EuroTech Universities
Excellence in Science and Technology

JUNE
2015

NURTURING THE ENTREPRENEURS OF TOMORROW - A Contribution of the EuroTech Universities Alliance

300
Number of Start-ups 2012-2014

225
Number of curricular courses fostering Entrepreneurship

>1000
Number of ECTS Credits on Offer in Entrepreneurial Education

61.989
Number of Bachelor and Master Students

>9100
Number of PhD Students

Facts & Figures

TU/e Technische Universiteit Eindhoven University of Technology

Technische Universität München

DTU

EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

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About the EuroTech Universities Alliance

The EuroTech Universities Alliance is a strategic partnership of four leading European universities of science and technology: Technical University of Denmark (DTU), Ecole Polytechnique Fédérale de Lausanne (EPFL), Eindhoven University of Technology (TU/e) and Technische Universität München (TUM).

Together, the EuroTech Universities are committed to finding technical solutions that address the major challenges of modern society. Our intensive collaboration across research, education, innovation and entrepreneurship supports the EU's goals of generating smart, sustainable and inclusive growth. With our engagement across the whole research and innovation cycle, the EuroTech Universities are at the forefront of both fostering excellent science as well as transforming newly generated knowledge into innovative products and services.

Each of the EuroTech Universities defines entrepreneurship as a strategic task and has dedicated resources to support entrepreneurship at different levels. The universities have strong entrepreneurship and innovation research groups that generate cutting-edge knowledge on key practices. Additionally, each university has its own entrepreneurship centre, which can implement this knowledge into practice and actionable results. Together, the EuroTech Universities cover the entire value chain from entrepreneurship and innovation-related knowledge generation, awareness-raising, education and training of students and scientists, to patent applications, international business development, and investment in start-ups. The results are evident – the EuroTech Universities jointly fostered the creation of more than 320 start-ups[1] in the period from 2012 to 2014.

The EuroTech Universities Alliance provides a unique framework to exchange and promote entrepreneurship activities across-borders, thereby offering the potential to achieve true synergies in supporting and achieving entrepreneurial outcomes. The inter-institutional collaboration not only contributes to an increase in the offer and critical mass of entrepreneurship activities, but also to new opportunities for our entrepreneurs to access wider expertise, networking and funding at international level. Regular exchanges between the universities allow for the exploitation of synergies and the development of novel joint approaches, which can be further promoted at the EU level. Finally, the Alliance's magazine TECHNOLOGIST, which covers the latest European news in Science and Technology and includes a dedicated start-ups section, is our contribution to promoting positive societal attitudes towards entrepreneurship careers.

1 It would be important to note that the definition of start-ups is not completely uniform across the Euro-Tech Universities. For instance, TUM just counts tech start-ups in their official statistics which implies that there could be many more start-ups than have been included in in this figure. Nevertheless, this figure illustrates that each of the EuroTech Universities plays an important role in fostering entrepreneurship and business creation.

TU/e Technische Universiteit Eindhoven University of Technology
Technische Universität München
DTU
EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

Setting the scene

The expectation to strengthen Europe's competitiveness has never been higher. In addition to ensuring sufficient investment in research and innovation, this calls for a continuously improved climate for entrepreneurship and job creation. The added value of entrepreneurship for society as a whole goes well beyond the creation of start-up companies. Broad entrepreneurial competences are needed to address the changing needs of society, to meet the expectations of the labour market and, ultimately, to empower the economy's capacity to innovate.

Entrepreneurship is the result of a combination of knowledge, skills and a mind-set that accompany a process of value creation in fulfilling a market need. In that sense, universities play a central role in nurturing entrepreneurship through knowledge creation (entrepreneurship and management research) and knowledge dissemination (entrepreneurship education and training), as well as hands-on support for young entrepreneurs (networking events, IP protection services, mentoring, etc.). At the same time, universities make an important contribution to promoting an entrepreneurial mind-set among students, scientists and employees. Universities thus have a challenging dual role – as incubators of entrepreneurial awareness and competences, as well as role models for promoting and implementing an improved entrepreneurial culture.

