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Collaborate™

How a Mining Company Partners to Collaborate with an Institute

The Status

In today's highly competitive and open environment, the inter-organizational research collaboration has become more and more important for national innovation systems. We see a two way collaboration: industry-academic institute and industry- research institute. As the critical actors in the inter-organizational research collaboration are expected to become the engines of economic development and competitiveness by promoting knowledge creation and transfer in their inter-organizational research collaboration with industries and/or universities. In fact, the roles and functions that research institutes play are different from those of universities and industries in national innovation systems. Specifically, the research institutes usually devote efforts on cutting-edge research in Science and Technology (S&T) field and are committed to serving the major national S&T needs, the universities are the major educational and training institutions, and the industry sector focuses efforts on providing services and products by S&T. These differences in their roles and function indicate the necessity of interactions among them for complementary advantages. Thus, more and more innovative organizations have deemed this collaboration as an important way for

enhancing their innovative competitiveness. At the same time, the Industry-University-Research Institute (IUR) collaboration has been deemed as a key strategy and approach for improving national innovative capability in many countries.

Sustainable Development Goals

In order to increase these collaborations and achieve the world's 2030 agenda for sustainable development, some countries develop subsidies in this domain and try to involve companies, public research institutions, and end-users with various compensations. With more subsidies, companies can use smart devices to reduce product repetitiveness when designing their products. They can also use environmentally-friendly raw materials to reduce negative environmental impacts during production and creative online promotion to reduce carbon emissions during sales. With increasing governmental awareness of sustainable innovation and development, consumers are more willing to purchase environmentally-friendly products at higher prices. This has further prompted members in university-industry collaboration to increasingly focus on producing and selling products.

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Subsidies play an important role especially for financially-constrained innovative and otherwise focused companies. In many cases, such research can prompt opening up of new divisions, may read startup for a company that does not have time and resources to invest as for now. Subsidies generate between 40 and 150% of additional R&D spending. The social benefits of subsidies outweigh their cost. Moreover, some studies have found this type of subsidy provides a better environment to enhance company growth and job creation. Government plays an indispensable role in implementing university-industry collaboration.

The Challenges

The university culture is characterized by its public mission, focus on publications, theory building, open access to knowledge, and knowledge transfer through education. Industry culture is characterized by creating value for shareholders, practical or applied research leading to new product or service development, and protecting new knowledge. Both organizations also have common cultural attributes that include a desire to impact wider society, a focus on science and technology and the need to openly innovate with others to tackle complex challenges, competition and building stewardship.

There are several vital challenges for successfully managing these collaborations. These challenges are divided into three categories:

- a. Management of research work (e.g., uncertainty about working methods, measurement of project performance, the balance between creative freedom and control);
- b. Collaboration of heterogeneous project partners (e.g., diversity of individuals, multiple, contradictory stakeholder expectations, the geographic distance of project staff) and;
- c. Role and skill set of a project manager (e.g., the limited authority of project manager and knowledge gap with individual researchers, diversity of coordinator function);
- d. Mutual trust and respect, setting common goal, senior management commitment, effective communication, stakeholder engagement, good leadership, interpersonal teamwork, qualified and skilled teams, flexibility and adaptability, appropriate methodology

for program and project management, regular monitoring and Control, and risk management.

Vital to tackle the challenges are to get into a relationship based on standard sets of procedure like finance, commitment, sharing output and credit, and a proper accounting to the valuation of the experience.



Figure 1. Birgitta Bergvall-Kåreborn, Vice-Chancellor of Luleå University of Technology, Sweden and Jan Moström, President and CEO of LKAB.

How LKAB and Luleå University of Technology coming together

LKAB is an international mining and minerals group that offers sustainable iron ore, minerals, and special products. We have a leading role in the transformation of the iron and steel industry and our plan is to develop carbon dioxide-free processes and products until the year 2045. Since 1890, we have developed through unique innovations and technology solutions and are driven forward by more than 4,500 employees in 12 countries. The LKAB Group had sales of approximately SEK 34 billion by 2020.

Luleå University of Technology (LTU popularly) has world-leading expertise in several areas and conducts research in close collaboration with companies such as LKAB, Ericsson, Boliden, ABB, Epiroc, and international universities. It is a strong mining university, where the Center for Advanced Mining and Metallurgy (CAMM) is the core of Swedish mining research. In recent years, the University also has made major research investments in SUN - natural resources for sustainable social transformation - and CH2ESS, hydrogen use in industrial

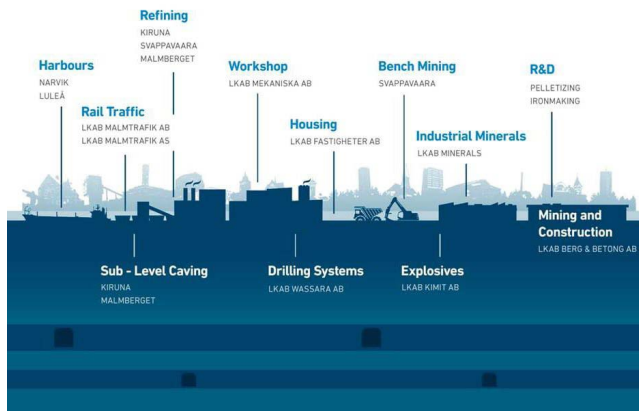


Figure 2. LKAB's portfolio of activities.



Figure 3. LTU brings in decadal experience of working with various agencies in competitive timeline and targets.

processes and energy systems. It has a turnover of SEK 1.8 billion per year, 1,770 employees and 17,200 students.

The Realization

LKAB is facing the most radical change in the company's 130-year history. A transformation that may be the largest industrial investment to date in Sweden and that creates unique opportunities for Swedish industry to take the lead in a necessary global transformation. The strategy places great demands on pioneering technological development for mining and refining iron ore, extraction of critical minerals, production of renewable energy as well as training and recruitment of new employees.

"Luleå University of Technology has long been an extremely important hub for our technology development and recruiting the expertise required for high-tech mining. By investing in this foundation, we want to contribute to strengthening the university as a centre for research and education of skilled labour that is crucial for us to succeed with the future investments that are now planned in northern Sweden," says Jan Moström, President and CEO of LKAB.

The Donation

LKAB donated SEK 200 million to a recently formed foundation with the aim of promoting research and education related to sustainable mining at Luleå University of Technology. The aim of the new foundation is to promote scientific research and education conducted at Luleå University of Technology in subject areas related to the mining and minerals industry. The foundation will also foster transformation, competitiveness, and growth of the mineral industry in northern Sweden.

"The new foundation shows LKAB's long-term commitment to strengthen research and education in the region, and thereby is a driver of transformation required for Sweden to reach the sustainability goals. This investment will have a tremendous impact, not only for the university but for the whole region. I'm proud that northern Sweden has these attractive companies that lead both technological development and sustainable renewal of their industry," says Birgitta Bergvall-Kåreborn, Vice-Chancellor of Luleå University of Technology, and continues: "The donation will also strengthen our position as the foremost mining university in Sweden and Europe."

References

1. Retrieved from: <https://www.lkab.com/en/news-room/press-releases/new-foundation-for-sustainable-transformation-of-the-mining-industry/?aid=16447>