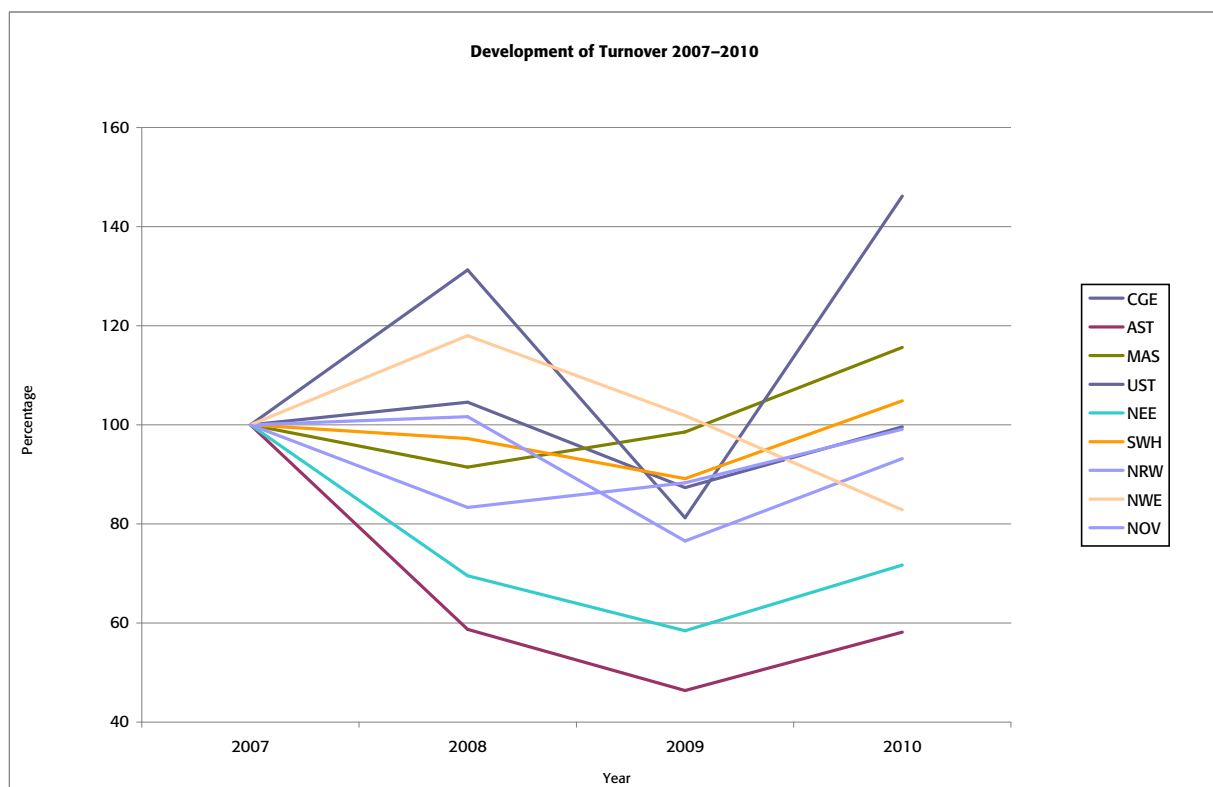
Development of Employment 2002–2010



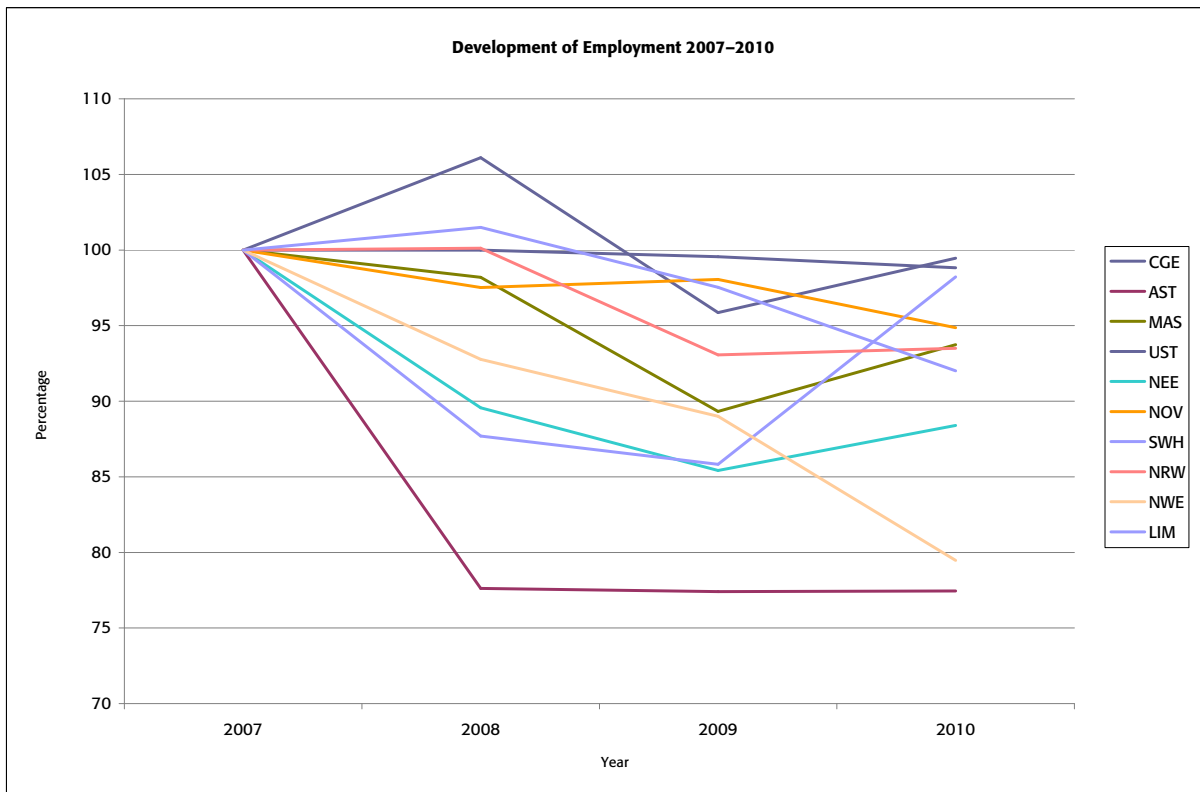
Development of Productivity 2002–2010



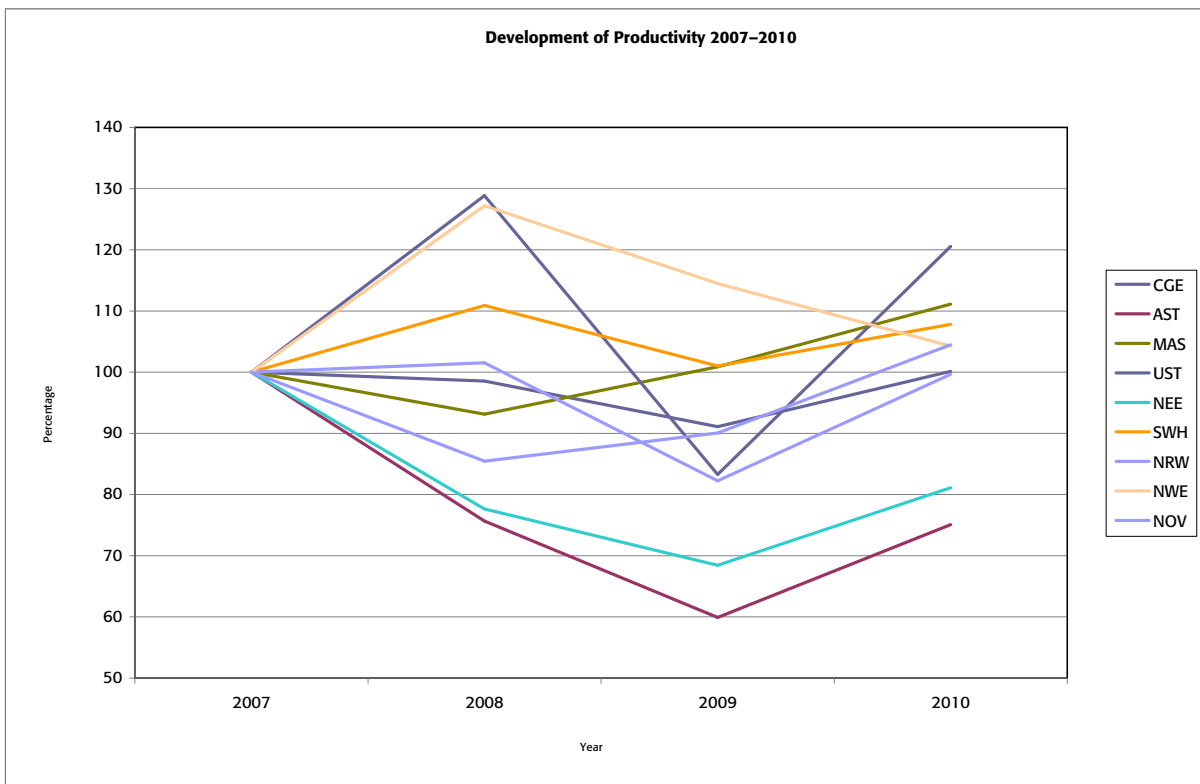
Development of Turnover 2007–2010



Development of Employment 2007–2010



Development of Productivity 2007 – 2010



1.3. Conclusions from statistics

European Chemical industry is back on the growth path

The analysis of the development of turnover growth in the ChemClust partner regions shows mostly positive trends. Despite the strong impact of the financial and economic crisis from 2008 and 2009 most of the regions are back on the growth path. There are three groups which can be distinguished looking at the period from 2002 to 2010. Central Germany, Masovia and Usti Region have average yearly growth of turnover between 7% and 11% and are fast growing regions. Schleswig-Holstein, North Rhine Westphalia, North East England and Limburg show normal growth with 2% (+/-0.5%). The regions Asturias (-0.2%) and Novara (+0.5%) have almost no growth or slight decrease of turnover. North West of England shows a negative growth rate of -1.9% from 2002 to 2010.