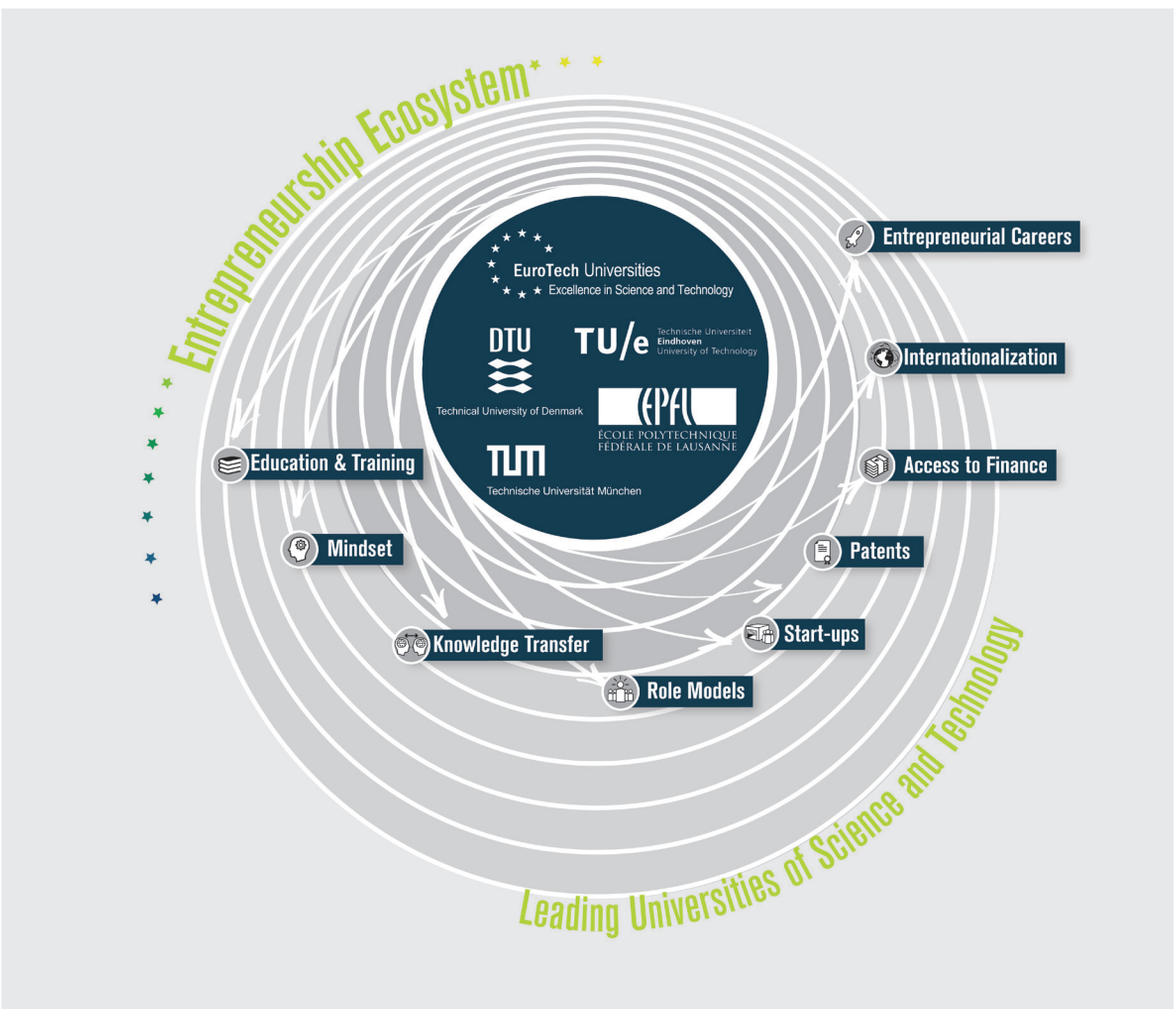
Leading Universities of Science and Technology are especially well positioned to fulfil this dual role. As part of our mission to address major societal challenges, we promote structures that allow interdisciplinarity to be deeply embedded in our universities. When such interdisciplinarity in technical sciences is further enriched through strong links with business and entrepreneurship experts, this creates the potential to: a) bridge the gap often found between technical invention and market innovation; and b) create scalable businesses that go beyond market innovation, and become sustainable employers of the future.

