

Summary

The Chemical industry and the large production facilities in general are important fundamentals of our western economy. However, in the coming years a great challenge lies ahead in the field of international competition, innovation and sustainability. These challenges can be met by improving existing processes and introducing new technologies. One of these technologies is based on 'micro flow reactors'. These reactors have the ability to deliver safer and more energy efficient processes; the space-time revenues are even higher. Processes run faster, are faster developed and economies of scale can be more easily achieved.

Process intensification, of which **Micro Reactor Technology (MRT)** is an example, is an important and necessary development according to industries and research institutes in Europe. In 2007 an EU roadmap on process intensification was developed, and recently in 2011 an EU research agenda was determined in consultation with 75 leading European scientists and science managers. Both documents make clear that in the near future the demand for personnel with expertise in the field of MRT will definitely increase.

To ensure that enough and well-trained personnel can cope with this new developments it is necessary to adjust the educative method used in chemistry education. As MRT is highly innovative, new insights and knowledge on this technology are developed worldwide at scientific high-level, by universities and industries. University research groups can, generally speaking, best oversee the development of the knowledge base worldwide. The challenge is to translate the adequate knowledge to an educational programme and to keep this up to date. The classic manner of education does not provide in keeping up with innovations. The same challenge can be identified for the translation of high-level scientific knowledge to SME's.

The construction which should be able to address all these issues is what we will call a 'Network for Innovation and Learning' (NIL). This new kind of network combines the construct of a learning network with real-life communities and brings online and offline collaboration of students, teachers and professionals together. The professionals aimed at are researchers of SME's and larger industries.

The aim of this NIL is accelerating innovation by combining innovation with excellent education and making excellent scientific and innovative knowledge accessible for students and SME's by converting this knowledge into adequate online educational content. Furthermore knowledge sharing will be advanced, by making online communication very attractive and accessible. These two functionalities of the network make it an important instrument in facilitating Communities for Development (CfD's).

In a CfD professionals and experts work together with students on a real-life innovative case of a company. The main goal of a community is to realize an innovation by valorisation. The research efforts of students in the communities accelerate this innovation and the input from professionals and experts

the quality is guaranteed. The professional or expert can be a teacher linked to an educational institute, but -can also be an employee of a company.

The real-life participation of different participants in the communities will strengthen both the results of the communities as value of the network. Bringing together people of diverse backgrounds, e.g. different working environment, educational background or scientific knowledge, can accelerate innovation. By choosing a well-defined area of interest like micro reactors this project will not only be able to setup an educational programme on micro reactors but will also innovate the classical education system at the universities involved. By combining education of students and professionals with question from SME's, the innovative potential of the regions involved will increase tremendously.