INDUSTRIAL RESEARCHER

A CLOSE COLLABORATION BETWEEN COMPANY AND UNIVERSITY
“As a university PhD supervisor, I believe that a collaboration with a company on an industrial PhD project can be a good way of getting a long-term partnership started, as well as advancing the results of previous collaborative projects. For companies, an industrial PhD has the major advantage that the PhD student is employed by the company, which makes it easy to clarify rights to new research results. In my view, the industrial PhD scheme is a unique opportunity for collaboration which does not exist in many countries.”

Professor Peter Gorm Larsen, Department of Engineering, Aarhus University – Industrial PhD collaborations with companies including Terma A/S and AGCO A/S

“It’s an educational experience to participate in projects with multiple stakeholders, as it requires mutual understanding of the interests of all parties. However, it’s also a fruitful process which equips the intermediary – industrial PhD students – for the future, because they acquire the ballast of insight and experience from both worlds.”

Associate Professor Mette Hansen, Department of Public Health, Aarhus University – Industrial PhD collaboration with Arla Foods Ingredients Group P/S
NOVO NORDISK
"The industrial PhD scheme provides opportunities for a closer collaboration with some of the best research teams at Aarhus University which are relevant for Novo Nordisk. Partnerships like this, with leading research institutions – and through them, the training of talented young researchers – is absolutely central for Novo Nordisk’s ability to drive innovation and creativity in the future."

Senior Vice President, Global Research Peter Kurtzhals, Novo Nordisk

ARLA FOODS INGREDIENTS GROUP P/S
“I see being part of an industrial PhD project as a major advantage for the company – it makes close contact and knowledge exchange between the university and the company possible. At the same time, the PhD student gets the opportunity to get an impression of two very different knowledge cultures and the challenge of navigating between them, and I see that as a great strength in a future career.”

Nutrition Research Scientist, MSc, PhD Ulla Ramer Mikkelsen, Health & Performance Nutrition, Arla Foods Ingredients Group P/S

UNISENSE A/S
"The industrial PhD scheme is an important element in our collaboration with AU. Being employed by the company is important to the student’s understanding of the company’s goals and visions – and to ensure that the focus of the project is in alignment with them. In this sense, an industrial PhD project creates a natural framework for a long-term collaboration between skilled researchers at AU and our company."

Chief Technology Officer, PhD Søren Porsgaard, Unisense A/S
The Industrial PhD – A Value-Creating Collaboration

An industrial PhD project in collaboration with Aarhus University is an exciting opportunity for a close, focused collaboration between development-oriented companies and excellent research programmes at the university.

Under the scheme, companies can apply to Innovation Fund Denmark for funding to employ an industrial PhD student to carry out a three-year research project of relevance to the company while completing a high-quality three-year PhD programme at Aarhus University.

An industrial PhD project contributes bottom-line value, knowledge and growth to the company, while also providing access to leading research groups, state-of-the-art facilities and relevant knowledge at Aarhus University.

EMPLOYMENT, ENROLMENT AND PROJECT TIME

The industrial PhD student is employed by the company and enrolled in a graduate school at Aarhus University. The student divides his or her working hours between the company and the university, and spends all of this time working on the project and the PhD programme in both locations.

SUPERVISORS

A main supervisor at the university is assigned to the project, in addition to a supervisor and co-supervisor at the company.

An industrial PhD research project provides:

• Close collaboration. Because the project is strongly anchored in both partner institutions, both achieve maximum return on their research investment.
• A solid foundation for the development of new collaborative relationships or for strengthening existing ones.
• A fertile ground for new research which will ensure continued innovation and development.
GRANTS

To the company
Innovation Fund Denmark provides grants which finance up to DKK 17,000/mo. of the industrial PhD student’s salary for three years. The company can also apply for DKK 100,000 to cover costs related to the PhD student’s research stays abroad, conference participation and PhD courses outside his or her home university.

Companies and organisations from the public and private sectors can apply under the scheme.

To the university
Innovation Fund Denmark provides the following grants (inclusive of overheads) for the three-year period:
- DKK 360,000 for a project within the technical sciences, natural sciences, agriculture, veterinary medicine or health sciences
- DKK 252,000 for a project within the humanities or social sciences

APPLICATION PROCEDURE

Two separate applications must be made:
- The company applies to Innovation Fund Denmark
- The industrial PhD programme candidate applies for admission to the graduate school
Conceptual Framework

Recent economists have become interested in the following institutional explanations for the modeling of human capital. In his [1982] model of the development of health capital, health stock is often written as:

\[ H_t = (1 - \delta) H_{t-1} + l_t \]

where \( I_t \) represents investments in human capital, \( H_t \) represents the health stock at time \( t \), and \( l_t \) represents the change in health stock. This model builds in the "on-the-job" accumulation of health shocks. A subsequent model builds on the effects of all shocks on the health stock. The health capital must also distinguish between different types of shocks.

Smith (1999) observed, "How much work does health capital do that is not captured by the work on human capital?" Figure 1 shows how pervasive a shock is in health. Given an alternative way to express a change in health, the percent change in health is significant.
“An industrial PhD studentship provides you with insight into both the research-related and commercial aspects of an issue. This is a good point of departure if you’re interested in pursuing a career in research at the university or in industry. For this reason, it’s really rewarding to be part of a university research group while gaining insight into the potential for research outside the lab. I believe that an industrial PhD gives me a different and broader profile than other graduates of university PhD programmes, and I hope that it will enhance my future career opportunities.”

Industrial PhD candidate Mads Sørensen Larsen, Arla Foods Ingredients Group P/S and Department of Public Health, Aarhus University

“I didn’t just want to earn a PhD; I wanted to generate application-oriented and bottom-line enhancing knowledge for pork producers while maintaining a high level of scientific excellence. That is precisely what the industrial PhD collaboration between the Danish Agriculture and Food Council, the agriculture trade association, and Aarhus University, the world’s tenth-highest ranked university within Agricultural Science, has enabled me to do, thanks to funding from Innovation Fund Denmark.”

Industrial PhD candidate Camilla Kaae Højgaard, SEGES Husdyrinnovation, Danish Agriculture and Food Council and Department of Animal Science, Aarhus University

STUDENTS

INDUSTRIAL PHD
An industrial postdoc with Aarhus University is a unique opportunity for a close collaboration focused on concrete R&D projects at a company and strengthening collaborative relations between the industry and excellent researchers and research groups at Aarhus University.

**THE PROJECT**
- Is a commercially-oriented research project performed over one to three years
- Carried out at a company by a researcher who has earned his or her PhD degree within the past five years
- Must have a clear focus on the company’s commercial development

**APPLICATION PROCEDURE**
The company applies to Innovation Fund Denmark

**GRANTS**
Innovation Fund Denmark finances part of the postdoc’s salary and travel expenses at the company as well as the university’s expenses for mentoring, equipment and so on.

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**IF YOU HAVE QUESTIONS ABOUT THE INDUSTRIAL RESEARCHER SCHEME, PLEASE CONTACT THE FOLLOWING STAFF MEMBERS AT AARHUS UNIVERSITY:**

- **Faculty of Arts:** Anna Louise Dolan Plaskett, email: plaskett@au.dk
- **Aarhus BSS:** email: bss.hr@au.dk
- **Faculty of Health:** Henrik Scriver, email: hsc@au.dk
- **Faculty of Science and Technology:** Rikke J. Ljungmann, email: rjl@au.dk

More information about the industrial researcher scheme: innovationsfonden.dk/en/investment/industrial-researcher

More information about Aarhus University: au.dk/en/about/organisation/main-academic-areas

Photos, front and back pages: Lars Kruse