The EuroTech Universities are constantly reviewing the range of activities and processes that support students, scientists and employees in developing their own innovative ventures. This includes providing a favourable environment and framework conditions for developing creative ideas and seekingto attract the necessary funds to maximize the value of commercially viable interventions with both a strong technological and an international market potential.

This paper is organized according to four leading themes where universities can play a central role in nurturing entrepreneurship:

1. Laying the foundation through entrepreneurship education & training
2. Promoting Entrepreneurship culture & careers
3. Creating and supporting "born globals"
4. Facilitating access to finance

Each of these four sections highlights general challenges and the EuroTech Universities' most prominent activities. The paper concludes with some considerations on how universities can be further supported in their task of nurturing the entrepreneurs of tomorrow that Europe is calling for.



1. Laying the Foundations through Entrepreneurship Education and Training

The challenge

Recent years have witnessed a worldwide surge in political interest for entrepreneurship education and training (EET). At EU level, entrepreneurship has become one of the cornerstones of the Europe 2020 Strategy. Despite this increase in political attention, the potential of EET is not fully explored. Difficulties remain in assessing the impact of EET, where the hypothesis that "entrepreneurs are born and not made" continues to be debated.

At the same time, the vast majority of respondents to a recent internationally representative survey[i] report that entrepreneurship can effectively be taught. Moreover, numerous studies point to the positive impact of EET on the development of entrepreneurial intentions and skills[ii] , on increasing the capacity to generate innovative ideas[iii], as well as on career ambitions and increased employability. [iv][v]

Importantly, the impact of EET goes beyond the level of the individual. Evidence shows that EET is beneficial to the institution, the economy and society at large. Companies founded by EET alumni generally have a higher turnover, create more employment and tend to be at the forefront of modern technology.[vi] Investment into EET can therefore have strong and long-term pay-offs not only for individual careers, but also for the development of competitive economies.

The role of Universities

EET are key vehicles to increase entrepreneurial intentions and capacities and therefore underpin universities' key contributions to nurturing entrepreneurship. In addition to their educational offers, universities are leaders in entrepreneurship research. Universities are thus involved in the full life cycle of entrepreneurship, as both practitioners and assessors of the longer-term impact of education in the field.

A 2008 report prepared for the European Commission recommends "to systematically include entrepreneurship in scientific and technical studies to facilitate spin-offs from technology development"[vii]. Between them, the EuroTech Universities offer 220 curricular courses fostering entrepreneurship, through which more than 1,000 ECTS Credits are available. Our universities also offer integrated courses where entrepreneurship is taught in practice, as well as an array of other extracurricular activities. Further, entrepreneurship is promoted as one of the key transferable skills in our doctoral training programmes.

Due to the technology-centred orientation of our education and research as well as our traditionally close ties with industrial partners, we can more intimately understand market needs, improve production processes and ultimately support the creation of scalable and sustainable business models. This unique combination of mind-set and structures provides a very fruitful ground for entrepreneurship promotion and education.

BEST PRACTICES FROM THE EUROTECH UNIVERSITIES - **ENTREPRENEURSHIP EDUCATION AND TRAINING**

EPFL COLLEGE OF MANAGEMENT AND TECHNOLOGY has an aligned focus on research and teaching in the areas of Management Science with close ties to Engineering and Technology. It encourages cross-disciplinary partnerships and undertakes a comprehensive approach to industrial issues and public policy. The College of Management and Technology is responsible for the elective courses at bachelor level, as well as for the tailored programmes Master in "Technology and Entrepreneurship" and the Executive MBA in "Management of Technology".

