

# **High Level Group on the Competitiveness of the European Chemicals Industry**

## **Research, Innovation and Human Resources Conclusions and Recommendations**

### **General Conclusions**

The European chemicals industry is currently facing unprecedented challenges arising from the need to address

- the increasingly difficult energy and feedstock situation with its high impact on costs and competitiveness
- climate change, and global environmental challenges and risks more generally
- strong competition from emerging countries, notably in Asia, the Middle East and Russia.

#### **More innovation is key to securing the future of the chemicals industry**

Many of the challenges faced by the chemicals industry affect economic activity and society as a whole, and concern manufacturing industry across the board. Chemistry and the chemicals industry is uniquely placed to bring solutions to these problems. Innovation is indispensable to overcome the challenges, to avail of related opportunities, and ensure the further success of the industry.

The chemicals industry has a key role through its enabling function for entire industry, and thus shapes economic activities in other sectors. It is an irreplaceable provider of innovations to “downstream” industries and is a key component of value chains that end with the great majority of consumer products. This means that the chemicals industry will always have a strategic economic and social importance. Europe must retain a strong manufacturing base in this sector not only because of its economic weight, but also because of its ability to continually generate innovations critical to meeting the major challenges of modern societies.

#### **More innovation needs greater private commitment and a favorable policy framework**

Innovation concerns new products, but can also be based on new applications, new services or new processes. While innovation is more than R&D, the link between research in chemistry (and related sciences) and innovations in the chemical industry is particularly strong. As regards global trends, while R&D intensity in the European chemicals industry has shown a slight overall decrease during the last decade, some emerging countries have strongly increased their efforts with notable success. Corporate R&D in Europe is more and more concentrated in large companies which have generally maintained high R&D levels.

Nevertheless, more private investment is needed in R &D. In addition, innovative start-ups which are becoming more and more important as promoters of innovation, need to be better supported.

Compared to many other industries, the chemicals industry is characterized by long development times and long pay back periods . The increasing pressure from global capital markets to deliver quick returns poses a special challenge for start-ups and early stage companies. To enable long term investments to provide effective support to the strategic innovations emerging in the sector , stable framework conditions are essential. Reducing the time to bring innovations to the market is essential to success.

*The High Level Group endorses the analysis in the report of the Ad-hoc Group “Research, Innovation and Human Resources”. In particular it welcomes the numerous examples of best practice given in the report, as regards public private partnerships, research and high-level formation, communication, innovative business models integrating the supply chain and making chemistry more attractive to young people. These examples show that Europe’s chemicals industry and its strong research and educational infrastructure are capable of meeting the innovation challenge. The High Level Group wishes to highlight the following recommendations from the report which it fully supports.*

## **Recommendations**

### **Strengthen Innovation Networks**

- ***Industry, in cooperation with governments, should set up topical innovation networks to promote key strategic innovations*** and foster best practices and exchange of knowledge and experience between the networks. One such network should deal with “energy and climate change”.  
Support for “*lighthouse projects*”, which could take the form of pilot plants, as guidance for industry and society to signal the potential of certain key innovations , is essential. Public support for this type of project - not primarily as a source of finance but at a minimum to signal public commitment - is essential.
- ***Industry and public authorities at all levels should strengthen clusters which facilitate co-operation across sectors and across borders***, with the aim of further stimulating and facilitating cross-cutting innovations throughout the value chain. Initiatives should build on existing structures and programmes where possible.  
The results achieved by EU, national and regional innovation networks should be examined, and possible areas of improvement identified, for example, by greater promotion of best practices.

- *As part of the further strengthening of existing networks, the technology platform SusChem should explore opportunities to extend its scope of work* to include innovation leadership issues (“bringing good ideas to the market”) in a new SusChem+ structure.

SusChem has so far delivered a vision paper, a broad strategic research agenda, and a detailed implementation plan; it should now develop a wider mandate covering the full scope of innovation, and reaching out to an increasing number of Member States, regions and enterprises, in particular to SMEs.

