



## WP4 Framework for high quality service for customers at RI

### Activity 4.2 Structures at RI supporting needs of commercial customers

#### Report on needed structure at RIs

Science Link is a network between leading research infrastructures (RI) of photon and neutron sources and its users. The project aims to support and encourage innovation and entrepreneurship in the Baltic Sea Region.

Based on the “Report on description of service structure at RIs and of current access procedures for commercial customers at RIs” and the experiences with customers during the project conclusions have been drawn on possible needed structures at RIs to improve the interaction between RIs and industry users in the Baltic Sea area.

In the past years, large-scale research facilities (LSFs) have increasingly faced the prospect of opening their service to companies. Not only is there an increasing demand from industry for advanced research tools provided by synchrotron light and neutron sources, but also there is an expectation from society to show that LSFs not only serve for fundamental research, but also deliver novel solutions for the future key problems of society or general competitiveness of a knowledge-based economy [J. Cutler, SYNCHROTRON RADIATION NEWS, VOL. 24, NO. 6, 2011, 2-3]. The partly EU Funded project Science Link has addressed exactly this task and has brought, or linked, science and industry together with an innovative approach.

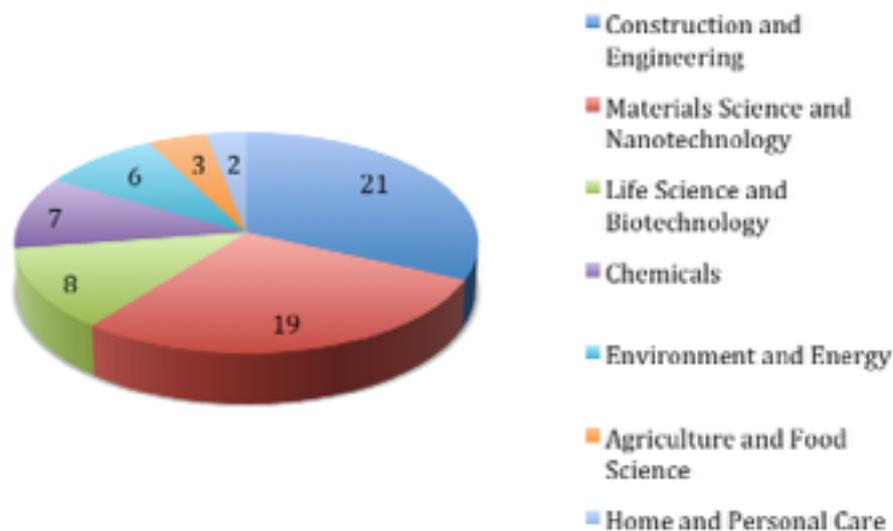
Basically, there are different ways of access for industry to analytical methods provided by LSFs. According to the information provided by several facilities it is estimated that at least 25% of peer-review experiments carried out involve collaborations between academia and industry, but only about 2% of available beam time is allocated for proprietary access [E. Mitchell et al., SYNCHROTRON RADIATION NEWS, VOL. 24, NO. 6, 2011, 18-23]. The main difference here is the slower access to the instruments caused by the peer-review process, while proprietary access is typically quicker. Another important issue is that results from peer-review based measurements have to be placed in public domain, which, due to intellectual property issues, is not always acceptable for industrial users. A third access route is through research service providers, i.e. private companies highly specialized in solving industry problems, often using publically funded infrastructure such as LSFs.

The transnational project Science Link offered the approach of a single contact point, no matter which country a company is based in where the company could contact a local contact point and be directed to the facility that has the most suitable method for their R&D problem. Appointed ILOs provided the customers with consultation prior, during and



after their measurements, consultation that showed to be equally valuable as the experiment itself, especially for companies that had no previous experience with measurements. For example, a Swedish company that wants to investigate a process or material could very well be directed to a facility in Germany and - vice versa.

In the frame of the project, three calls for proposals from companies in the Baltic Sea Region were launched between spring 2012 and autumn 2013. Science Link received 66 applications, of which 48 were accepted and 10 were offered further consultation at local universities for access to conventional lab techniques and if needed, for access of synchrotron radiation after initial laboratory investigations. About two thirds of the applicants were small and medium enterprises (SMEs) without own large R&D departments. The industrial categories with the highest representation amongst the applicants are the construction and engineering industry, materials science, and thirdly life science and biotechnology (see figure 1).