DTU SKYLAB offers a 1,550m^2 hub for student innovation and entrepreneurship, which aims at building up the practical competences of students in relation to innovation and entrepreneurship. The hub includes a wide range of prototyping facilities, meeting rooms, project rooms and social spaces. The DTU Skylab has three main focus areas: Start-ups, Academia and Real world projects. DTU's course "Technology, economics, management, and organization" is a 10 ECTS credit course mandatory for all DTU students. The course enables students to be able to identify and analyse business opportunities in relation to technological development.

TU/e INNOVATION LAB plays a crucial role in nurturing future entrepreneurs through a wide range of activities and events involving students and scientists. Together with the Eindhoven Student Business Club and BrightMove, TU/e initiated STARTUP/eindhoven in 2014, which offers an inclusive set of facilities and dedicated support to students who want to explore a career either as entrepreneurs or intrapreneurs. The building provides an area with 18 flexible workplaces where start-ups can work on their business concepts and students are given free access to the 'flexroom'.

TUM ENTREPRENEURSHIP CENTER offers support and advice to technology-oriented enterprise foundations across the whole entrepreneurial life cycle, from the first idea to supporting the growth phase of the company. TUM's Entrepreneurship Research Institute and TUM's centre for innovation and business creation, UnternehmerTUM, concentrate all support for business founders under one roof in a newly opened building, which also hosts start-up consultants and ample working space for start-ups. Between four professorships, TechFounders incubator, and a 1,500m^2 high-tech workshop called Maker Space where students, scientists, and practitioners can work on their prototypes and small series production, the TUM Entrepreneurship Centre connects research, education and practical. In 72 of 141 Bachelor and Master Degree programmes entrepreneurship-related courses are recognised for credits. Entrepreneurship programmes target all students and young scientists from all departments, and make an important contribution to the interdisciplinary spirit of the Entrepreneurial University.

The EuroTech Universities Alliance **JOINT EDUCATIONAL PLATFORM IN ECONOMICS AND MANAGEMENT OF INNOVATION AND ENTREPRENEURSHIP** is an initiative by 25 professors from across the four universities to build a joint shared educational platform in the field of "Economics and Management of Innovation & Entrepreneurship". The aim is to promote the exchange of staff, doctoral candidates and postdocs across the four partner universities in this strategic research area.

2. Promoting Entrepreneurial Culture and Careers

The challenge

While recent studies suggest that the perception of entrepreneurship by the general public may be improving[viii], setting up one's own business continues to be considered by Europeans as a second option to a career as an employee. In 2012, 37% of the respondents to the general public survey in the EU saw self-employment as desirable, as opposed to 51% of US citizens.[ix] Stigma, fear of failure and negative perceptions of risk, particularly around bankruptcy and uncertainty of income, all contribute to this mind-set of an entrepreneurship as a second-class career.

At the same time, research has demonstrated that knowing other business founders has apositive influence on start-up activities.[x] Beyond knowing other founders, having role model entrepreneurs is vital in shaping perceptions about entrepreneurship. We also know that people with a more positive mind-set about entrepreneurship are more likely to become self-employed.[xi] This outlook seems to be even more pronounced for women than for men. In 2012 there were more than 9.6 million self-employed women in the EU, whereas there were 21.3 million self-employed men.[xii] Creating a more positive attitude towards entrepreneurship, both for women and men, requires raising more awareness of the potential of entrepreneurial opportunities and people who successfully exploited them, while simultaneously demystifying some of the negative perceptions, risks and stereotypes typically associated with entrepreneurial careers. Policy institutions and the mediahave a big role to play here.

The role of Universities

A recent study concludes that EET straightens out students with unrealistic expectations, whilst enhancing the skills and commitment of other aspiring entrepreneurs.[xiii] Universities therefore play a strong role in both demystifying some of the negative stereotypes and in the promotion of positive attitudes towards entrepreneurial careers. For example, research projects allow students to explore a specific entrepreneurial phenomenon (decision to start a company, choice of international market) both through reading the literature and working with entrepreneurs. By directly connecting students to entrepreneurs, universities promote an intimate understanding of activities, processes and mind-sets surrounding entrepreneurship, including an in-depth overview of the benefits and risks involved. Entrepreneurship "bootcamps" offered by universities create bridges between cutting-edge technologies and their market potential. More generally, universities provide a relatively risk-free environment for testing ideas, which is all the more relevant for female students.

