The Norwegian University of Technology and Science is working to bridge the gap between research and commercialisation, as Sondre Jacobsen writes

Building a foundation

Pioneering new technology drives the progress towards a cleaner environment and a sustainable future. Universities around the world represent many of the major achievements and advances in clean technology by performing the basic research that is the all-important foundation of applied research. But the transition from university, basic research and concepts to profitable business is difficult and littered with failures.

Failures are in many cases attributed to a few main factors:
1) Underestimating the required research and development time;

2) Not understanding the market demands; and

3) Insufficient funding to handle the two points above.

How can this be solved? How does the Norwegian University of Technology and Science in Trondheim work to avoid these factors?

Early termination of unfeasible innovation projects frees resources to focus on other commercially viable R&D projects.

At the Norwegian University of Science and Technology, commercialisation of basic and applied research is planned together with experienced project managers situated at the university's Technology Transfer office. Their main task is to identify the necessary steps in the research and development (R&D) process and associate every step with a clear milestone and handling of intellectual property (IP) rights. The milestones represent a decision point on whether the project should continue or be terminated. Sometimes the project staff will discover that the R&D requirements will exceed the available funding, rendering the process unfeasible.

Having achieved a solid grip on the R&D process, it is closely correlated to the market demands. Some stakeholders expect and demand incremental innovation. Risk adverse industries will have professionals that are used to a certain regime of technology where incremental innovation is preferred. When a disruptive technology is introduced, skilled personnel may refuse to take the risk and decide to stick to 'business as usual'. It is not uncommon to be met with the demand of several years operational time before a tech purchase is possible. In a sense, achieving operation time is a part of the R&D process. If the R&D project plan and milestones do not reflect this, the result may be a developed product, but without a market and without sufficient funding.

Special model

Disruptive innovation requires that knowledge, experience and funding is handled in an holistic way in order to succeed. The special model employed at the Department of Energy and Process Engineering at NTNU allows private companies to access labs at lower rates when the goal is to perform innovative research projects with commercial potential, environmental impact and publication opportunities. To further motivate this partnership model, the Norwegian Research Council provides additional funding of up to 50% of the market value of the lab access. This funding goes directly to the company and is spent on the project, reducing the financial load. In return, ownership of all equipment and lab investments are transferred to the university when the project is completed.

Sondre Jacobsen (CEO InnSep AS, far left) in the NTNU laboratories discussing the challenges of bridging the gap between basic research and commercial applications of clean technology

Success is not in the result itself, but in what the process generates

The company completes the partnership with a stake in the generated IP and the valuable knowledge necessary to succeed with the technology. The university retains the lab and equipment and can continue to perform experiments and research in related areas. Departments that generate one technology most likely have several more 'up their sleeves'. This enables the researchers to fast-track from basic to innovation research without having to spend time and resources writing funding applications for every experiment. The result is an increased output of clean technology that can potentially be commercialised. Regardless of whether the first innovation succeeds commercially or not, it has paved the way for other, better innovations to be invented and tested in the labs.

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www.innsep.com

For NTNU Technology Transfer AS, see:
www.tto.ntnu.no