**Increase quantity and effectiveness of Research and Development, in particular by encouraging more efforts by the private sector**

- **The private sector should accelerate its efforts to speed up innovation.**

The European chemicals industry has a strategic interest in occupying high -knowledge-based segments assuring higher long-term growth and profitability. Companies are urged to upgrade their R&D plans, promoting "open innovation" schemes and extending corporate research programmes to medium- and long-term objectives.

Companies should strengthen their relationships with universities and public research centres and co-promote Public Private Partnerships on key medium/ long-term research issues.

- **The public sector should provide effective support to the efforts of the private sector.**

Within the limitations of national R&D budgets, many Member States have committed themselves to an increased effort.

Cost- efficient use of scarce resources is essential; this can be achieved through greater focus on the quality of the R&D expenditure, founded on excellence and through prioritisation.

Focusing on key areas at regional level should be accompanied by road mapping exercises and by an active coordination of European and national efforts in chemistry and chemical engineering research.

ERA-NETs already established in the chemical sector should be grouped and should promote more advanced forms of cooperation, coordination and complementarity of effort, also making use of new instruments offered by the Seventh Framework Programme, the Competitiveness and Innovation Programme and by the Structural Funds.

Financial instruments, providing support and covering risks over a sufficient time period are essential to innovative start-ups and other SMEs.

## **Developing our Human Resources**

- ***Member States should step up promotion of chemical and science education starting with the primary schools.***

The methodologies developed by the European Pollen project<sup>1</sup> constitute an impressive example of good practice as regards stimulating an interest in the study of science from an early age. Similar initiatives should be replicated and disseminated through pilot projects, accompanied by teacher-training activities, with the aim of modifying primary school curricula.

- ***Chemistry or/and chemical engineering faculties should define the profiles of new professions in cooperation with industry*** e.g. "product" engineers, toxicologists, nanotechnologists, and should develop new curricula to keep pace with the development of the chemicals sector.

To further develop human resources capacity, courses in management and entrepreneurship, possibly linked to support programmes for start-ups, should be strengthened.

- ***Industry, in cooperation with education and employment agencies, should intensify efforts to forecast their requirements of human resources*** at various locations and regions.

Enterprises should actively inform students about career perspectives in the chemicals industry, inter alia, by organising events for students and teachers. SMEs, which have comparatively greater difficulties in attracting essential skills, should be fully involved.

## **Improve Information and Communication**

- ***The chemicals industry needs to develop a more effective dialogue with society based on mutual understanding and trust.***

Listening and understanding are essential to effective two-way communication, and are key to developing the trust needed to support an innovation-friendly environment and make it work. Innovation needs the confidence of investors, customers, workers, and consumers in the sustainability and safety of products and processes.

- ***The Commission and Member State authorities should improve communication with industry and other stakeholders to facilitate proper understanding and observance of regulatory requirements.***

The need to communicate full and accurate information is especially important following adoption of new legislation. Among the possibilities to be examined are organisation of information meetings and other tools to be made available to enterprises along the value chain to provide guidance on the implementation of new rules. The needs of SMEs should be especially considered in that context. While the Commission's better regulation strategy is bringing about significant improvement in

---

<sup>1</sup> Compare: Science Education Now – A Renewed Pedagogy for the Future of Europe; ("Rocard Report"); Luxembourg 2007

this field, including on the consultation aspects, implementing measures with substantial impact should also be the subject of appropriate consultation with stakeholders.

- ***The Commission should ensure that impacts on innovation and any further research needs are addressed in impact assessments accompanying new legislative proposals where appropriate.***

While it can be expected that in the normal course of events the economic dimension of impact assessments should encompass the innovation aspect, the overriding importance of innovation in ensuring competitiveness requires that special attention should be given to this aspect.

***The High-Level Group urges all stakeholders to seriously consider and implement concrete actions to promote the above -listed recommendations and for that purpose stresses the importance of ensuring effective follow up.***