The 2015 Leiden Ranking placed EuroTech Universities, TU/e and DTU, first and sixth in the world respectively in terms of the proportion of peer review publications co-authored with industry. LeadingUniversities of Science and Technology facilitate the vital connections between local industrial players (big and small), and start-up eco-systems that contribute to this more positive and realistic attitude to entrepreneurial careers.

BEST PRACTICES FROM THE EUROTECH UNIVERSITIES - **PROMOTING ENTREPRENEURSHIP CULTURE AND CAREERS:**

TUMentrepreneurship provides a range of services to foster an entrepreneurial spirit through four main strategic elements: entrepreneurship research, entrepreneurship network, entrepreneurship culture and an efficient spin-off process. The Centre for Innovation and Business Creation offers an Executive MBA degree in Innovation and Business Creation. As well as a range of classes in entrepreneurship and innovation, TUM hosts the Center for Digital Technology & Management, offering an interdisciplinary study programme in Technology Management. These two programmes alone have yielded more than 130 start-ups. TUM awards the annual Presidential Entrepreneurship Award to a team developing a technology with highly scalable impact, which includes prize money of 10,000€. Furthermore, TUM is member of different institutionalized networks of founders (Gründerregio M e.V., Social Entrepreneurship Academy, MedTech Cluster) demonstrating a strong position in the Bavarian and German eco-systems.

TU/e High Five Lectures are offered by experts to promote entrepreneurship. Together with Get Started, which offers lectures, workshops and network activities, they aim to inspire future entrepreneurs. BrainsAward is the annual competition challenging all enrolled students to develop and present the most inspiring, innovative, creative and socially relevant ideas or products.

DTU INNO-KREDS focuses on improving exchange and cooperation across the university and influencing the university's overarching policy for innovation. Through INNO-KREDS, all departments have a person responsible for innovation and entrepreneurship. I-DTU is a systematic, module-based framework for staff activities that contribute to building up competencies and communities in innovation and entrepreneurship. It aims to give staff a common and higher understanding of innovation and how it can be used in research, teaching, project development and entrepreneurship. DTU Student Start-up of the Year is awarded annually. Through initiatives like "Bridging the Gap" and "Copenhagen Spin Out", DTU engages in a systematic effort to attract external entrepreneurs to spin-outs. The goal is to increase the number of viable start-ups born with a strong international focus.

EPFL LA FORGE is a co-working space where new entrepreneurs can work on their projects, meet and learn from their peers and receive the support of this rich entrepreneurial ecosystem. Bi-monthly workshops are organized between entrepreneurs, investors and service providers. In collaboration with the EPFL Innovation Park, the Vice-Presidency for Innovation and Technology Transfer supports spin-offs through multiple support tools such as the Prix Vittoz and other entrepreneurial prizes.

EuroTech Universities Alliance TECHNOLOGIST is a quarterly science magazine, jointly initiated by the EuroTech Universities Alliance. A tool to promote excellence in all fields of science and technology, TECHNOLOGIST also highlights university start-ups, thus promoting awareness of entrepreneurship as a desirable career for scientists. Through interviews, the magazine also promotes role models for aspiring entrepreneurs. The independent editing team behind TECHNOLOGIST is also attentive to seeking gender balance within all of the articles in the magazine.

3. Creating and supporting "born globals"

The challenge

European small and medium-sized enterprises (SMEs) often do not fully reap the benefits of internationalization. This is an important observation given that studies and surveys suggest that there is a strong correlation between international activity and above-average business performance (in terms of turn-over, employment growth and innovation).[xiv] While part of this phenomenon can be explained by the fact that the more innovative companies are more likely to internationalize in the first place, research also documents an important "learning through internationalizing" effect. Internationalized companies learn from activities abroad, boosting their domestic (and overall) innovation activities.[xv] Hence, supporting internationalization can have important positive spill-overs for the economy.