Different reactions to economic crisis

The analysis of the development of turnover from 2007 until 2010 gives a clearer picture on the strengths of chemical regions in overcoming the financial and economic crisis from 2008 to 2009. Usti Region (+22%) and Masovia (+11%) have successfully continued their growth path. The majority of regions is back at old turnover level compared to 2007: Central Germany, Schleswig-Holstein, North Rhine Westphalia, Limburg and Novara. Three regions Asturias (58%), North West (83%) and North East England (72%) have still not recovered from the crisis. In these regions the chemical industry is facing larger problems and structural changes which could last longer.

Strong growth in Central and Eastern Europe – catching up to Western European productivity standards

The high growth rates in the regions in Central and Eastern Europe show the catching up process to Western European productivity levels. The transformation process of the chemical industry in the formerly state owned companies was successful in developing a competitive production base. The positive developments in the last three years have even accelerated this process.

Decline of employment in the chemical industry after crisis

A different picture compared to the turnover development has to be stated by analysing the employment development. There are big changes in comparison to the first benchmark report, where the majority of regions have experienced stable or slow growth of employment in the chemical industry. Analysing the figures from 2002 to 2010 only Central Germany has slow growth (+2.7% yearly average growth) and Asturias and Masovia stable positive growth (approx. +0.5%). All other regions have a decrease of employment around -2%. Especially North East and North West England had to experience a decline of -5%. The analysis of employment figures from 2007 to 2010 stresses the strong impact of the crisis on the employment. No region could experience employment growth. Central Germany, Schleswig-Holstein and Usti regions are around 99% of old employment levels. Masovia (94%), NRW (94%) And Limburg (92%) have seen a slight decrease. North East of England (88%), Asturias (77%) and North West of England (79%) had to experience sharper decline of employment. Together with the above mentioned turnover figures, these developments show the strong negative impact of the crisis on the shrinking of chemical industry in these regions.

These developments show the strong pressure of the restructuring and transformation process and the global competition which the chemical industry is experiencing. Despite declining employment the chemical industry remains very important for the regional labour market in offering sustainable employment chances. Taking into account the high level of productivity and qualification demand together with the increasing demographic challenge the provision of qualified employees and the attraction of especially young people for working in the chemical industry is very important, especially in the long-term. Therefore the image of the chemical industry as attractive employer has to be improved even in times of crises.

Increasing productivity in all chemical regions

The growth rates of turnover and the stable or slightly declining development of employment have led to increasing productivity levels in all chemical regions in a range between 4-12% each year between 2002 and 2010. The only exception is Asturias, which had to experience a slight decrease (0.6%) of productivity. These figures clearly show the strong efforts of the chemical industry to remain competitive. Even under harder framework conditions of the financial and economic crisis there is a strong focus on the improvement of innovation capacity. Therefore the chemical industry remains an important driver for regional innovation development. The international orientation of exports also ensures the international competitiveness of the chemical regions and their integration in the global division of work.



2. Analysis of Chemical Clusters

2.1. Cluster Profiles



2.1.1. Cluster Chemistry Plastics Central Germany



Geographic coverage:

- Saxony, Saxony-Anhalt,
- Thuringia and Brandenburg, GER

Established:

- 2003

Cluster Speaker:

- Dr. Christoph Mühlhaus, former MD Dow Olefineverbund GmbH
- Andreas Hiltermann, former MD InfraLeuna GmbH (Chemical Parks / Feedstock)
- Dr. Reinhard Proske, Plastics Industry Association (Plastics)
- Dr. Wolfgang Blümel, Chemical Industry Association (Chemistry)

Cluster Manager:

- Dr. Gunthard Bratzke, isw GmbH

Cluster Members:

- 78 stakeholders: Chemical parks and sites, Networks / Associations, Research institutions at universities and technical colleges, Competence centres
- About the half of the 800 chemistry and plastics businesses in Saxony, Thuringia, Saxony-Anhalt and Brandenburg are integrated in the activities of the Cluster Chemistry / Plastics Central Germany
- Land Governments: Saxony, Saxony-Anhalt, Thuringia and Brandenburg

Enterprises:

- Dow Olefinverbund GmbH, BASF Schwarzheide GmbH, SKW Stickstoffwerke Piesteritz GmbH, Domo Caproleuna GmbH, Wacker AG

Chemical Parks:

- Leuna, Dow Valuepark Schkopau, ChemiePark Bitterfeld-Wolfen, Bayer-Bitterfeld, Chemie und Industriepark Zeitz, BASF Schwarzheide,

Universities and Research:

- Fraunhofer Institute for Mechanics of Materials Halle IWM
- Fraunhofer Institute for Applied Polymer Research Potsdam Golm IAP
- University of Applied Science Merseburg
- Martin Luther University Halle-Wittenberg
- Technical University Ilmenau

Networks:

- CeChemNet- Network of Central Germany Chemical Parks
- Plastics Network Brandenburg Berlin (KuVBB), Network components suppliers plastics Saxony (AMZK), POLYKUM e. V., PolymerMat e.V.
- Board Process and Plant Safety Central Germany
- Leading Edge Cluster Bio-Economy

Cluster management coordinated by isw GmbH

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2.1.2. Chemical Industry Cluster of Asturias



Geographic coverage:

- Asturias, Spain

Established:

- 2011 (under construction)

Technical Secretariat:

- Ms. Luz Iglesias
- Cluster Manager: Dr. Mario Díaz
- Cluster Members:
- Arcelor Mittal Asturias, Asturquimia, S.L, Bayer, DuPont Asturias, S.L, Ence, Farmastur, Fertiberia, Industrial Química del Nalón, S.A, Praxair Ibérica, S.A, Rioglass Astur, S.A e Industrias Roko, S.A

Enterprises:

- Asturquimia, Bayer, DuPont, Fertiberia, Industrias ROKO, Grupo Empresarial ENCE, Praxair, Industrial Química del Nalón, Arcelor Mittal, Rioglass, Farmastur. .

Universities and Research:

- University of Oviedo. ITMA Foundation, PRODINTEC Foundation, Coal Institute – CSIC

Bordering sectors:

- Control and Inspection organisms and engineering companies

Public Bodies and Associations:

- IDEPA, Alquímicos, FADE, Chamber of Commerce of Oviedo, Chamber of Commerce of Avilés, Chamber of Commerce of Gijón, AIQAS.

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2.1.3. Chemicals Northwest



Geographic coverage:

- North West England, UK

Established:

2003

Cluster Manager:

John Roche-Operations Manager

Cluster Members:

- industry-led, not-for-profit cluster organisation that works with the chemistry-using industries of the North West
- CNW currently represents over 150 members who serve a wide range of markets, including pharmaceuticals, automotive, electronics and construction.
- Participation of public authorities and research institutions

Enterprises:

- Ineos Chlorvenyl, Total Petrochemicals, Solvay Chemicals, Shell, Sembcorp, Ashton Chemicals, TATA Chemicals Europe, Essar UK

Chemical Parks:

- Hillhouse Business Park in Thornton (800ha AGC Chemicals, Victrext, Vinnolit),
- Runcorn (INEOS Complex), Heath Business and Technology Park
- Universities and Research:
- Liverpool Science Park, University of Liverpool
- University of Manchester
- University of Lancashire
- Manchester Science Park,

Networks:

- Cogent, Humber Chemical Focus, Royal Society of Chemistry, National Skills Academy Process Industry (NSAPI), ChemSkills, Chemical Industry Knowledge Transfer Network

Complete Members Directory on Website

Cluster management:

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Chemicals Northwest

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Cheshire, WA7 4QX

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Email: RocheJ@cia.org.uk

Website: www.chemicalsnorthwest.org.uk

2.1.4. North East Process Industry Cluster



Geographic coverage:

- North East of England, UK

Established:

- 2003

Cluster Speaker/Manager:

- Dr. Stan Higgins

Cluster Members:

- NEPIC is a stand-alone company, limited by guarantee, which was created and is owned by its member companies to represent the companies and supply chain of the Process Industry in the region
- 340 Pharmaceutical, Biotechnology, Speciality, Polymer & Rubber, Petrochemical & Commodity Chemical companies based in North East England.

Enterprises:

- SABIC, Sembcorp, Lotte Chemicals, Huntsman. BP, Conoco-Phillips, BOC- Linde, Mitsubishi Chemicals, GrowHow, Ineos Nitriles, Johnson Matthey, Ensus, SSI, PD Ports

Chemical Parks:

- Wilton International, Seal Sands, Billingham Site

Universities and Research:

- Teesside University,
- Newcastle University
- University of Durham
- Sunderland University
- Northumbria University
- Centre for Process Innovation – Catapult Centre for Advance Manufacturing
- NETPARK,
- CELS Centre of Excellence for Life Sciences
- NaREC National Renewable Energy Centre

Complete Members Directory on Website

Cluster management

NEPIC Ltd,

Room H224, Wilton Centre,

Redcar, TS10 4RF, UK

Phone: +44 164 244 256 0

Fax: +44 164 244 256 1

Email: enquiries@nepic.co.uk

Website: www.nepic.co.uk

2.1.5. Chemical Cluster Limburg (“Chemelot Campus”)



Geographic coverage:

- Limburg, NL

Established:

- 2005

Cluster Speaker/Manager:

- Province of Limburg/ Mr. Edwin Bakker

Cluster Members:

- DSM, Province of Limburg, University Maastricht

Enterprises:

- DSN, Sabic, chemical companies in Limburg
- Chemical Parks: Chemelot Campus Geleen
- Universities and Research: Hogeschool Zuyd, University of Maastricht, RWTH Aachen

Politics:

- Province of Limburg, NV Industriebank LIOF

Cluster management:

Province of Limburg informal cooperation with members

Contact Information:

Province of Limburg (Mr. Edwin Bakker)

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Website: www.limburg.nl

2.1.6. Consortium IBIS - Innovative Bio-based and Sustainable products and processes



Geographic coverage:

- Piedmont Region (North West Italy)

Established:

- 2009

Cluster Manager:

- Dott. Franco Pellacini - President

Cluster Members:

- 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”,
- 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

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

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2.1.7. Chemical Industry in Masovia, PL



Mazovian Green Chemistry Valley

Goals of Mazovian Green Chemistry Valley:

1. The creation of a strong research infrastructure based on the faculties of universities, research institutes and Polish Academy of Sciences (PAN), and their interaction with design offices and industry
2. Supporting the development of various fields of chemistry, by providing access to well equipped laboratories and semi-technical pilot plant
3. Supporting the educational and information programs

The intention of the initiators, Mazowiecka Green Chemistry Valley will be a strong research structure, using the potential of research institutes, institutes of Chemical Sciences and university faculty and cooperating with design offices and industry. Access to the well-equipped laboratories and semi-technical pilot plant operating in the Valley will promote development in various fields of chemistry. The valley will also support educational and information programs in chemistry and related sciences, including scientific conferences, doctoral studies, and scholarships for foreign students and the public presentation of scientific achievements.

