Overseas trends of industry and university collaboration: An-Institutes in Germany. Shortcut from science to industry

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The beginning of the 1980s brought major changes to the Sauerland, a German area with a low mountain range. For centuries this region had lived off metal processing, but at that time, those middle-sized enterprises switched to synthetics. Consequently they needed a vast technological input they were not able to supply by themselves. “These firms were committed to innovation but needed support”, says Professor Wulf Fischer, who at that time was the rector of the University of Applied Sciences in Iserlohn. “They approached our university and sought for a way to cooperate with us.” For a single one of those enterprises, the costs for technological research would have been beyond its possibilities, but together they were able to fund the first Associated Institute at a University of Applied sciences in the German federal state of North Rhine-Westphalia: The “Institute for synthetics for the middle-size industry of North Rhine-Westphalia“ (KIMW).

“Associated Institutes are links between the science and the business world,” explains Professor Fischer. “They provide knowledge transfer and application-orientated research.” From a legal point of view Associated Institutes are not part of higher education institutions. As a matter of fact however, they are very closely related to them. To a certain extent they cooperate, for example as far as organization, staffing and facilities are concerned. The details of these arrangements are laid out in an individual contract of cooperation between the institute and the university. Since every institute is different – some are civil law companies, others registered societies – those contracts differ slightly, too. Some institutes come close to being part of the University, others are not even located nearby. According to the education and university policy of each German federal state, the legal base for those contracts also differs. In Germany, the federal government in Berlin only sets the legal frame for education and university policy. Each federal state then fills this frame individually.

The Associated Institutes’ task is to research in commercially relevant areas, within a spectrum ranging from applied research to market oriented product development. In recent years, a variety of cooperation involving such associated institutes have developed – within universities, between Associated institutes and with non-university institutions. They cooperate especially in research projects, Collaborative Research

Centre and transfer units, which are cooperation projects involving both scientists and applicants of their results and are aimed at a rapid transfer of innovative ideas into practical applications.

Both universities and the industry profit from these cooperation: The university gets third party funding for its application-oriented research, which it would not receive in other circumstances. “We regard Associated institutes as a convenient way of binding industry to research,” says Toni Wimmer, director of the public relations department at the RWTH Aachen University. This technically oriented university cooperates with ten Associated institutes.

In Aachen the experience with Associated Institutes goes back to the 1950s when the “German Wool Research Institute” was founded. Initially it carried out research on wool. In 1963 the first chemical synthesis of insulin was achieved at this institute. Nowadays its research has a broader focus: state-of-the-art materials in textile technology, biomaterials, macromolecular materials, functional polymers, surface chemistry and nanotechnology. The roots of some of the institutes associated with the University of Cologne even date as far back as the 1920s. In general, economically interesting fields of science such as technical, medical or economic branches are the typical domains for Associated institutes. Branches of humanities on the other hand are seldom their objects.

Another major advantage for the university is rather simple: Universities are subject to a number of restrictions an Associated institute is not. For example, German law prohibits universities from taking economic risks or even building up financial reserves. „But when an institute receives an order for a project from an enterprise, the enterprise does not pay before the university delivers“, says Professor Wulf Fischer. Thus, it is unable to finance the necessary research in advance. However, as a civil law company an Associated institute is able to do so.

Apart from the basic research universities usually do, they get access to fields of research not accessible to normal university institutes. To ensure scientific reflux from this research into the regular academic business, an Associated Institute’s director is at the same time Chair at one of the university’s regular institutes. “The researchers help to find solutions for the industry with highly qualified expertise and quickly put their industrial knowledge back into their teaching,” says Toni Wimmer, “As a result qualification is closely linked to practice.”

Furthermore the university’s rector is head of the Supervisory board, which controls the work of the associated institute. According to the German Rectors’ Conference

(GRC), the voluntary association of universities and other institutions of higher education in Germany, the universities have to make sure that Associated Institutes fulfill scientific tasks, safeguard their independence and do not compete with interests of the university they are associated with. The GRC represents the interests of the institutions of higher education in science and education policy.

The industry on the other hand is able to direct the research according to its needs and interests. Companies can define project aims and implement the research results directly in their business. Consequently the research is very application-oriented and fulfils the industry's needs.

Associated institutes are also attractive for students and post-graduates, since they provide the opportunity to qualify in application-orientated research. "Post-Graduates work on their thesis participating in concrete projects and at the same time use these projects as a starting point for their career since they get to know enterprises the institute works with as possible future employers," says Toni Wimmer from the RWTH University.

That is another reason why entrepreneurs in the Sauerland founded the KIMW: This region is not very attractive for young people. Especially the well-qualified likely leave for the big cities or regions with a softer climate. Via the Associated Institutes, companies offer students an opportunity to write their exam thesis while working for their business, thus attaching them and their knowledge to the region.

In one regard associated institutes are especially interesting for Universities of applied sciences: Since these institutions of higher education originally did not have the right to qualify post-graduates, they had a very small non-professorial teaching staff and few junior scientists. Universities of applied sciences were established in Germany in the early 1970s. They were based on preceding technical, economic or pedagogical institutions whose traditions they continued. In the early years they hardly did any research at all. Their major task was teaching. In some of the federal states, they were only allowed to research if it was directly related to their teaching.

Nowadays universities of applied sciences are becoming more and more important in application-oriented research and development. They have two advantages: They focus on practice and are well integrated in their specific region. These facts make them important links between science and industry. Especially small and medium-sized enterprises without research and development departments of their own find them to be valuable partners. The growing significance of these institutions in application-oriented research and development projects has also enhanced their role in

qualification. Associated Institutes play an important role in this development.

However, some experts have already spotted a reverse development concerning Associated Institutes. “During the last few years the criteria for rankings have changed,” says Professor Wulf Fischer; “Economic factors have become more important when it comes to evaluating the success of a university.” The struggle for public funding has become more competitive. That is the reason Fischer has not yet established any Associated Institutes at the University of Applied Sciences Bonn-Rhein-Sieg, which was founded in 1995. Fischer fears that the research and development of an Associated Institute, its third party funding, inventions and patents would not be counted as the young university's results and thus be omitted when it comes to evaluating its performance. Another reason is that in the Bonn region, middle-sized enterprises are found less frequently. Bigger enterprises are more easily able to fund research-projects on their own. But Professor Fischer does not strictly rule out Associated Institutes: “If for any reason there were no other way to get a certain kind of funding but to set up an associated institute, I would of course set one up.”

This development continues: Since public budgets grow smaller as a result of general economic difficulties, higher education institutions are forced to find new ways of funding their research. “We are supposed to qualify more students better and more quickly with less money,” says Professor Wulf Fischer. The legal frame for universities will be adapted in order to enhance quality in science and research, promote more competition in this sector and intensify its international orientation. According to Professor Fischer, the government is currently planning to allow more responsibility and more economic venture. In the short run universities will be allowed to be partners of incorporated companies. “Then our experience with the associated institutes will turn out as a good training.”