



PREPARING & SUPPORTING ENTREPRENEURS

INSPIRING EXAMPLES FROM
TWO HUNGARIAN HIGHER
EDUCATION INSTITUTIONS



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Introduction

This case study provides insights on how two of the oldest universities in Hungary have put entrepreneurship and innovation at the core of their strategy and how they prepare and support their future entrepreneurs. The case study starts with a brief overview on the University of Debrecen followed by a short introduction on Semmelweis University and the Innovation Centre at the core of its entrepreneurial activities. Both university descriptions will be supplemented with information about the Technology Transfer Offices that define the main focus of their innovation efforts.

The **University of Debrecen** is the oldest continuously operating higher education institution in Hungary, dating back to 1538. The once Calvinist College was transformed into a university in 1912, supplementing its theological, art and law faculties with a medical school. The University now has fourteen faculties. The University is nowadays one of five research universities in Hungary. With 27,000 students, it is also one of the largest in Hungary. The main priority research areas in the University include healthcare, pharmaceuticals, food sciences, natural sciences, sport sciences, electronics and informatics. The University offers complete English language studies in General Medicine, Pharmacy, Dentistry as well as Natural Sciences, Information Technology, Engineering, Arts, Economics and Business Administration.

The University of Debrecen has 23 doctoral schools covering six science fields offering 67 doctoral programs. In 2017, the University employed 1,700 academic staff. The ratio of qualified teachers and researchers is over 70%, which places the University at the forefront of Hungarian universities. Broad research infrastructure supports the high quality R&D work, conducted by over 200 research groups in labs across the fourteen faculties.

Semmelweis University was founded in 1769, which makes it the oldest medical university in Hungary. It has five faculties: Dentistry, Health and Public Services, Health Science, Medicine and Pharmacy and a School of PhD Studies. Alongside programmes in Hungarian, it also offers programmes in English, German, Italian and Slovak. With its 27 clinics and nearly 8,000 employees, Semmelweis is one of Hungary's largest health care providers covering 6% of the entire population's health care needs, which translates to around 2.3 million cases per year. Clinical work is carried out in close cooperation with education and research. While maintaining traditions and good practices, Semmelweis University tries to remain at the forefront in terms of innovation and new opportunities for its students, researchers, and business partners.

In order to maintain strong links among the triad of education, healthcare and research and put a further emphasis on the crucial role innovation plays in maintaining and reinvigorating these links, Semmelweis University established the Semmelweis Innovation Centre in July 2013.¹ The Centre's main objective is to offer examples of existing good practice whilst establishing a solid base for innovative processes. The Centre acts as a point of contact for businesses and assists researchers in the creation and implementation of their business plan.

At Semmelweis University, the Technology Transfer Office helps researchers to start their own business through a range of support activities. It helps and promotes spin-off creation, gives assistance with intellectual property rights protection e.g. patenting and licencing, and advice about marketing solutions. Based on researchers' needs the TTO also provides suitable solutions to ensure that the ideas are supported to make the most out of their innovative potential for the benefit of both the researchers and the University.

The HEI increases awareness of the value of entrepreneurship and stimulates the entrepreneurial intentions of students, graduates and staff to start-up a business or venture

Increasing awareness of the value and importance of developing entrepreneurial competences and skills among staff and students is necessary for HEIs to become more entrepreneurial and innovative. It is also important to go beyond awareness raising by stimulating interest in

¹ <http://semmelweis.hu/english/research/innovation-centre/>

entrepreneurship and entrepreneurial intentions. One method is to showcase success stories from local youth entrepreneurs.

Semmelweis University has different support and reward structures in place to raise its students awareness about innovation and to stimulate entrepreneurial actions. The Innovation Centre at the University promotes entrepreneurship among its students and staff by organising showcase events and creating opportunities for stakeholder networking. The Innovation Centre offers some incentives that support innovation and entrepreneurship. Every year the Centre awards various prizes to students, rewarding for example the most innovative Scientific Students' Associations work, the most innovative PhD work, the most innovative research work or the most innovative clinical research work.

The Centre also promotes the Semmelweis Innovation Award which is awarded on the Semmelweis Innovation Day. The aim of the Award is to popularise the innovative scientific results of students and researchers from Semmelweis and to present the inventions to a broader scientific and business community to facilitate the exploitation of given intellectual properties and to connect the inventors with business representatives. On the day the winners give a short pitch about their inventions after being reviewed by assessors. Successful spin-offs and start-ups from the field of biotechnology and life sciences are also presented on Semmelweis Innovation Day. Students have the opportunity to meet company representatives who speak about their own pathway from idea through research to the successful exploitation of the invention. Prosperous spin-offs and larger companies exhibit during the event, which also acts as a platform for networking between academic and business representatives.