The most important tasks of Mazowiecka Green Chemistry Valley is to encourage young scientists to set up companies in order to transfer new technologies to the chemical industry and the market.

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2.1.8. Chemical Industry in Usti Region, CZ



At the moment it is not possible to establish a cluster, which brings together most of chemical companies from Usti region. In the future the activities should be focused on few companies with similar production and common interest.

Currently relevant stakeholders from industry, academia and Czech Association of Chemical Industry discuss the establishment of a plastic cluster.

Enterprises:

- Big companies: Unipetrol RPA, Ceska Rafinerska (both are parts of Unipetrol Group), Lovochemie, Spol-chemie
- SME – chemicals: Chemotex, Enaspol, Glanzstoff Bohemia, Koma-Vodnisklo, Czech aerosol, Flexfill, Preol, Dekonta, Drutep, Glazura, Aroma Praha
- SME – plastics & rubber: 24 small enterprises

Chemical Parks:

- Chempark Zaluzi, Spol-chem Usti (2012– project preparing, 4/2013 – opening)

Universities and Research:

- Research Institute of Inorganic Chemistry (VUAnCh)
- The Brown Coal Research Institute (VUHU)
- Research Institute for Synthetic Resins and Coatings (SYNPO)
- Jan Evangelista Purkyne University in Usti nad Labem (UJEP)
- Institute of Chemical Technology Prague (VSCHT)
- Technical University of Liberec (TUL)

Contact Information

Regional Authority of Usti Region

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Association of Chemical Industry of the Czech Republic

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Email: ladislav.novak@schp.cz

Website: www.schp.cz

2.1.9. Cluster Chemie Schleswig Holstein



Geographic coverage:

- Schleswig-Holstein, GER

Established:

- 2010

Cluster Manager:

- The cluster management is an organisational division of Entwicklungsgesellschaft Brunsbüttel mbH, the public Business Development Company of the rural district of Dithmarschen.
- Cluster Manager: Jens Wrede
- Cluster Speaker: Morten Holpert, Holcim Deutschland AG
- Cluster Personal: Volker Ziedorn, Julia Dethlefs

Cluster Members:

- Cluster Chemie SH is widening the existing local cluster of large chemical manufacturers to integrate the whole value chain in the most northern federal state of Germany.

Enterprises:

- Bayer MaterialScience, CFB, Lanxess, Sasol, Total Bitumen Deutschland GmbH, Yara

Chemical Parks:

- ChemCoast Park Brunsbüttel

Universities and Research:

- Christian Albrechts University Kiel, University of Applied Science Lübeck University of Applied Science Westküste Heide, Fraunhofer Institute for Silicon Technology, Innovation Centre Itzehoe

Networks:

- ChemCoast e.V. (Network of Chemical Parks in Northern Germany), Association of German Chemical Industry, Regional Section North

Cluster Management

egeb Wirtschaftsförderung

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2.1.10. Chemical cluster North Rhine-Westphalia Chemie.NRW



Geographic coverage:

- North Rhine Westphalia, GER

Established:

- 2009

Cluster Manager:

- Prof. Dr. Michael Dröscher

Chair of Innovation Committee:

- Prof. Dr. Jens Leker

Board members:

- Prof. Dr. Dröscher,
- Prof. Dr. Leker, Mittelstaedt,
- Dr. von der Linden,
- Dr. Gersemann, Chemicals Unit of the Ministry of Economic Affairs, Energy and Industry NRW

Cluster Members:

Enterprises:

- Bayer Material Science, Evonik, Degussa, Altana, Lanxess, Henkel, Jowat, etc.

Chemical Parks:

- CHEMPARK Leverkusen, Knapsack, Industrial Park Cologne-Nord, Oberbruch, Pharma and Chemical Park Wuppertal, Marl Chemical Park, Gelsenkirchen-Scholven/Horst, Castrop-Rauxel, etc.

Universities and Research:

- RWTH Aachen, University Cologne, Bochum, Münster, Bielefeld, Dortmund, etc.

Networks:

- ChemCologne, ChemSite, Surface chemistry, cluster industrial biotechnology CLIB, etc.

Cluster Management:

by Chemical Industry Association VCI NRW

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2.2. Comparison of Clusters

2.2.1. Cluster Activities

	CGE	AST	NRW	NWE	NOV	LIM	NEE	SWH	MAS
Marketing,	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	yes
Innovation promo- tion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes
International coope- ration	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	yes
Inward-Investment promotion	Yes	No	Yes	Yes	No	Yes	Yes	Yes	yes
Public Relation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	yes
Human Resource Development	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	yes
Political dialogue	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	yes
Facilitation of Coope- ration (technology)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	yes
Organisation of the- matic Meetings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes
Project Development / Consulting Services	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No

2.2.2. Cluster Stakeholders

	CGE	AST	MAS	UST	NWE	NOV	LIM	NEE	SWH	NRW
Enterprises	800	11	60	39	650	23	210	300	83	1100
SME	720	5	50	35	630	21	190	220	69	640
Large comp.	80	6	10	4	30	2	20	80	14	460
Universities R&D	50	4	7	6	6	2	2	30	4	6
Industry Associations	2	4	1	1	4		1	2	2	1
Networks	16	4					1		1	2
Political Entities	7	-	1	2		1	1	5	2	1
Chamber of Com- merce	2	3		1	3			1	2	3
Other Organisations	4	2		1			1	80		

2.3. Classification of Clusters

2.3.1. Bottom Up

- Emerged by a gathering of industrial and scientific partners to intensify mutual cooperation in order to gain competitive advantage for their daily business.
- Decentralised governance
- Cluster organisation selected by members itself
- Low political influence – setting up without considerable involvement of regional or federal policy makers
- Governmental involvement and membership possible but no leading role – ordinary members
- Cluster organisation raise majority of operating costs by memberships fees and service fees, sponsoring etc
- Fee based financing models urge cluster organisation from very beginning to provide demand oriented services and added values to cluster members!

2.3.2. Top-Down externally initiated clusters

- installation of cluster supported by clear mandate and publicly funded by authorities on regional or national level (also both)
- Cluster initiatives have facilitated or stimulated emergence
- Sometimes spontaneously initiated within triple helix to overcome obstacles of cooperation and allow trust building between partners
- In beginning public funding at least during embryonic phase (approx. 3-5 years) funding rates can differ
- When mature cluster raise majority of operating costs by themselves membership and service fees, sponsoring etc. (lower fee compared to bottom up clusters only co-finance cluster activities other costs publicly funded)
- Quite high political influence, policy makers consider clusters as appropriate tool to increase innovation capability and competitiveness of certain region

2.3.3. Top-Down, Internally initiated cluster

- driving force specific organisation, most likely research institution or university possibly also a company
- leading organisation inherits governance and management of whole cluster and provides resources for cluster organisation
- initiator often follows objectives that are supposed to be pursued by means of cluster activities
- initiator likely to dominate the activities and themes of whole cluster
- initiator often uses cluster approach to increase reputation and to gather members to acquire funds for joint R&D activities
(Meyer zu Köcker, 2009, p.12ff)

2.3.4. Summary of Classification of Clusters

	CGE	AST	MAS	UST	NWE	NOV	LIM	NEE	SWH	NRW
Bottom up	x				X		X	X		
Top Down Externally		x		X		x	x		x	X
Top Down Internally			X							

2.3.5. Emergence of Cluster

Cluster	Explanations
CGE	<p>RIS – Network development polymer network, Network of chemical parks</p> <p>2003: Cluster Conference Central Germany – Large companies have take initiative to develop cluster – direct private financing from industry</p> <p>2007 – Begin of Cluster Management project partly financed by GA (regional fund)</p> <p>2nd period of Cluster Management 2010-2013 has started</p>
AST	<p>IQPA is legally born on the 27th of December 2010 as a AEI (Special Interest Association). It is founded over the existing association of chemical industry, AIQPA.</p>
MAS	<p>Mazovian Green Chemistry Valley - more than a dozen chemicals institutions from Warsaw and Masovia, including research institutes, institutes of the Polish Academy of Sciences and universities, join forces as a Mazowiecka Green Chemistry Valley. The project, unique in the country, has already been announced for inclusion in the Polish Roadmap for Research Infrastructures, including major state projects for the development of scientific.</p> <p>Mazowiecka Green Chemistry Valley was initiated in Warsaw by the environment of chemists during the June celebration of International Year of Chemistry, 2011. The project is currently involve: Warsaw University of Technology, University of Warsaw, the Military University of Technology, Institute of Physical Chemistry, Institute of Organic Chemistry, Institute of Nuclear Chemistry and Technology, Institute of Industrial Chemistry, Pharmaceutical Research Institute and the Institute of Industrial Organic Chemistry.</p>
UST	<p>Usti Region has initiated a debate with stakeholders from industry and academia for the establishment of a chemical cluster within the ChemClust project in 2009. Today, there is no chemical Cluster in Usti Region despite Usti is the largest chemical location in Czech Republic. Usti Region has interest to support Cluster development, Chemical Companies have sceptical attitude – major question overcoming competition, building trust and added value of cluster, very different production, missing common product chain. The Usti Region in cooperation with Chemical Association is trying to explain the cluster policy and to change the thinking of chemical companies (meetings, personal visits).</p>
NWE	<p>The Cluster development has been initiated by chemical companies in creating own organisation Chemicals Northwest, which was supported by North West Regional Development Agency. As these funds have now mainly been withdrawn, as the RDAs have been dismantled, Chemicals Northwest is now solely supported by the Chemical Industries Association.</p>
NOV	<p>IBIS has been developed as network to promote research established under the Piedmont regional plan for Objective Competitiveness, in the part devoted to the "Poles of Innovation"</p>
LIM	<p>The cluster has emerged out of joint cooperation activities of DSM, the province of Limburg and the University of Maastricht for the development of the research campus on the chemical site in Geleen as basis for the development of chemical innovation and entrepreneurship. The province of Limburg has developed the acceleration agenda, which focuses regional funding for the promotion of 4 clusters, where 1 is chemistry. The Development Bank took over important function in communication and provision of innovative financing solutions such as the Innovation voucher. Currently the province of Limburg is investing with focus on the development of the Chemelot Campus Cluster policy.</p>