With 99 per cent of European companies consisting of SMEs (and nine out of ten SMEs being micro enterprises), many industrial policy programmes at EU and national levels have centred on supporting this "backbone" of the economy, with particular emphasis on internationalization. While the impact of these programmes has been relatively positive, they do not realize their full potential.[xvi] An important step in realizing such potential and supporting successful internationalization is to develop the international mind-set and knowledge of the management team and to internationalize its network.[xvii]

The role of Universities

Limited international experience and contacts as well as a lack of adequate information and managerial skills are often perceived as the principal stumbling blocks when expanding internationally. Universities are in a prime position to address these challenges. International entrepreneurship can be an integral part of the entire education offer. Moreover, structured experiences abroad contribute to awareness of international opportunities and creation of students' and scientists' international networks. In addition to integrating an international dimension in the curricula of business and entrepreneurship study programmes, relevant transferable skills training courses open for students from all disciplines can addres the issue of internationalizationin entrepreneurship.

The role of universities goes well beyond providing a signpost service for funding programmes and information sources; they encourage their students to "think big" from the start. Universities' involvement in multiple networks - be it strategic international alliances, cross-border networks for student exchange, regional industrial cooperation and contact networks with alumni - are central in addressing the networking deficit young entrepreneurs often face. Exchanges with senior entrepreneurs who already successfully expanded their business internationally help to take away the fears or reservations of young or aspiring entrepreneurs to think globally from the outset ("born globals"). Furthermore, close contact to and support from the university environment for the first couple of years after founding a new high-tech company may help in creating more viable international businesses.

BEST PRACTICES FROM THE EUROTECH UNIVERSITIES - **EARLY INTERNATIONALIZATION OF START-UPS:**

DTU-EU-XCEL is a Horizon2020-funded project in which DTU Skylab and five other EU university incubators offer ICT students an entrepreneurship training programme. Each partner hosts a week long summer school, where students will form cross-national teams and create projects. The best teams work further through an online virtual accelerator with mentor support towards competition finals with a money prize at the end of the year.

EPFL VENTURE LEADERS PROGRAMME selects 20 promising young entrepreneurs each year to discover the Boston innovation eco-system in the US through a 10-day business development programme.

UnternehmerTUM ERASMUS FOR YOUNG ENTREPRENEURS brings together aspiring business starters and experienced entrepreneurs from all over Europe and is financed by the EU. The participants benefit from mutual exchange of knowledge and experience and open up new European markets for their own business. The TUM EMBA programme in Innovation and Business Creation includes a stay in Silicon Valley with Berkeley University. TUM seeks to complement this programme's connections to "hotspots" of entrepreneurship (for example through an organized programme for alumni to visit Israel's start-up eco-system).

TU/e "WISSENS-ALLIANZ" is an INTERREG funded project, where research and educational institutions from the region of the Euregio Rhine-Waal work together to support young entrepreneurs through mutual grants, trainings and workshops.

The EuroTech Universities Alliance EUROPEAN VENTURE PROGRAMME was launched in 2014 with funding from the ERASMUS+ programme. The programme offers students and scientists the opportunity to 'Become an Entrepreneur in 12 days!' through exclusive access to the entrepreneurship expertise and networking resources available at the four EuroTech Universities. Participating students and scientists have the unique opportunity for international networking with relevant experts in the entrepreneurial eco-systems of Copenhagen, Eindhoven, Lausanne and Munich.

4. Improving Access to Finance

The challenge

Access to finance is a critical factor in the creation and growth of new enterprises at large. Small innovative companies typically experience higher growth rates than large companies, as they enter the market with new technologies and thereby stimulate productivity.[xviii]

Yet lack of appropriate funding sources can be a significant challenge for early-stage innovative ventures, especially those in the market for high risk capital.[xix] In particular, start-ups are known to face difficulties in accessing loans partly due to the fact that innovative processes are often unpredictable and therefore difficult to be evaluated by banks. Moreover, innovative companies' main assets (e.g. knowledge, patents) are often considered intangible. The high-risk nature of innovative ventures is therefore ill-served by conventional loans.

