7.1 Industrial Cooperation Resulting in Transfer

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Abstract. This short section is to demonstrate that one of the characteristics of IMPROVE was a permanent exchange of ideas with industrial partners: Ideas were taken up from industry, symposia and workshops were held, spin-offs were founded, etc. So, the transfer center described in this chapter is essentially the result of our long-lasting and continuing cooperation with industry.

7.1.1 Long-Lasting Industrial Collaboration

In the beginning of the CRC project, we held numerous discussion and interview sessions with end-users and experts from the chemical and software industries in order to learn about the particularities of their work processes, to develop realistic use cases, and to specify requirements for novel software support.

The implementation of these requirements into software was again supported by our industrial partners, which helped with practical problems, provided test cases, and evaluated the resulting prototypes in industrial settings.

As already indicated in Subsect. 1.1.3, the subproject I1 of IMPROVE had the specific role to act as a clearinghouse, where industrial problems were imported, where results of IMPROVE were exported to industry, and where the management of the IMPROVE cooperations with industry was located. According to this specific task, the main research area of subproject I1 was the investigation of industrial work processes and their improvement.

While some of the industrial partners collaborated only temporarily, others were involved over the entire research period of twelve years. For example, there was a close and long-lasting cooperation on work process modeling between subprojects A1 and I1 of IMPROVE on the one and the companies Air Products and Bayer Technology Services on the other hand. Another example is information and project management, which included subprojects A2, I1, and B4 from IMPROVE, and Degussa as well as Uhde on the industrial side. Finally, there was a cooperation for a number of years between subproject B2 of IMPROVE and the software tool builder innotec.

The cooperation with industry was formalized by the CRC advisory committee with the following industrial members: Aventis, Basell, Bayer, BASF, Degussa, innotec, Linde, Shell, Siemens, and Uhde. Regular meetings and workshops were held for the exchange of experience between industrial partners and IMPROVE.

7.1.2 Symposia and Workshops

For a broader audience, we hosted a series of workshops and symposia bringing together participants from academia, software vendors, and end-users. The
objective of these events was to exchange experiences, to discuss new concepts and ideas, and to obtain feedback from practitioners.

Six symposia were held in the years 2000 [396], 2002 [353], 2004 [399], 2005, 2006, and 2007 at Aachen and Berlin. The organization was due to W. Marquardt (RWTH Aachen University) and G. Wozny (TU Berlin). Any of these symposia had about 100 participants, most of them from industry.

The symposia programs consisted of oral presentations, panel discussions, and poster sessions. These programs were interesting for both industry and IMPROVE members. Most of the symposia had an associated software exhibition of commercial software tools for engineering design. The results of the symposia were documented in brochures which were distributed to public. Presentation slides of the symposia since 2004 are available online [112].

7.1.3 IMPROVE’s Spin-offs

The industry related activities culminated in the formation of two start-ups that are concerned with the development of software tools for the chemical and polymer industries.

aiXtrusion was founded in December 2003. The objective of the company is the development of innovative information systems to support analysis in plastics processing plants. In particular, aiXtrusion offers a wide variety of simulation applications that permit the study of extrusion processes. The simulation software is easily coupled to measurements from a plant for use as an online simulation.

Beyond process analysis, aiXtrusion offers general solutions for the integration of distributed components in heterogeneous information systems typical for the polymer processing industries. The software distributed by aiXtrusion has been developed at the Institut für Kunststoffverarbeitung (IKV) at RWTH Aachen University. Further research and development of the software is carried out at IKV, whereas support and maintenance are provided by aiXtrusion.

A second initiative, AixCAPE, was founded in 2002 as a consortium of industrial end users of CAPE software. The major objective of this organization is transfer-oriented research and development in close cooperation with its industrial members. Transfer is organized in a variety of cooperation opportunities, ranging from short-term consulting services to joint medium-term research projects or a long-term membership in the consortium. Initially, the research results of the Lehrstuhl für Prozesstechnik form the basis of AixCAPE’s activities. In the future, other academic collaborators are aimed to be included. The idea is to achieve open technical platforms in which results from various research organizations can be integrated for efficient assessment and use.

Two topics important to the founding members (Atofina, BASF, Bayer, Degussa, Dow, and Shell) have a strong connection to the work carried out