Cluster	Explanations
NEE	<p>Teesside Chemical Initiative set up to support companies following break-up of ICI</p> <p>2003 – Pharmaceutical & Speciality Chemicals Cluster set up to represent remainder of process sector (industry led with some RDA funding)</p> <p>2005 – Merger of TCI and P&S Cluster to provide uniform support across all process sector and supply chain (industry led with some RDA funding)</p> <p>2008 – Extension of funding from RDA to support ongoing cluster development.</p> <p>2008 – NEPIC incorporates North East Biofuels with RDA support and delivers regional biofuels and biore-sources strategy programme up to 2011.</p> <p>RDA funding ceased in March 2011.</p> <p>2012 Cluster secures Regional Growth Funding: Successful bid has been made for a project to support business acceleration by SMEs in the process industries through mentored business development across the North East. 400 SMEs will receive Business Acceleration from process industry industrialists. 200 SMEs will go on to in-depth mentoring from these key industrialists. 60 top level industrialists already committed to lead the activity. Total project costs £3.6m with Regional Growth Funding secured of £1.5m In addition NEPIC has now applied with support of over 30 of its larger members for over £3m of grant funding matched by over £2m of industry contribution to examine possible low carbon futures for the integrated industrial complex on Teesside. This is part of the UK's advanced manufacturing supply chain initiative.</p> <p>NEPIC has also received funding for a cluster collaboration project involving 8 European Clusters (WIIN-TECH) aiming to develop business in key overseas markets and is negotiating on a €2m FP7 project on Low Carbon Industrial Park development across Europe with 14 partner organisations.</p>
SWH	<p>The Chemical Cluster has been established in 2010, the core industrial basis is the chemical park Brunsbüttel and the network of chemical parks ChemCoast. The Ministry for Economy of Schleswig Holstein has supported establishment of Cluster</p>
NRW	<p>The basis for cluster development was the decision of the government in 2007. After the election in 2010 the cluster structures were confirmed by the new governance. The cluster strategy is a key tool of the new established lead market strategy.</p>

2.3.6. Driving Force

Cluster	Explanations
CGE	Large Companies (e.g. Dow), chemical parks (CeChemNet) Cluster moderator (isw), plastic company networks and R&D entities in Central Germany
AST	Chemical companies (AIQPA) have initiated the cluster and IDEPA has supported development
MAS	Universities, Polish Academy of Science, research institutions
UST	Usti Region wants to continue with discussion about cluster development with help of ChemClust Project, Chemical Industry Association supports this objective
NWE	Industry identified need for cooperation. Strong industry lead throughout development of cluster
NOV	Piedmont Region has been the main driver in providing financial resources for research. In dialogue with regional stakeholders and the province of Novara it has been decided to dedicate funds also to chemistry
LIM	Strong involvement of companies DSM and public support by Province of Limburg and Development Bank LIOF. Shared responsibility between DSM, Province and University.
NEE	Industry identified need for mechanisms to provide support that was previously part of single owner (ICI). Strong industry lead throughout development of cluster.
SWH	Driving force are chemical companies and chemical parks coordinated by egeb (Development Company Brunsbüttel) and supported by regional ministry for economy
NRW	Driving force of cluster development has been chemical industry, industry association VCI NRW. The cluster management is financed by industry only. The Ministry of Economic Affairs is supporting network activities etc.



2.3.7. Composition of Cluster Management

Cluster	
CGE	Cluster speakers from industry, professional cluster management as member of cluster, 4 employees. Additional Speaker for Sub-Board Process and Plant Safety
AST	Cluster secretariat has been taken over by AIQPA, the existing association of the regional chemical industry
MAS	No existing Cluster management, Polish Chamber of Chemical Industry provides information and services to companies
UST	There is no cluster management, Chemical Industry Association has a committee for SusChem Technology Platform which deals with innovation matters of the chemical industry, there is close cooperation between SCHK and Usti region
NWE	The Chemical Industry Association has taken over Chemicals Northwest as the cluster support organisation following withdrawal of regional public funds. There is a reduced number of staff. Speaker from industry association, professional cluster management has been reduced from 9 to 3.
NOV	Speaker from industry The coordination of the network is managed by Industry Association of Novara, currently they are coordinating the consortium from their own resources, staff: 2
LIM	Informal Cluster Management taken over by Province, LIOF, Chemelot, and University of Maastricht staff: 6
NEE	Professional cluster management with senior figures from industry as senior managers. 7 employees in total plus consultants used for specific project delivery. Leadership team and "Thrust teams" made up of industrialists. (slight reduction from 10 employees after crisis)
SWH	Cluster Speaker from industry / Professional Cluster Management 3 employees
NRW	Cluster Speaker from industry, professional cluster management by industry association, Staff: 3



2.3.8. Legal status and membership

Cluster	Explanations
CGE	No legal status, no direct membership, several companies provide letter of intent for cluster management project – informal network and cooperation for cluster activities, meta network cooperation with associations and company networks
AST	IQPA has the legal status of association of independent companies
MAS	Under discussion, early stage of initiative
UST	Loose network no legal status or direct membership
NWE	Chemicals North West has a legal status and 150 member companies
NOV	IBIS Consortium is a legal body with direct membership of the companies
LIM	A legal entity has been founded. Shareholders of this entity are DSM, University of Maastricht and Provincie Limburg. In this legal entity a CEO is appointed. The CEO works with about 6 employees who are focussed on marketing & business development, finance, lobby & grants, law and the development of real estate. This all regarding the development of the Chemelot Campus. In this entity the shareholders hold each 33,33% of the shares except for the development of the real estate. In that part the Provincie Limburg holds 80% of the shares, DSM and UM each 10%.
NEE	Nepic is a stand-alone company, limited by guarantee, which was created and is owned by its member companies to represent the companies and supply chain of the Process Industry in the region. 340 member companies and 80 associated members
SWH	No legal status, no direct member, informal involvement of cluster stakeholders
NRW	No legal status, no direct membership

2.3.9. Funding Sources

Cluster	
CGE	2003-2006 yearly 20.000 Euro for Cluster coordination from private sources Public Funding from national programme GA 2007-2010, no membership fees, no service fee (3 years 750,000, 75% public funding, 25 own resources) 2010-2013 – decrease public funding to 2011-2013: 67%, 65%, 63%
AST	Funding is provided by IDEPA in the framework of the programme Innovation, Enterprise and Occupation, 10.800 € spent for developing of the strategic plan finalised in August, Validation by AIQPA for establish the cluster, plan: 5 years 61 000 first year, 2nd 166 000, 3rd 281 000, 4th 296 000, 5th 312 000. own resources have to be decided
MAS	The initiators of the project emphasise that in the first stage of expansion of the Mazovian Green Chemistry Valley additional sources of funding are not required
UST	<p>Czechinvest actually offers 3 Financial Support Programms regarding Innovation and cluster policy:</p> <ul style="list-style-type: none"> • Cooperation–Clusters (Call II): it is intended for those who want to cooperate with other companies in their branch and to establish cluster. This programme and the association of other regional entities from the branch in the form of a cluster offer everyone the opportunity to gain valuable experience and knowledge. The Call II. of this Programme was extended with allocation 500 mil. CZK (20 mil. Euro) on 20/01/2012. This prolongation is focused on clusters development and particularly on the common R&D activity of the cluster. For the applicant is possibility to get up to 60% real spent costs. • Prosperity - Call II.: Supported activities include the establishment and further development of science and technology parks, business incubators, and technology transfer centres, as well as creation of a network of business angels which encourage the establishment and development of innovative firms. Grants of up to CZK 300 mil. (12 mil. Euro) for each project. • Potential - Call III.: helps companies to set up and increase capacities necessary for the implementation of research, development and innovation activities. It is possible to obtain support for investments in the establishment or expansion of development centre aimed at research, development and innovation of products and technologies, including specific software and applications that form a part thereof (software that is component part of the products or technologies). Such a centre should contribute to the introduction (implementation) of technologically new or innovative products, product lines, production processes and technologies. However, there must be the real expectation that the results of the centre's work will actually be used in production. Support is provided in the form of subsidy of CZK 1 – 100 mil. (4 mil. Euro). In regions with concentrated state aid and in regions with a higher rate of unemployment, the subsidy is provided in the amount of CZK 1 – 200 mil. (8 mil. Euro). <p>Czechinvest has financed cluster development from 2004-2006 (200 000 – 1 000 000 mil. CZK (8 000 - 40 000 Euro) for 3 Years (1st year 75%, 2nd 50%, 3rd 25%), minimum 15 companies (60% SME), 1 university and 1 public authority). Main Finance from ERDF – 15 Clusters have been supported (Plastics Cluster in South Moravia).</p> <p>Usti region will continue to discuss funding possibilities for the creation of clusters in the near future.</p>
NWE	CNW is funded by membership fees. public funding from Development Agency NWDA has been sharply reduced from 2012 onwards, Membership fee (individual membership 130 pounds, corporate membership 470 pounds)
NOV	Regional funding programme pole of innovation; Total IBIS annual plan budget for research for the year 2011 is € 5.200.000 =. Total ERDF contribution € 2.600.000, membership fee 500 € per year

