Aarhus University and the University of Edinburgh
Excellence in European Doctoral Education (ExEDE)

Case study

Title: Industrial PhD Program

What was done:
An industrial PhD project is a three-year industrially focused project where the PhD student is hired by a company at the same time as being enrolled at a university. Thus, the project is constituted by three parties: a university, an Industrial PhD student and additionally a private company. In this regard, the PhD student is not both enrolled and employed by the university at the same time as in the traditional PhD, but the PhD student is meant to split working time between the company and the university.

The project is economically based on a subsidy from The Danish Agency for Science, Technology and Innovation that covers the wage given to the PhD student by a private company. This wage constitutes about 30-50 percent of the Industrial PhD's total salary. The project was started in 1971 but in 1988 it was changed to allow students to qualify for a doctorate degree upon graduation. In this way, it was formed to correspond to Danish PhD regulations, so that graduates from the Industrial PhD project were also considered a formal PhD graduate.

Links to:

- Employer engagement, including employers not traditionally associated with the recruitment of doctoral graduates

Motivation and aims:
The purpose of the Industrial PhD project is to strengthen the link between the research field and the employment sectors outside of academia. By dividing working hours between the university and the company the student will be aware of his or her training skills targeted towards employment outside of academia already before graduation.

Lessons learnt:

- **Scope and profile of the Industrial PhD students:** In 2010 676 persons completed an Industrial PhD Education. Of these persons only 5 percent graduated from Aarhus University. The vast majority of the total number of Industrial PhD students graduated from Technical University of Denmark (44 percent). This is not surprising as 54 percent of all persons who completed the Industrial PhD project in 2010 did so in technical sciences. In comparison, the second most common field of study is medical sciences counting for 19 percent of the group. Only 1 percent of these students were represented by humanities.

- **Employment and income:** A recent report by The Danish Agency for Science, Technology and Innovation, "The Effect of the Industrial PhD Programme on Employment and Income", shows a number of positive outcomes of the Industrial PhD project. First of all, employment among graduated Industrial PhDs is high ranging between 95-99 percent. It is worth noting that Industrial PhDs are typically employed in industrial and business sectors, while most traditional PhDs are employed in public administration. Furthermore, Industrial PhDs earn significantly more (DKK 38,778 more per year on average) than traditional PhDs.

- **Pressure of expectations:** There is also a flip side of the coin when it comes to the Industrial

PhDs being enrolled one place and employed in another. Several Industrial PhD students have experienced conflicting expectations; on one side from the supervisor at the university who wants the PhD student to put the most effort on the research program, and on the other side from the private company who wants the student to spend the most time working at the company. Thus, a better coordination of the opposing expectations in order to reach a compromise could possibly help make the process more desirable.
Scalability and transferability: The basic idea of the Industrial PhD project can be transferred to other countries, but there is an important challenge in adding the third party, a private company, to a PhD programme, because this demands an economic base to finance the wages and in this way keep companies interested in hiring PhD students.
Further information: http://fivu.dk/en/research-and-innovation/funding-programmes-for-research-and-innovation/find-danish-funding-programmes/postgraduates-in-the-private-sector/industrial-phd?set_language=en&cl=en http://fivu.dk/en/publications/2013/files-2013/the_effect_of_the_industrial_phd_programme_on_employment_and_income_v4.pdf
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Date: November 2013

Work package titles and themes:

- International dimensions to examination, supervision and the doctoral experience
- Design and development of a doctoral supplement to cover broader activities, training and experiences with a particular focus on employability & mobility
- Employer engagement, including employers not traditionally associated with the recruitment of doctoral graduates
- Approaches to training and support for doctoral candidates and supervisors
- Dissemination and promotion

Note for authors:

These case studies will be made publically available via the project website and may be included in future project publications and reports (printed and online).

Project website: www.doctoralexcellence.dk

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