Case Study 13.4. The commercialization process at Aalto University

CRITICAL AREA OF FOCUS 4: "Securing TTO staff skills and organising the TTO for optimum growth"
BEST PRACTICE FOR: "Recruiting TT Talents" and "Organizing the process for growth"
AIMED AT: TTOs **TTO**: Aalto Centre for Entrepreneurship (ACE)
UNIVERSITY: Aalto University (Finland)

The context:

Aalto University was established in 2010 from the merger of three leading universities in Finland: Helsinki University of Technology, Helsinki School of Economics, and University of Art and Design Helsinki. The aim was to create an innovative university that could enhance cross-disciplinary research and successfully commercialize its technologies. It has over 20,000 students, 5,000 staff members and 380 professors. The university has six schools: Art, Design, and Architecture; Business; Chemical Technology; Electrical Engineering; Engineering; Science. Established in 2010, the Aalto Center for Entrepreneurship (ACE) acts as a technology transfer unit of Aalto University. It supports transfer and commercialization of research that originates in Aalto University, mainly throughout new ventures and licensing deals with industry partners. As of 2016, it employs 18 people, who work on 4 main areas: Innovation services (i.e. patenting and licensing); Accelerator and Incubator; Faculty Entrepreneurship; Student Entrepreneurship.

The problem:

The predecessor of ACE was the Otaniemi International Innovation Centre (OIIC) at the Helsinki University of Technology (TKK) established 1998, which acted as a technology transfer office (TTO) for the University. The OIIC was primarily focused on patenting activities and licensing technologies to medium and large companies, and not very much to smaller companies. The creation of spinout companies was not considered as an important commercialization route for the OIIC. One key driver for establishing Aalto University was to accelerate the path towards an entrepreneurial university with a major focus on contributing to economic development and innovation.

To reflect this ambition, it was necessary to change the existing OIIC and expand its role to cover other kinds of activities as well, such as catalyzing and incubating new ideas and approaches, as well as initiatives related to entrepreneurship and innovation.

The solution:

ACE was established in 2010, on the basis of the previous OIIC, to reflect this ambition. Rather than focusing only on the patent protection process, ACE has concentrated on exploiting the commercial potential of invention disclosures from the very beginning. The priority has been to identify commercially attractive inventions, develop potential business cases and choose the most suitable technology commercialization approach, i.e. to decide whether to purely license the technology or to build a spinout company from it. In order to reach this goal, it was necessary to redefine the internal commercialization process as well as to empower the skill set available inside ACE.

As far as the commercialization process is concerned, ACE developed a stage-gate process, which is divided into three main phases according to its last version (as reported in Figure 1): Evaluation & concept definition; Concept Development; Transfer and follow-up.

The process starts when ACE receives an invention disclosure from researchers or a business idea from students of Aalto University through a dedicated electronic web-based platform. After that, ACE assigns the invention disclosure or business idea to an internal specialist of that specific technological area in order to process it further. There are 6 technology transfer managers inside ACE, each responsible for one of the 6 schools of Aalto University.

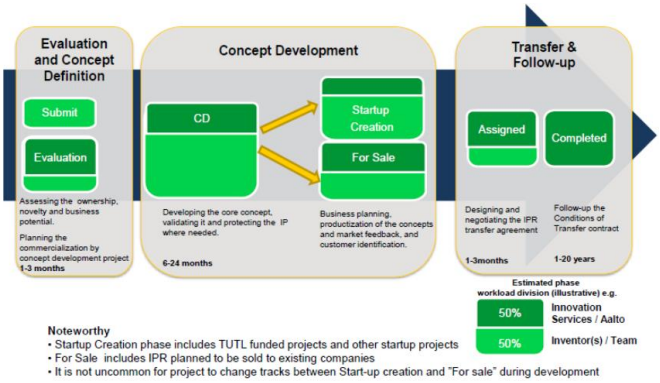
This project has received funding from the European Union's Horizon 2020 research and innovation programme and Euratom research and training programme 2014-2018 under grant agreement No 643486.

Yet, due to differences in the number of invention disclosures from different schools, the cases are sometimes assigned to technology transfer managers responsible for other schools to balance the use of resources. As part of the evaluation process, ACE first organises an initial 1-2 hour meeting with the inventors to verify information filled out in the disclosure form, to discuss the background, and clarify other unclear issues. Then ACE specialists and the inventors undertake additional clarification and background works. During this phase, ACE specialists, together with academic inventors/entrepreneurs, focus on understanding and assessing the commercial potential of the disclosed invention or business idea. The final decision on whether to proceed with patenting and commercialization activities develops around gate meetings, held on a weekly basis upon proposition by technology transfer managers. The decision making body involves the Head of ACE, the operations manager and the head of the sales team.