LIM	<p>The shareholders contribute each annually € 1,5 mln to the (legal entity of the) Chemelot Campus for a period of 10 year.</p> <p>For the development of the real estate the Provincie Limburg provides 80% of the required equity, € 14.030.435.</p> <p>Besides this the PL subsidizes a 'vacancy fund' regarding the real estate for an amount of € 6.026.249.</p> <p>With several regional partners the PL is founding a venture capital fund which will be available for the companies on the Chemelot Campus. All partners participate for an equal amount of € 10.000.000.</p>
NEE	<p>Nepic is funded by membership fees and public funding from a variety of sources including local and central government and the EU (Membership fees: MICRO (<10 employees) 300 gbp, SMALL: (<50) 500 gbp, MEDIUM (<250) 800 gbp, LARGE (>250) 1300 gbp)</p> <p>Initially ~80% public funding, reducing through development of cluster to ~40%. Moving to zero by 2011 due to heavy public budget cuts following the financial crisis. 2012 Cluster secures Regional Growth Funding and EU funding to support projects and moves to a project funded model which includes event organisation for members. Publication of newsletters and directory provides additional income, as well as specific services for members e.g. advice on mergers and acquisitions etc.</p>
SWH	<p>Cluster activities are financed in the framework of the Regional Management funding programme with support from the industry</p>
NRW	<p>No public funding; the Cluster Management is financed completely by Chemical Industry Association</p>

2.3.10. Political Influence

Cluster	Explanations
CGE	Medium: Ministry of Economy from Saxony-Anhalt, Saxony, Thuringia and Brandenburg participate in Cluster Board Meetings and support cluster activities, main funding from regional level (Ministry of Science and Economy Saxony-Anhalt) – monitoring of successful implementation and results promised
AST	Low – Companies decide, IDEPA as public development agency has supported the cluster birth and provides financing for specific activities such the cluster web page or the organizations of seminars
MAS	Medium: The Marshal of Mazowieckie Voivodeship signed a letter of support directed to Ms. Prof. Barbara Kudrycka, Minister of Science and Higher Education to include initiative the Mazowiecka Green Chemistry Valley at the Polish Roadmap for Research Infrastructures
UST	High: Usti Region is leading the discussion on cluster development together with chemical industry association. The political support declares this documents: <ul style="list-style-type: none"> • Action Plan: Development of science, research and innovation strategy of Usti region in the time period 2010 - 2012 • Updating the Sustainable Development of the Usti Region
NWE	Medium: Company driven network, Public Authorities support activities and development agency partly finances cluster
NOV	Low: Industry are main driver of research activity, Province of Novara is member of the consortium and gives political support
LIM	High. Strong cooperation between companies, research campus and province administration and development bank – open innovation approach used for public funding allocation
NEE	High – as Private sector network seen as authoritative voice by local government, members of parliament and ministers Public Authorities support activities and partly finance cluster through specific projects. Following to deliberate actions by the cluster to make links to regional MP's and to ministers coupled with UK emphasis on rebalancing economy more toward manufacture as well as removal of regional agencies the cluster is now the most active in the UK and is seen by central government as a bellweather for process industry.
SWH	Medium, company driven network, regional ministry supports and finances activities
NRW	Medium, industry driven network, regional ministry supports activities, Ministry is member of the Steering Committee

2.3.11. Degree of Internationalisation

Cluster	Explanations
CGE	6-7 Active development and leadership of several EU Projects, MentorChem, ChemSME, ECRN, ChemLog, ChemClust, Leonardo, Saxony-Anhalt holds Presidency of ECRN Association and fulfils leadership function, several follow up projects on chemical logistics for 2012-2014 have started (Chemlog+, ChemLog Tracking and Tracing)
AST	4-5: Participation in MentorChem, ECRN INTERREG Project, contacts to other chemical clusters, IDEPA has left ECRN Association due to budget problems
MAS	4. Member of ECRN, INTERREG projects (ECRN, ChemClust),
UST	5-6. Usti Region is active in international projects to support development of chemical industry e.g. ChemLog, ChemLog T&T, ChemClust. Usti is also member in European Chemical Regions Network (ECRN), member of European Federation of Agencies and Regions for Energy and Environment (FEDARENE) and member of the Committee of the Regions (CoR)
NWE	5 - participation in ECRN INTERREG project, Cheshire is member of ECRN Association, UK Trade and Investment supports imports and exports
NOV	5-6 IBIS Cluster members with only limited international activities, Province Novara with high level of activity, participation in ChemLog, ChemClust, Losamedchem, Member of ECRN Association
LIM	6-7 participation in many EU Projects, ChemSME, ECRN INTERREG, cross border cooperation with Belgium and Germany
NEE	6-7 Project partner in ChemSME ECRN INTERREG, Partnership to other European Clusters, Memoranda of Understanding in place with Axcelera (Fr), Suape (Brasil) and Indian Chemical Council. Involvement in European Union projects including one with 8 Clusters in Spain, Portugal, Germany, Italy, France, Austria. Member of European Chemical Sites Promotional Platform (30 sites across Europe)
SWH	4 - member of ECRN Association, ChemClust,
NRW	7 – ECRN INTERREG partner and association member, High international visibility and activity, location of headquarters of global players, important chemical sites cross border activities e.g. with NL and B Cluster Cooperation with Slovenia

1. No international activities visible and intended
2. No international activities visible but basically intended
3. First participation in and/or organization of international events by the clusters management are visible
4. Punctual cooperation with international partners
5. Active regular and intense participation of the clusters and its members in European Projects and other events
6. Intense cross linking/partnership with one or more foreign clusters (Noticeably internationally acting clusters)
7. Noticeably international acting cluster
(Meyer zu Köcker, 2009, p. 32)

2.4. Innovation Focus of Cluster

2.4.1. Activities of the cluster to promote innovation

Cluster	Explanations
CGE	<p>Workshop with Aviation Industry “Plastics meets Aviation” in Brandenburg</p> <p>Innovation Forum Hybrid Parts</p> <p>Expert Workshop on Bonding technologies, development of application for innovation forum “Central German bonding technology alliance”</p> <p>Workshop on innovation forum “product use of CO₂ with the help of renewable energies”</p> <p>Discussion about Campus development on chemical park Bitterfeld</p> <p>Further Development of industrial park Leipzig South</p> <p>IQ – Innovation Award</p> <p>Follow up of road map process identification of new innovation topics</p> <p>Masterplan Central Germany Biomass as chemical feedstock</p> <p>Cooperation agreement between waste and recycling park Halle Lochau and chemical park Leuna</p> <p>Kick off Leading Edge Cluster Bio-Economy</p> <p>Discussion with Federal Ministry of Interior – The future of feedstocks</p> <p>Kick off research project ibi – innovative lignite integration – coal to chemicals</p> <p>Establishment of “Engineers Initiative” with regional universities and chemical companies</p>
AST	<p>A number of thematic workshops have been organised to discuss common topics.</p> <ul style="list-style-type: none"> • 26/09/2012 “The Asturias Chemical Industry by the new demands on Environmental Risk assessing” • 30/05/2012 “Environmental noise in Industry. Regulation evolution and noise measurement” • 27/03/2012 “Environmental and security issues when driving” • 10/11/2011 “High pressure vessels” Regulations for its manufacturing, use and maintenance”
MAS	<p>Chemical cluster in Mazovia Region is in the first stage of formation. Up to now, no meetings, workshop or seminar were held. Furthermore, the authorities of Mazovia, 27th of February 2012 have signed a letter of intent for new chemical cluster structure .</p>
UST	<ul style="list-style-type: none"> • ChemClust Pilot Project „Chemical Parks as Knowledge Sites“, 1st Workshop (9.-10.05.2011 in Most, Czech Republic) • 1st Workshop „Possibilities of regional, interregional and international cooperation in the Usti Region chemical industry (04.05.2011, Usti n.L.) • 2nd Workshop „Possibilities of regional, interregional and international cooperation in the Usti Region chemical industry“ (09.11.2011, Usti n.L.) • 3rd Workshop „Possibilities of regional, interregional and international cooperation in the Usti Region chemical industry“ (06.06.2012, Usti n.L.) • 4th Workshop „Possibilities of regional, interregional and international cooperation in the Usti Region chemical industry“ (13.11.2012, Usti n.L.) – focused to possibilities how improve the public feeling for chemistry and chemical industry and how to make this profession more attractive for young people. • Database of chemical and plastic industry enterprises, R&D and education facilities in Usti Region • Bilateral negotiation with the main stakeholders from industry, R&D and Universities • Study „Conditions and needs of the chemical industry, R&D and professional education in the Usti Region“ (SusChem 2011)

NWE	<p>Further co-operation events have been held with Chemistry Innovation Knowledge Transfer Network including workshops on –</p> <p>Sustainable design strategies for innovation processes in the chemical industry</p> <p>More workshops held at the Science and Technology Facilities Campus by C-Tech Innovation Innovations Technology Access Centre developed at Daresbury</p> <p>Events held to promote Centres of Excellence for PECOE(Printed Electronics)</p> <p>Chemistry Innovation Knowledge Transfer Network continuing to promote innovative processes.</p> <p>LUMS has ERDF project Innovate for Success targeting SME with innovative products</p>
NOV	<p>The IBIS consortium is very active in the field of innovation, above all through the development of shared research projects among companies. These projects are carried out by the sharing of knowledge among companies, developing new synergies and fostering the concept of open innovation in the chemical sector. On average, 4 research projects per year approved by the regional board. Moreover, the involvement of stakeholders from different sectors, private and not, it's definitively an added value for the promotion of innovation. The 4 research projects approved in 2011 had the following topics: 1) Photosensitive coatings, 2) No residual Phito-Pharmaceutical, 3) Improving fertilizers by the integration of new technologies and chemicals, 4) Exploitation of renewable feedstocks.</p>
LIM	<p>Monthly colloquium organised by Chemelot Campus</p>
NEE	<p>Innovation Group set up and major workshop held plus regular meetings of innovation thrust team. Centre for Process Innovation closely linked to cluster is now UK lead on Advanced Manufacturing for Process Industry. Workshops are organised between industry researchers and universities to identify specific themes for development of innovation projects. They also report work of companies in specific funded projects such as catalyst development, process development etc. Collaborative projects set up by the cluster have included work on assessing biomass to chemical manufacturing routes.</p>
SWH	<p>Organisation of Workshop to discuss implementation Open innovation approach 28 June 2011 in Geestacht</p>
NRW	<p>Regularly meetings of Innovation Committee (members from industry, academia and politics)</p> <p>A SWOT-Analyses has been provided, which incorporates into the new lead market strategy set up by NRW as well as into the Innovation Strategy</p>