The economic and financial crisis has further contributed to a significant drop in the level of funding available. As recognized in the European Commission's new Investment Plan, there is an urgent need to increase investment opportunities for "high-risk, high-return projects" – projects that are typically within the innovation pipeline of leading Universities of Science and Technology. Yet, investors typically prefer projects with a shorter return on investment (e.g. ICT and apps), resulting in less funding availability for high-risk technologies with a longer return cycle (e.g. biotech, cleantech and life science). Furthermore, successful Proof of Concept funding schemes that are up and running do not typically have mechanisms to secure follow-up funding on the basis of their success.

The role of universities

Universities have considerably developed and professionalized their support services to staff and students in promoting the development of commercialization projects, including patents and Proof of Concept funding projects. They play an active role in seeking to identify and mature inventions with a strong international market potential, including assisting in the attraction of the necessary funds to maximize the value of commercially viable inventions. The Proof of Concept funds on offer at each of the EuroTech Universities have supported inventions based on excellent research to be on track to become the technological backbone of growth-led businesses. Together, the EuroTech Universities fostered the creation of more than 320 start-ups in the period from 2012 to 2014. While this figure represents significant achievements, the lack of available funding sources for early commercialization still remains the largest barrier in developing our inventions into successful start-ups.

BEST PRACTICES FROM THE EUROTECH UNIVERSITIES - **IMPROVING ACCESS TO FINANCE:**

BRIGHTMOVE, a joint initiative of TU/e and the Development Agencies of Brainport and Brabant, offers proof-of-concept funding as well as pre-seed loans for start-ups with a scalable technology. This loan is also available to student entrepreneurs.

UnternehmerTUM FUNDS are an offer for early stage high-tech-start-ups. Investors into these funds include German entrepreneurs, family offices and institutional investors – including the European Investment Fund (EIF). UnternehmerTUM also offers TechFounders, a 3-month accelerator programme in Munich that brings together tech start-ups with industry partners and venture capital. With acceptance to the programme teams have the chance to cooperate with one of UnternehmerTUM's industry partners to develop their business alongside world leading companies. If needed, teams will get access to hardware prototypes, data and Application Programme Interfaces, in order to test and further develop their product. In contrast to the majority of accelerator programmes, TechFounders requires no fees and zero equity.

EPFL INNOGRANTS have financed more than 80 teams and helped to create more than 50 start-ups since its creation in 2005 - most of the time in the form of an EPFL salary. These start-ups subsequently received more than CHF 10M in additional grants and equity. The Foundation for Technological Innovation (FIT), created in 1994, provides appropriate financial assistance at an early stage in the project feasibility study. FIT can help complete an initial project or validate a new technology, thereby accelerating the project's commercial development. During the period from 2013 to 2014, FIT provided financial support to about 40 start-ups.

ENABLE provides grants, mentoring and internships to accelerate the transfer of EPFL inventions to industry, to reduce the risk for start-up projects and to raise awareness of students to the innovation processes, technology transfer and entrepreneurship. In particular, it provides funding for prototyping, advanced proof-of-concept, benchmarking of inventions with existing technologies, proof-of-economic relevance, feasibility studies, early clinical studies and regulatory affairs. The funding represents a leverage for maturing early stage technologies, thereby easing their path to commercialization. Since its creation in 2010, ENABLE supported 37 projects, among which more than half are start-up projects. Globally speaking, EPFL spin-offs have raised more than 800 MCHF from private investors since 2005 and enjoyed five trade sales since the beginning of 2014.