In addition, as part of the curricula for the bachelor programmes, the Healthcare Management facultative course is organised every semester. The course shares knowledge about entrepreneurial aspects of the healthcare system; healthcare students therefore have the opportunity to gather some insights on how to apply their knowledge and technical know-how in an entrepreneurial manner. This course sets a precedent for innovation in the University and establishes a base for entrepreneurship that other faculties can emulate.

The HEI supports its students, graduates and staff to move from idea generation to business creation

Entrepreneurial and innovative HEIs offer support for network development to provide students with opportunities to interact with entrepreneurs. It is important for students to learn from people who have experienced a similar process and will be able to pass on knowledge about past failings and subsequent solutions to common problems in the innovation process. With the experience they have already gained in the field, entrepreneurs can help, guide and mentor students to move from idea generation to business creation.

The **University of Debrecen** supports entrepreneurial students in this way through the **Team Academy** programme at the Faculty of Economics and Business. Team Academy represents an inspiring and innovative new learning environment for business students. The basic learning principle of the Academy is 'learning by doing'. In Team Academy a team is defined as a group of students who study together: they define their learning and performance goals and are responsible for independent and group learning. The team is at the centre of the pedagogical process and instructs students in the art of collaboration, a skill necessary to succeed in any environment. The teams are also defined by their learning objective: all students belong not only to their home team but also to temporary teams- project teams formed for a specific purpose. The Team Academy thus offers students a practical instruction in skills required to become an entrepreneur.

Among the array of initiatives at the University of Debrecen regarding innovation, the Technology Transfer Office has recently established the **Student Innovation Network**. This network organizes events, including pitching events, for the students of the University. The Innovation Prize for students is also awarded at these events for the most innovative ideas students presented. By rewarding students' endeavours the University creates a supportive and nurturing environment for young innovators, where ideas can be expressed freely.

Training is offered to assist students, graduates and staff in starting, running and growing business

Both the University of Debrecen and Semmelweis University address the requirement of staff, students and graduates for comprehensive training to further their innovation aspirations. This training comes in a variety of forms and is fluid in nature to meet the varied needs of individual entrepreneurs.

For example, at the **University of Debrecen, Master classes** are offered to students which entail a 1-2-day training course for start-ups and spin offs. Experts come from all over the world to partake and offer expert advice about their own experiences. The Master classes also focus on innovative teaching models which prompt students to realign their mind-sets with an entrepreneurial outlook. The University is trying to offer more opportunities to students in terms of engagement with the industry sphere. The University's collaboration in clusters has led to the teachers learning how to deal with industry and consequently implementing changes in their teaching methods. The University thus establishes an entrepreneurial thematic base through employing such a variety of innovation focussed instruments across the board.

Students also have the opportunity of undertaking internships as part of their studies. The University of Debrecen has good links with companies in the surrounding areas and this relationship proves profitable to introducing students to business representatives. It is very common at the university to have joint scientific projects with companies – BSc and MSc students are often involved in these relationships. There are many labs sponsored by different companies – therefore the students get in contact with new technologies immediately. The partnership has clear benefits for both parties: both the company and students involved receive recognition for their involvement.

Students at the University of Debrecen's Faculty of Engineering have received recognition elsewhere for excelling in global innovation competitions. For instance, two teams from the University have entered into the Shell Eco-Marathon Europe competition, which tests innovations for energy efficiency. Almost all programmes run by the Faculty of Engineering are involved in such competitions, which have brought prestige for Debrecen in the past.

Mentoring and other forms of personal development are offered by experienced individuals from academia or industry

It is important for those established in any industry to pass on valuable knowledge useful to new entrepreneurs, start-ups and spin-offs. Establishing a mentor-mentee relationship is a proven method of passing on knowledge that will engender a stronger, more insightful and more commercially viable entrepreneurial attitude in students.

The **University of Debrecen** places high importance on building and maintaining cooperation with third parties. There is a need for regional companies to have better access to the research results and innovations of the University so that new investments to the region can be made. The Technology Transfer Office of the University (UD TTO) started its operation in 2005 and was among the first university TTOs in Hungary undertaking the promotion of innovation and the commercial exploitation of research results and spin-off companies.

A newly established department, the Innovation Ecosystem Centre (IEC) is responsible for raising awareness about entrepreneurship among students and staff through its initiatives. It provides wide-range innovation services and support to entrepreneurial students and staff with innovative ideas and provide guidance to move along the process towards business plans generation. The IEC is the point of reference for coaching, mentoring, supporting and helping entrepreneurs create a start-up

The University runs **dual training programmes**, which allow a student to complete the practical part of their course within a business. Through this process students are able to gain practical knowledge of the business operation whilst still studying for the theoretical part of their course at university. Dual training programmes are offered in the fields of engineering, informatics, agriculture, natural sciences and economics.