If the case is approved at the gate meeting, it moves to the concept development phase. This consists of developing a concept both technically and commercially. The concept development phase has different paths that depend on the selected technology commercialization mode, either technology licensing or spinout creation. In most cases, drafting and filing a patent application is an early stage of the concept development phase. The development of the business case is primarily the responsibility of the ACE team. For this reason, ACE has been reinforcing its competencies in the areas of business development and spinout creation. Upon development, the business case is validated on the basis of external experts' feedbacks. At this stage, the IP is created or additionally protected, if necessary. ACE has its own internal budget for patenting and technology commercialization activities. In 2014, the patenting budget was around €329,000 and the Research Commercialization Funding (RCF) budget was around €400,000. During the concept development phase, ACE may use the RCF budget to build a prototype or a demo of technology. ACE may also spend this fund for market analysis by buying a market report or hiring an external consultant/expert to conduct the analysis. The use of RCF varies a lot from case to case.

Finally, the transfer and follow-up phase is the final stage of the process, involving legal arrangements needed for licensing agreement or spinout creation. ACE usually takes the highest share of the workload, focusing on the successful handover of assets to either the new spinout company or the licensee. The goal is to ensure mutually beneficial commercialization terms and conditions for Aalto University, inventors, and industry partners.

Figure 1. Aalto University research commercialization steps and work division



Source: Aalto Center for Entrepreneurship (www.ace.aalto.fi), 2016.

Considering the competencies and expertise of its staff, ACE has a mix of people with different profiles and skills, employing both technology transfer experts and business developers. This is a fundamental requirement for ACE to reach its goal to serve the newly established Aalto University. In the earlier years, there was a strong focus on technology, thus on technological staff competencies, which translated into hiring a lot of people holding PhD degrees. More recently, business competencies also acquired importance in ACE strategy. Therefore, at present, some technology transfer managers hold PhD degrees in their respective technological areas, whereas some others have a startup and industry background. The latter have business development capabilities and provide opportunities for networking in the innovation eco-system. For instance, our contact person at ACE, Mr. Tapio Siik, has a background in industry and venture capital. A software engineer by education, he has worked for Nokia for around 17 years holding various job positions. Later, he was a key member inside Nokia venture capital teams, working as a venture consultant and a general partner.

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Alignment to PROGRESS-TT:

This case is a good illustration of the "Recruiting TT Talents" and "Organizing the process for growth", Best Practice in PROGRESS-TT Critical Area of Focus 4 "Securing TTO staff skills and organising the TTO for optimum growth".

As of 2014, 145 invention disclosures were filed, 30 patent applications were filed and 6 new companies were established by researchers and students. A joint AppCampus project in collaboration with Nokia and Microsoft approved 187 funding grants. Aalto University funding for patenting was around 325 thousand Euros and funding for evaluation and concept development was 500 thousand Euros. Aalto research commercialisation also received 21,6 million Euros in 2013 from industry through joint research funding. These figures suggest that ACE has been successful so far in implementing its mission to serve an innovative institution like Aalto University.

ACE and Aalto University represent a very interesting case for three peculiarities that characterize its internal organisation and the research commercialization process. Firstly, ACE is fully embedded into the local innovation eco-system of Aalto University, where several actors carry out their activities around Aalto University. In particular, ACE underwent a transition from basic technology transfer work to a more entrepreneurial approach, and it is now the actor with the highest commitment to entrepreneurship, supported by Aalto University's clear institutional strategy towards innovation and economic development. ACE itself was established with a startup mindset, as well as with a strong focus on experimentation and flexibility. Secondly, it is worth highlighting that the commercialisation process follows a well-defined stage-gate process, where key-decisions are taken in following rounds, in order to deal with the major uncertainties that characterize technology commercialization. Key decisions in this process are also taken by a team of various experts (internal and external to ACE), based on maturation and validation work carried out by inventors/entrepreneurs in collaboration with ACE technology transfer managers.

The technology transfer professionals from ACE thus work together with researchers, inventors, students and other actors in the Aalto innovation eco-system to reach mutually beneficial commercialization outcomes for Aalto University, inventors, and industry partners. With this respect, it should be taken into account that this well-designed process is driven by people with their own skills and approach to TT (e.g. entrepreneurial leadership, soft skills, commitment, passion), thus showing that the process itself may not suffice unless adequately supported by people's effort. Thirdly, due to the heterogeneity of research activities carried out in the six schools inside Aalto University, ACE has successfully created a rich multidimensional skills' mix, hiring personnel that spans from people with a stronger scientific background to business people coming from industry or the startup community.

Original from [Aalto University] Original release of [07 28 2016]. Last revised, [07 28 2016].
Published by PROGRESS-TT,

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