2.4.2. New Policy approaches and cluster strategies with focus on innovation development

Cluster	Explanations
CGE	<p>CeChemNet-Network of Innovation Sites update and specification</p> <p>Leading edge Cluster Bio Economy</p> <p>Board Process and Plant Safety</p> <p>Discussion about Lead Initiative innovative chemical and plastic industry Central Germany</p> <p>STARK III – Funding Programme for improvement of energy efficiency of public buildings</p> <p>Start of innovative lignite integration research project – use of regional lignite as feedstock for chemical industry</p> <p>Roadmap on polymer based light construction</p> <p>Hydrogen Mobility</p>
AST	<p>The Economic Development Agency of the Principality of Asturias (IDEPA) started a regional Cluster Policy in 2007, in order to support activities focused on: leadership, networking and financial support for some selected industrial sectors. At the present time, four calls for public financing through subsidies have been launched and 10 clusters have been created (chemical, IT, energy, automobile, maritime, wood..) with the support of the Government of Spain.</p> <p>New policy approach will be related to the Smart Specialization Strategies.</p>
MAS	<p>Mazovia Regional Innovation Strategy update (finish by first half of 2013), clusters will be one of the elements of a target, work on the identification of regional specialization.</p>
UST	<p>There is no interest in the long term to attending in clusters from side of main chemical producers in the region.</p> <p>In the future should be the cluster activities focused on a few companies with similar production and common interest. (Currently is discussing establishment of a plastic cluster with relevant stakeholders from industry, academia and Czech Association of Chemical Industry.)</p> <p>Continue organizing meetings with stakeholders from industry, R&D and authorities at least twice a year and activities to reach a cooperation in several particular fields of interest, support SME</p> <p>Facilitate using of financial support – cooperation with CzechInvest</p> <p>Cooperation using Chemparks (UNIPETROL Litvínov, Spol-chem Ústí) with UNICRE, resp. VUANCh as knowledge sites</p> <p>Improve education of chemistry, improve publicity including web information, create better political climate for PR and perception of chemistry</p> <ul style="list-style-type: none"> Cooperation at other projects and activities – “R&D for SME at Saxony-Czech Border Zone”, Regional Centre for Technology Transfer, Project PARNET, INPOK etc.

<p>NWE</p>	<p>Knowledge to innovate (C-Tech) Lancaster University Centres of Excellence- The national Technology Strategy Board supports Chemistry Innovation Knowledge Transfer partnership in the region with Funds for open innovation. Chemistry Innovation (KTP) delivers growth in UK chemical industry , assisting with knowledge networks in four new national priority areas- New national Chemical Strategy 2010</p> <ol style="list-style-type: none"> 1. innovative manufacturing, 2. smart chemistry, 3. product design 4. new bio-based projects.. <p>National programme connected with 3125 companies and 139 Universities.- representing 80% of UK chemical-using industries are represented by the Innovation Strategy Board, and with main European and International links. Further development of the Knowledge Centre for Material Chemistry has led to its research partner STFC Daresbury Science and Innovation Centre being given £10m investment for 2012. This could create 1000 new jobs and 30 new science companies by 2015. Concentration on industry and academic collaboration at all levels. SWIFT(Science with Innovation for Technology) is a project run by Chemistry innovation to provide industry with post doctoral scientists with business skills as well as science focus. National Strategy</p> <ul style="list-style-type: none"> • NINJ (new Industries new Jobs) • Low Carbon • Innovation and Growth teams <p>North West Science Council 2007-2010-Strategy for Science (included Chemistry)</p> <ul style="list-style-type: none"> • Senior industrials • Senior academics. <p>NWDA 07 to 21010 series of pillars one of which chemicals led to KCMC – major success. STEM minor success</p>
<p>NOV</p>	<p>The first success factor of IBIS was the achievement of a specific financial line dedicated to chemistry in the regional ERDF planning. Piedmont Region is now planning its actions for the next ERDF period (2014-20), encouraging dialogue among local stakeholders and gathering suggestions on how to improve the current innovation supporting system. The Region is also active in the Smart Specialization field, by participating in the European platform, focusing on sustainability/green economy and on the creation of bigger and multi-sectorial clusters. In addition, new funds have been allocated for the clustering and networking of companies.</p>
<p>LIM</p>	<p>The Chemical Cluster in Limburg is supported by the provincial policy. In the Acceleration agenda, Chematerials is defined as one of the growth engines for the region.. One of the major developments, which is a result of the Acceleration Agenda, is the development of the Chemelot Campus. The Province of Limburg tries to develop the Chemelot Campus, together with the partners DSM and University of Maastricht, into the innovation community in the Euregion. A top state of the art location with accompanying facilities. The first milestone in this development is set in march 2010 with signing the Letter of Intent between DSM, University Maastricht / MUMC+ and Province of Limburg. After signing of the Letter of Intent the partners have prepared the master plan and the business case. Peaks in the Delta has supported the project "ChemMaterials", in which DSM and the Hogeschool Zuyd are cooperating. Brainport 2020 is the new policy in the South East of the Netherlands in which Chemelot plays a role as a campus of national importance. It also has the ambition to close the cross border gaps and create connections with German and Belgian forces.</p>
<p>NEE</p>	<p>Development of a regional Innovation Strategy to identify key areas for focus and regular networking and promotion of best practice. This has led to development of a strategy to integrate renewable and recycled materials into the industry and to attract investments including waste gasification and tyre Pyrolysis A key outcome of the presence of the Centre for Process Innovation (CPI) in the region is to encourage the creation of clusters surrounding the National Industrial Biotechnology Facility (NIBF) and the Printable Electronics Technology Centre (Petec)</p>

SWH	Reanimation of “Innovation-Club SH” to bring together industry stakeholders for promotion of innovation (small scale workshops for innovation stimulation) Discussion about usage of hydrogen from renewable sources within the chemical industry
NRW	Bundle surface chemistry activities Scouting on market trends and scientific trends Benchmark national / international of R & D focal points in NRW Set a new focus on the field of human resources Taking a vital part in the discussion about how to encounter the forthcoming lack of high qualified employees



2.5. Integration in Innovation Networks

2.5.1. Regional Innovation Landscape

Cluster	Explanations
CGE	<p>Innovative Network 'Research and Development Plastics Technology Central Germany (FEKM):</p> <p>Central German Plastics Network (MKN): The Central German Plastics Network (MKN) is a platform for collaboration of plastics processor networks in Saxony, Saxony-Anhalt and Thuringia: Automotive Component Suppliers Plastics Engineering Saxony AMZK (Saxony), PolymerMat (Thuringia) and Polykum (Saxony-Anhalt).</p>
AST	<p>The Cluster, IQPA, is integrated in the Cluster Association of Asturias (8 clusters) and the Chemical Industries Association of Asturias, AIQPA is at the core of the Chemical Cluster.</p>
MAS	<p>Mazovian Network of Information - Advisory Centres for Innovation project (until end of 2013). The main goal of Centres will be consultancy and support in scope of creating and management of innovative company. Approx. 120 info-seminars in Mazowieckie subregions for entrepreneurs, local administration etc. Themes: - clustering, - innovation, - cooperation with R&D, - financing of innovation</p>
UST	<p>All 3 research institutes (VUAnCh, VUHU, SYNPO) are solving a lot of specific projects for the most of chemical manufacturers in the region. Furthermore they offer a wide range of accredited and other chemical and physical analyses including professional consultations.</p> <p>Similarly the universities (UJEP, VSCHT, TUL) are solving a lot of research projects for the chemical industry and offer another cooperation.</p> <p>SusChem Technology Platform deals with innovation matters of the chemical industry, there is close cooperation between SusChem and Usti region. Most of Region stakeholders are members of this platform.</p>
NWE	<ul style="list-style-type: none"> NW Universities Association Knowledge Centre Materials Chemistry University of Manchester Chemistry Department. (Chemicals Northwest is on Advisory Committee for University of Manchester Chemical Dept) North West Development Agency- Innovation North West Science Council- Chemicals Pillar CoEBio3 North west England Science Parks Chemical Sector Group University of Liverpool Chemistry Department. University of Lancaster Chemistry Department. All of the regional science institutions above are still involved . but now there is a national Technology Strategy Board from which the Knowledge Transfer partnership-Chemical innovation supports innovative projects and companies in the cluster by active promotion of funds and co-operation projects between the academic centres and the chemical manufacturers. The Daresbury Science Innovation Campus is located in the region and it is operated by the Science and Technology Facilities Council. This is now branded as Sci-Tech and has become a world class centre, which offers both physical expertise on-site, but it is also a central pillar in a strong network of the regional science universities, the KTPs, and the local authorities -and it has links with the newly established Local Economic Partnerships. The LEPs are comprised of a predominantly private sector composition and they are now tasked to dictate economic direction and growth in England, now that all the English Regional Development Agencies have been abolished. They now have a local geographical area of coverage often coterminous with the local government area or sub-regionally and their task is to direct and increase local growth. Most LEPs recognise the importance of sector/and or cluster support, but they have funds for any sector/cluster support staff. The UK Government has granted certain funds to several LEPs to for major infrastructure projects but the current accent is to use existing networks to provide support for the chemical companies.