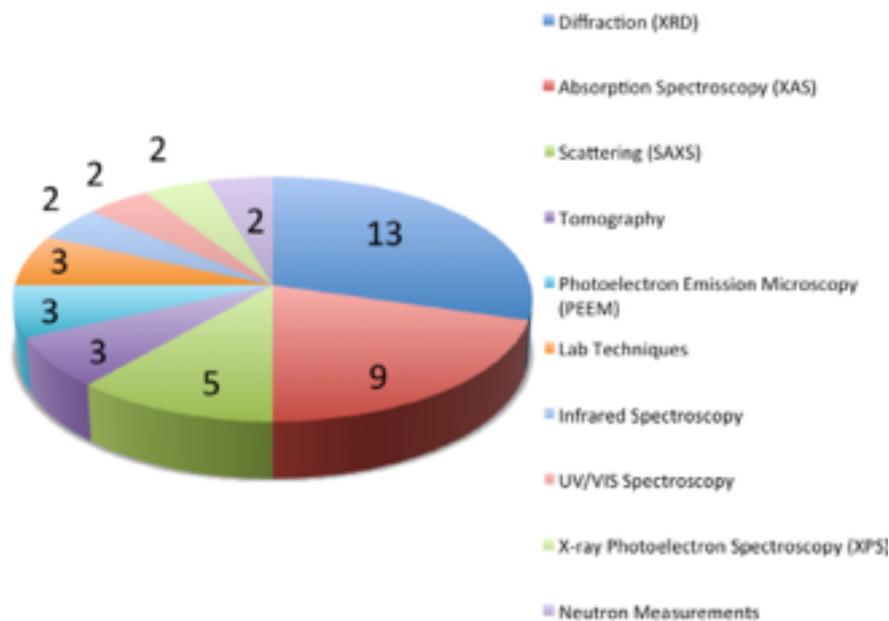


**Figure 1:** Distribution industrial sectors that applied for measurements via Science Link.

In the past, the main usage in most synchrotron facilities has been macromolecular X-ray crystallography followed by a growing interest in x-ray diffraction and small angle scattering. In the Science Link project, the most frequently requested techniques were x-ray diffraction and x-ray absorption spectroscopy (see figure 2). Many measurements in Science Link were in addition performed at beamlines never before used by industry. This illustrates how Science Link has enabled a widening commercial usage of LSFs into



new areas and applications. On the other hand it point to the unexploited potential of large-scale facilities, which needs significant marketing and high demand for explanation of possibilities among industrial users.



**Figure 2:** Distribution of experimental techniques used by Science Link's industrial users.

The Science Link project showed that there is a significant need by both large international companies and SMEs for access to LSFs. Nevertheless, to increase utilization of these research infrastructures by industry, some bottlenecks have to be solved.

- Knowledge at companies about scientific techniques available at LSFs is very limited. Local contact points and training and outreach activities by RIs in collaboration with universities and SMEs could tackle this lack of knowledge.
- Industrial scientists often consider access to LSFs as too complicated, too expensive and therefore not worth the effort. Fast access routes should be implemented as shown within ScienceLink.
- A lack of knowledge among facility staff for business needs and the R&D processes at companies has been identified. The work performed in Science Link, towards companies and internally at the LSFs, helped overcome these problems. The outreach actions by Science Link, like road shows, trade fair participations,



national conferences and direct contact with engineers and researchers in companies and, of course, the offer for free of charge feasibility measurements was an effective way to raise the motivation of industrial users to take a closer look.

- While large companies with high R&D budgets might get attracted by increase of knowledge alone, the average prices for proprietary measurements make it difficult for SMEs to afford such experiments on a regular basis. Here further financial support by local stake holders or RIs is required
- For both large companies and SMEs, the consultation in preparation of the measurements and data analysis afterwards is an essential part of the service.

The most important lessons learned is, that joint activities of LSFs and regional contact points create high synergetic effects regarding the outreach to industry. Collecting actual R&D problems of companies during public calls, finding the right method to solve them and guiding the customer to the particular partner facility which can provide the best solution for any individual problem demonstrated to be a valuable method to increase competitiveness of R&D related industry and therefore of the whole Baltic Sea Region. These new structures in the interaction and information and knowledge transfer between RIs and SMEs and industrial users should be maintained and further developed. As a consequence the Science Link partners intend to continue their activities under the Science Link umbrella brand. A letter of intent is in preparation which is going to keep the created network alive by their own means after the official end of the funding period and to allow to establish the news structures between RIs and costumers in sustainable manner.