The University also operates a large number of off-site departments based externally within companies, which foster an innovative attitude in students. These educational units strengthen

the symbiotic nature of University and industry. Links between the research community and the educational space are developed by regular site visits, summer internships and general collaborative research. Faculties with off-site departments are: Faculty of Economics, Faculty of Agricultural and Food Sciences and Environmental Management, Faculty of Engineering, Faculty of Informatics and Faculty of Science and Technology.

The **Food Marketing Club** in Debrecen is another example that provides opportunities for students to engage with businesses, in this form through a mentoring programme. Created in 2014 at the Faculty of Economics and Business, it is one of the most attended and successful courses of the faculty. The objective of the club is to make the students familiar with the current marketing activities of industrial stakeholders. The course introduces students to experts in the field of food marketing to gather insights about their work. The club fits the term-time of the students with one presentation every four to six weeks. The team behind the Food Marketing Club sets up topics of interest to be discussed in the presentations. Based on outlined notions, the colleagues of the Institute of Marketing and Trade of the Faculty of Economics and Business help choose a specific topic alongside a professional with knowledge in that area. In this way, both students and staff collaborate with industry stakeholders.

At **Semmelweis University**, mentoring is available for enterprising students, who are given the opportunity to network with entrepreneurial alumni and business experts. Effective matching of student and graduate entrepreneurs with experienced entrepreneurs increases the business' chances of success and can help make other support services more effective. From a fruitful matching of university stakeholders, a network can generate successful long-term cooperation. In this way, the mentoring process proves beneficial for all participants involved.

The HEI facilitates access to financing for its entrepreneurs

Facilitating access to private financing, for student and staff entrepreneurs, is essential to help HEIs develop an entrepreneurial eco-system. Different approaches are used in HEIs and this is often determined by the local context and the nature of the relationships with the HEIs stakeholders.

The Technology Transfer Office at **Semmelweis University** is directly integrated in the Innovation Centre with a Grant Office for third party funding. There is a very good collaboration between these functional units for professional grant application services where all participants benefit from expertise and information: most calls prioritise and require innovation and exploitation to become integral part already during the application process and mostly projects with higher TRL (Technology Readiness Level) have realistic chances for being selected for support. On the other hand, technology transfer projects often need financial support in the form of third party funding in the beginning phases to bridge the financing gap before the first investments.

The Semmelweis Innovation Centre forms the backbone of innovation support at the University. Here, entrepreneurs have access to IP related services, which range from providing information and support for inventors, through to being able to develop an IP protection strategy with the involvement of external experts (e.g. patent attorneys) through to managing the organization's IP portfolio. Legal support is also provided for a broad range of issues related to technology transfer: negotiations, agreements, contracts. Proactive exploitation covers the services related to commercialization activities including strategy and business plan development. Though the Innovation Centre does not facilitate access to finance as such, it provides entrepreneurs with a valuable insight into the intricacies of operating within a financial IP framework.

The HEI offers or facilitates access to business incubation

An HEI needs to take into consideration its context and its key stakeholders when deciding upon a coherent implementation strategy of different models of incubation facilities. That goes to say, incubation facilities must reflect the make up of the specific HEI at which they are based. The University of Debrecen and Semmelweis University are among the HEIs that have such onsite facilities. They need to ensure that students are aware of the facilities available and that each student has access to the specific services that suit them.

The University of Debrecen, along with Semmelweis University, GE Healthcare, National Institute for Quality and Organizational Development in Healthcare and Medicines (GYEMSZI), are all members of Europe's largest co-operative partnership in healthcare research development and innovation. This consortium, financed by EIT Health KIC, promotes innovation in the fields of health research. As well as coordinating innovation competitions, the consortium train new enterprises and start-ups through a selection of incubator programmes. The **University of Debrecen** is currently planning an incubator programme, where its attendees have access to EIT KIC staff and can combine resources from different sources, including the clusters around the University.

The Industrial Park of the University of Debrecen is currently the only university industrial park in the country where besides research and development, consultancy and service activities, the practical side of teaching can also be presented. The Industrial Park also provides an opportunity for the establishment of an innovation platform of international significance.

The University is devoted to developing active links and partnerships between higher education and the business sector. It also strives to implement such solutions in the Industrial Park with the objective to provide a model and a solution for the challenges of innovation and management as well as local economic development.

The innovation-focused development of the park, managed by the University of Debrecen, representing a concentration of University and company investments, provides an opportunity for the development of production processes and products close to industrial production (prototypes). The University of Debrecen aims to implement development projects in the Industrial Park which could support its innovation efforts and technology transfer, traditional business incubation and the personal incubation of students (providing a solution for the practical employment of practice-intensive higher education programs). The Innovation Ecosystem Centre helps establish the bridge between teaching, research and the business sphere. It helps collaborations to flourish, test RDI ideas, investigation of the practical applicability of new research findings, and the introduction of young scholars into the practical aspects of their work.