NOV	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.
LIM	The Chemelot Campus is the centre for the Chemical Cluster Limburg. In Chemelot Campus there is a close cooperation between DSM, University of Maastricht and Province of Limburg (LOI) and DSM and the Hogeschool Zuyd
NEE	Active networking takes place between regional and national groups such as Technology Strategy board and Knowledge Transfer Networks. Also with regional Universities and there are links with other industrial sectors such as Steel The National Skills Academy for the Process Industries (NSAPI) is based in the Tees Valley (www.process.nsapl.co.uk) with a remit to up-skill the UK Process Industry Sector to global standards.
SWH	In set up phase
NRW	CHEMIE.NRW is one of 16 clusters in NRW and works closely together with kunststoffland.NRW, NMW.NRW, BIO.NRW, ENERGIE.NRW and some others, as well as with Cluster Industrielle Biotechnologie 2021 There is also a close cooperation with ChemSite and ChemCologne as well as with Network Surface and Network Polymeres Cross Cluster Cooperation will have more importance in NRW in the next future

2.5.2. National Innovation Networks

Cluster	Explanations
CGE	National Cooperation with German Chemical Clusters The German Sector Group of Chemical Parks and Sites within the German Chemical Industry Association (VCI)
AST	The Chemical Cluster is integrated in FEIQUÉ, the Spanish Federation of Chemical Industries, with more than 3 500 companies.
MAS	Cooperation takes place in National Suschem Technology Platform
UST	In the most of chemical companies exist agreements with the Institute of Chemical Technology Prague, Technical University of Liberec, Jan Evangelista Purkyně University in Usti and other universities in the Czech Republic concerned to the enlightenment of specialists for their needs. In some cases are these institutes solving technological projects for demand of these companies.
NWE	<ul style="list-style-type: none"> • Chemical Industry Knowledge Transfer Network (CITKN). • This has its parent in the Technology Strategy Board which funds Chemistry Innovation which assists innovation in the 4 main new priority areas. There are regional representatives who assist innovation projects in the former cluster-supported regions • COGENT/NSAPI (Skills) • BIS (Business Innovation Service)-Chemical Unit • RSC (Royal Society of Chemistry) • IChEME (Institute of Chemical Engineering) • Other chemical clusters • Intelligent Formulation Yorkshire • (CPI) Centre for Process Industries (Wilton) • National Non Food Crop Centre (NNFC) • Other Knowledge Transfer Networks (KTN's) • UKTI-export and inward investment UK Government • Petec- Printed electronics, NE England • Chemical Industry Education Centre (York)- Links to primary school programmes. • Business Education Matters- links to secondary school programme
NOV	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 nation 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.
LIM	Vereniging van de Nederlandse Chemische Industrie (Association of Dutch Chemical Industry) (VNCI) Dutch Polymer Institute (www.polymers.nl)
NEE	DICIDA, UK regional chemical initiatives, Chemical Innovation Knowledge Transfer Network Centre for Process Innovation Technology Strategy Board Trade Associations (CIA), UK Professional science and engineering institutions (IChemE). National links with the National Skills Academy and Cogent Sector Skills Council

SWH	<p>The cluster is active in the federal states of Schleswig-Holstein and Hamburg. While Schleswig-Holstein houses the chemical companies of the region, Hamburg based service companies are a main part of the value chain. Chemical related service means e.g. logistics, trade, financing, process software, maintenance etc</p> <p>Because of this integration the cluster integrates following partners:</p> <ul style="list-style-type: none">• ChemCoast e.V. (Northern Germany Chemical Sites Association)• Verband der Chemischen Industrie e.V. (VCI) (National Association of the Chemical Industry)• Industrieverband Hamburg (Industry Association Hamburg)• Industrie- und Handelskammer (Chamber of Industry and Commerce)
NRW	<p>Via Chemical Association organization close exchange of activities with other chemical regions in Germany take place</p>



2.5.3. European Innovation Cooperation

Cluster	Explanations
CGE	<p>European Chemical Regions Network High Level Group for the competitiveness of chemical industry in Europe ChemLog, ChemSME, MentorChem , ChemLog+, ChemLog T&T European Chemical Site Promotion Platform – ECSPP</p>
AST	<p>AT Clusters,; a European Territorial Cooperation Project, funded under the Atlantic Area Operational Programme to explore real possibilities of transnational cooperation among clusters in the Atlantic Area. European Cluster Alliance MentorChem Chemclust</p>
MAS	<p>ECRN association - full membership of Masovia from May 2011 Masovia is also associated partner in the ChemLog Project.</p>
UST	<p>In cooperation with other members of ECRN in thin connection with the project ChemLog, we can assume the successful development of the international integration of regions within the clusters. Because of our part on project ChemClust and ChemLog (focused on transportation of chemical goods, substances) we have established relationships with potential partners in Central Europe and we are closer to a solution the issue of cluster policy.</p>
NWE	<p>Chemicals Northwest links through To ECRN</p> <ul style="list-style-type: none"> • Via Chemical Industry Association and Chair of Chemicals Northwest Board to CEFIC (European Chemical Trade Body) • UKTI
NOV	<p>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.</p>
LIM	<p>ECRN, Limburg works closely in the INTERREG A Region with Germany and Belgium</p>
NEE	<p>Memoranda of Understanding between NEPIC and Axcelera (France), India Chemical Council, Vapi and Gujarat and with Suape (Brazil). Universities and NETPARK have international experience Recent contact with Nanjing park in China Clusters in Wiintech project on Cleantech Markets ChemSME</p>
SWH	<p>ECRN</p>
NRW	<p>ECRN, Loose contacts and exchange of ideas and planning of future activities with other areas, especially in NL and BE A Cooperation with the Cluster organisation in Slovenia was signed in February 2011</p>

3. Need for Actions and future potentials

3.1. Planned concrete activities to promote innovation in 2012 / 2013

Cluster	Explanations
CGE	<p>12.09. Expert Workshop “Plastic meets Aviation Industry” Berlin (International Aviation Fair)</p> <p>Implementation of Central Germany bounding technology alliance</p> <p>Development of innovation projects on product use of CO2 with the help of renewable energies</p> <p>Support for the development of Application for new Research Voucher System</p> <p>Cluster Innovation Award Prof Johannes Nelles for chemical industry</p> <p>Initiate technology roadmaps on compounding, recycle and surface treatment, coating</p> <p>Further implementation of research projects on coal to chemicals</p> <p>Biomass as feedstock for chemical industry</p> <p>Promotion Movie “Master of Elements” with Public TC Station MDR</p> <p>Ensuring provision of qualified employees – Cooperation with employment agency and trade unions</p>
AST	<ul style="list-style-type: none"> The cluster will continue to organise thematic seminars: topics are under discussion
MAS	<p>Innovation Section at the Department of Strategy and Regional Development of the Mazovian Marshal's Office establishes a network of Advisory Centres on innovation carried out within the project “Mazovian Network of Information – Advisory Centres for Innovation”..</p> <p>The Advisory Centres will provide information and consultancy on innovation for business sector (including, among others: the creation and management of innovative enterprises, support for innovation from idea to implementation, and funding of innovative projects).</p> <p>Their activities also focus on capacity building on the regions, promotion of partnerships between the regions and co-operation among universities, businesses, chambers of commerce, business associations and local government units. They will also play the role of promoters of co-operation and pro-innovation attitude in the region.</p> <p>The achieve these objectives the project has implemented actions:</p> <ol style="list-style-type: none"> 1. Organization of information campaigns on innovation, 2. Organization of seminars; 3. Organization of regional conferences with speakers from university and business sector (open innovation, cluster policy, best practices, technology, eco-innovation, user-driver innovation); 4. Development of the web page www.msodi.mazovia.pl to exchange interesting and useful information in the field of innovation, entrepreneurship, science and technology.
NWE	<p>Daresbury STFC will benefit from continuation of partnerships with the Knowledge Centre for Material Chemistry/and NW England Universities</p> <p>KCMC to continue framework agreements with chemical manufacturers</p> <p>Chemistry Innovation to continue support innovation project with funds and network support for new products and R&D.</p>
NOV	<p>IBIS will keep working on the implementation of new research projects and on the development of modern shared technologies in order to propose new attractive chemical products. This cooperation will definitely boost innovation in the territory.</p> <p>Next call for proposals is prepared for November 2012, currently selection of priority topics is under discussion.</p>

LIM	<p>The Chemelot Campus has a program Connections & Events. The meetings and conferences have the aim to create the network, support our cluster in people, knowledge and to stimulate new business development and growth. Some examples:</p> <p>2012</p> <ul style="list-style-type: none"> • Pilot project FP7 and Horizon 2020: how to get added value out of the Framework Programmes • World-class polyolefins symposium • Meeting Colloids and the Depletion Interaction • Workshop Lightweight Materials & Structures • Patents and successful cooperation • RETS-seminar: 'Renewable Energy Transfer Systems' • Symposium: No process without operators
NEE	<p>Regular Innovation team Meeting</p> <p>Applications to Technology Strategy Board calls are aimed at low carbon process manufacture and waste recycle or reuse as well as use of bio based materials and production processes.</p> <p>Submission to national Advanced Manufacturing project is looking to improve supply chain performance as well as increase resource efficiency</p> <p>Regions of Knowledge project application with Norway and Belgium and the successful 8 cluster EU funded. Wiintech project looking for new opportunities in cleantech are other examples.</p> <p>The TSB project is looking at innovation to reduce carbon footprint. The regions of Knowledge proposal looked to develop regional innovation strategies</p>
SWH	<p>Schleswig-Holstein is planning to reanimate the "innovation-Club", a network of companies supporting cross-section research and development. The club was quite successful but has to be lead by a new mentor making the club as attractive as it was for business development manager and researchers.</p>
NRW	<p>Cross-link between different clusters / industry branches e.g. surface cluster and polymer cluster or chemical-/steel- and energy industry, which generates new approaches for innovation</p> <p>Progress the activities in running projects:</p> <p>e. g. Clean-TechNRW, COPT (organic electronic) , SusChemSys (Sustainable Chemical Synthesis)</p>
UST	<p>Usti region will organise one cluster stakeholder meeting per half year to discuss joint innovation topics, present competences and experiences of research institutes and companies. Next meeting will take place in November. The UniCRE Research centre will start working in Spring 2013 with focus on biochemistry and petro-chemistry.</p>

3.2. Needs for concrete action to strengthen innovation capacity

Cluster	Explanations
CGE	<p>Further Development of Technology Road Maps Implementation of practical Research Voucher Systems Organisation of Innovation Forum on bonding technologies Support of Cooperation with Aviation Industry to identify future innovation across industrial sectors Establishment of lead initiative for innovative chemical and plastic industry to ensure sustainable support of innovation promotion and cluster management Priority setting of universities in relation to HR needs of chemical and plastics industry Develop existing research infrastructure alongside existing value added chain Support SME in innovation processes Improve capacity of companies for international cooperation in R&D at EU level</p>
AST	<ul style="list-style-type: none"> • Industry support to basic research for knowledge creation • Industry participation in technology development involving some exploratory work • Academic intervention in solving specific industry problems • Laboratory utilization by industry <p>Continuing education programme</p>
NWE	<ul style="list-style-type: none"> • There must be more contact between the two informing better knowledge of each others needs, constraints and opportunities. • Universities can work with smaller projects, which will give benefits in easy to deal with contracts, IP issues and understanding the need for speedy results. • Industry must do more to recognise the benefits of joint R&D programmes. • The Technology Strategy Board will continue to fund and support Chemistry Innovation, which in turn will continue to support Centres of Excellence such as KCMC, CEBIOS, and OMIC and foster the links between private sector and the academic institutions in promoting chemical industry innovation. This will position Chemistry Innovation as a single point of focus for co-operation projects for new innovation projects. Building on the National Strategy- the unique networks created will forge unique project innovation identities.
NOV	<p>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 7 FP'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.</p>
LIM	<p>Important in the Chemelot Campus is the development of Knowledge to Knowledge and the Knowledge to business. Especially the last one focuses on the cooperation between academia and business. To create this cooperation, research programs will be designed and focused on the main technologies on the Campus.</p> <ul style="list-style-type: none"> • (Performance) Materials: automotive en electronic polymer-based systems; • Biobased materials: functional coatings, specialty packaging, biobased materials and products; • Biomedical Materials: medical coatings, polymer implants, drug delivery systems, tissue engineering, regenerative medicine; • Biotechnology/biosynthesis: White biotech, bio synthesis & process intensification; • Analytical support: R&D Enabling technologies. <p>These research programs are the result of a strategy developed for the Campus. The Marketing & Business Development (M&BD) organisation / new to appoint research director must make a connection between these programs' and companies.</p>

NEE	<p>Increase support for the Science to Business Hub (S2B). Development of better and more regular feedback loops in communication to overcome differences in ethos and culture between industry and academia, whilst continuing and increasing liaison activities. Promotion and development of Knowledge Transfer Partnerships (KTPs) involving member companies Active development of proposals for EU projects and for UK funded ones. Work with members on proposals to UK projects including better linkage to national Catapult Centre CPI Provision of innovation events and activities through Innovation team Use SME programme to identify new ideas to bring to cluster. Use Wiintech project and other overseas links to identify innovation opportunities for cluster.</p>
SWH	<p>It is intended to create the new Chemical Cluster with a strong involvement of the regional universities. Thus the link between industry and academia shall be an integral part of the cluster. Furthermore the cooperation shall not only be furthered through organisational integration but also through the networking part of the cluster.</p> <ul style="list-style-type: none"> • Reduced costs for IP protection – particularly for SMEs • Dedicated innovation fund across Europe • Influence EU and National policy to improve framework and provide more feedback on current framework • Further tax incentives <p>Further support of student placements</p>
NRW	<p>In chemistry, academia and industry are traditionally working together on a high level of cooperation, also in precompetitive as in competitive research and development. It is important to focus activities and concentrate public funds in the most promising fields of activity. This is the main idea in the lead market strategy NRW is following. The development of the Innovation Strategy of NRW is in good progress. The input given by Cluster Chemie.NRW is an important and valued component. As most of the industrial stakeholders are global companies, the local academia competes with research institutions on a global scale for the cooperation projects of these companies. Here, by focusing the available public funds on the given strengths of research helps to build local cooperation.</p>
MAS	<p>e.g. Involvement of industry in Mazovian Green Chemistry Valley initiative, assistance from experienced partners (road map for establishing cluster)</p>
UST	<ul style="list-style-type: none"> • Improving networking and communication between stakeholders from industry and academia • Identify common topics for research cooperation • Ensure sound framework conditions and better image of chemical industry • Improvement of relevant skills for natural and technological sciences in schools

3.2.1. Contribution of Cluster Activities to EU 2020 Innovation Union and Smart Specialisation Strategies

Cluster	Explanations
CGE	<p>Identification of interest of chemical industry as basis for the integration into the policy making process (bottom-up strategy) : e.g. Road Map process</p> <p>Identification of new innovation projects on the basis of existing strengths (e.g. Hydrogen Mobility)</p> <p>Active integration into the strategy building process, e.g. priority setting for operational programme Support of companies for the participation in High-Tec strategy of Federal government</p> <p>Cross-Border consultation of priorities in Central Germany</p> <p>Identification of joint objectives of chemical regions and their integration in SF period 2014-2020</p>
AST	No contribution for the moment
MAS	Too early stage of Mazovian Green Chemistry Valley initiative
UST	Usti Region is currently updating Regional Development Action Plan 2010-2012 for the years 2013+. After Election in October the new action plan will be completed in Spring 2013. The Action Plan will contain a Regional Innovation Strategy, the conclusions from the cluster meetings will be integrated in this innovation strategy following a bottom up approach.
NWE	Chemistry Innovation regionally will operate with the Knowledge Transfer Networks, and the Technology Strategy Board to connect with the European Technology Platforms, and other internal institutions to increase and build on innovation.
NOV	Among EU2020 objectives, IBIS action plan is particularly focused on the sustainability. In fact, the consortium is aimed to develop sustainable products thanks to the involvement of many modern chemical companies active on this kind of production. The sharing of new solutions in this way still remain the main target of the consortium.
LIM	<p>Pilot project KP7 and Horizon 2020: how to get added value out of the Framework Programs.</p> <p>Cluster development and creating roadmaps and projects which fit in the Smart Specialisation Strategy of South Netherlands.</p>
NEE	Working with national centre CPI, and with member companies NEPIC will be focussing on identifying opportunities for innovation in low carbon and resource efficient manufacture
SWH	Schleswig-Holstein chemical cluster starts a new initiative for hydrogen research projects to use wind-energy for producing hydrogen as feedstock for the chemical industry. If these projects fit in the EU2020 objectives, it could be a contribution to innovation and specialisation strategies.
NRW	No contribution at the moment

3.3. Need for action for further development of cluster activities with benefit for regional growth and innovation and industrial competitiveness

Cluster	Explanations
CGE	<p>Strengthening cooperation with other chemical clusters to exchange existing knowledge and provide platform for networking and partnership building</p> <p>Facilitate staff exchange between chemical regions, e.g. with support of ESF Funds – e.g. for young Trainees</p> <p>Establish research and innovation voucher system, which works also across borders</p> <p>Exchange experience on future economic promotion measures behind the background of shrinking public budgets and funding</p> <p>Exchange experience on innovative models for financing cluster managements facing reduced public funding</p> <p>Develop strategy for regional policy for chemical regions – integration of chemical clusters as active driver in the</p> <p>Regional Innovation Strategies Intensify exchange of information and thematic cooperation between Clusters and ECRN (e.g. during PWG and Congress)</p>
AST	<p>Involvement of SME's in the chemistry sector, for example using the Open Innovation model (licensing in / licensing out of technology and "know how", innovation vouchers.)</p>
MAS	<p>Exchange of experience between companies, politics and universities;</p> <p>Better integration of chemical industry and R&D sector;</p> <p>Promotion and description added value and benefits of working in chemical industry towards young people</p> <p>Development of regional cluster policy, which is a part of implementation Regional Innovation Strategy for Mazovia Region.</p>
UST	<p>Overcome the sceptical attitude of Chemical Companies – major question overcoming competition, building trust and added value of the cluster</p> <ul style="list-style-type: none"> • Regularly organizing meetings and activities to reach a cooperation at least in several particular fields of interest • Support SME • Facilitate using of financial support – cooperation with CzechInvest • Cooperation using chemparks (UNIPETROL Litvínov, Spol-chem Ústí) with UNICRE/VUANCh as knowledge sites • Improve education of chemistry, improve publicity of the chemical industry, create good political climate for PR and perception of chemistry • Cooperation at other projects and activities
NWE	<p>The regional presence of the TSB-sponsored Chemistry Innovation will link with specialised institutes such as the Royal Society of Chemistry(RSC) and the IChemE (Institute of Chemical Engineers) to form joint areas of interest in stimulating further innovation.</p>
NOV	<p>Following the regional policy aimed to develop innovative poles, IBIS consortium is directly involved in the regional innovation system, this is why the development of new tools supporting realities as IBIS is nowadays more important in order to boost the regional innovative landscape and SMEs.</p>
LIM	<p>The creation of an integrated approach on beta studies, education and labour market in the chemistry..</p> <p>Implementing our Venture Capital Fund Limburg Ventures II (Chemelot Ventures) with special attention for the co-funding of the EIF,</p> <p>How to overcome the shortage of capital for the campus infrastructures and in the real estate.</p> <p>Building our clusters from regional clusters to (inter)national clusters.</p>

NEE	<p>Identification of further consortia with local partners such as the Centre for Process Innovation to pursue EU collaborative projects under e.g. Intelligent Energy Europe ,and FP7 banners, building on links established through existing collaborations. Also look for opportunities to take cluster members to markets outside the EU in high growth areas.(builds on Wiintech project)</p> <p>Work to attract applicants into industry from university, and to attract best students into careers in the industry</p> <p>Identify opportunities for investment in the region</p>
SWH	<p>The region has to foster cooperation between chemical companies and universities. A better innovation management could lead to increasing development of new products and processes in the chemical industry and in related supply chain companies using chemical products.</p> <p>Cross border cooperation with the federal state of Hamburg would widen the range of chemical products and services, means the chemical expertise in the region. Beside the production sites the regions offers a lot of related choices from feedstock through the whole value chain plus engineering like pumps and valves.</p>
NRW	<p>Intensifying the cooperation with other clusters to forward cross cluster innovations</p> <p>Increasing the cooperation with other chemical clusters national and international</p> <p>Take actions to encounter the forthcoming lack of qualified employees e.g. by support education and work on the image of the chemical sector.</p>

Chemical Cluster Development in European Regions

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