DTU PoC Fund is co-financed by DTU and Danish Regional Funds and is governed by a board of seven people with various commercial and technical backgrounds. The fund operates four financing rounds per year with a maximum grant per project of € 65,000. There are 12 to 15 applications per financing round and projects granted span two-thirds of DTU's departments. The current ambition is to replenish the fund with investments from Danish investors and other funds, including at EU level. DTU Skylab collaborates with two Danish funds, which gives the opportunity for student start-ups to apply for small PoC grants (typically €10,000-20,000). The application process runs twice a year and around five start-ups per year are expected to receive money (no strings attached) for prototyping, markets research, travel expenses etc.

Conclusions and future perspectives

Entrepreneurship education and training (EET) contribute effectively to both generating a positive entrepreneurial mind-set and to empowering students to start more innovative companies that ultimately contribute to the development of more competitive economies. Universities of Science and Technology are well positioned to bring entrepreneurship education and research, as well as training courses on how entrepreneurship works in practice, under one roof. Founded upon their strong position in their respective industrial and entrepreneurial eco-systems, leading Universities of Science and Technology provide the settings for developing creative ideas, for networking and for seeking finance for commecially viable inventions with international market potential.

In order to enhance the further development and wider uptake of these entrepreneurship activities, the following considerations should be taken into account.

Further recognition should be given to the resources that universities dedicate to promoting entrepreneurship

• The HEInnovate platform is a useful tool for self-assessment of how entrepreneurial a university is. We also see potential to further develop this platform as a benchmarking tool, highlighting leading and innovative models of entrepreneurial universities across Europe.

• The availability of entrepreneurship support initiatives should be further explored in university rankings to recognize institutions that allocate significant resources and efforts towards these objectives. More attention should be paid to developing effective impact indicators of EET and research, as well as extracurricular activities on offer.

Initiatives should be developed to enhance the scale and scope of entrepreneurship support

• The EuroTech Universities fully support the importance of developing entrepreneurship as one of the key transferable skills in innovative doctoral training programmes. Funding for doctoral training programmes should offer sufficient flexibility to take into account the importance of entrepreneurial activities during doctoral studies.

• EU policy initiatives, including the Human Resource Strategy for Researchers, are proving useful in promoting researcher careers. While promoting academic careers at a research institution is of key importance, more should be done to also promote the entrepreneurial activities of researchers. Role models, including female role models, should be widely promoted. The EuroTech Universities are willing to share their best practices in this regard.

• The EuroTech Universities welcomed previous initiatives under Horizon2020 to promote Innovation and Entrepreneurship Support in ICT, including business idea contests, entrepreneurship academies and labs, as well as campaigns. We would advocate that these initiatives be extended to and integrated within all the industrial technologies and societal challenges of Horizon2020. Further, the Tech Transfer Capacity Building initiative provided an opportunity to share and extend best practice to other parts of Europe. We welcome a similar initiative to promote the scale and scope of entrepreneurship activities.

• We believe that interlinking the synergies between universities' entrepreneurship activities could ultimately boost the number of start-ups and their international expansion. Policy instruments should therefore be strengthened to encourage more networking, mobility, collaboration and joint projects. The introduction of the ERASMUS+ Knowledge Alliances and Strategic Partnerships represent an important step in this regard and future resources should be dedicated to the development of these initiatives. Further, we advocate a dedicated ERASMUS+ Master Loan Guarantee Facility specifically for entrepreneurship education, particularly for programmes that are –at least in part– based on individualized coaching/mentoring support by entrepreneurs (and therefore expensive).

• To further enhance the possibility of networking with entrepreneurs across borders, community building for young entrepreneurs should be integrated into relevant programmes. In this regard, the EuroTech Universities would welcome the development of an ERASMUS for Young Entrepreneurs' community, with particular attention to female role models.

Funding possibilities should be further strengthened for Europe's promising start-ups

• The EuroTech Universities welcome the EU's plan to support Proof of Concept initiatives at universities and very early stage investment in innovative new companies, including through the proposed Tech Transfer Financial Facility Pilot under Horizon2020. This instrument should be kept flexible to adapt to local needs, including the possibility to carry out market entry studies for early internationalization.

• Successful projects that have received Proof of Concept funding or early stage investment should be awarded an opportunity to receive continued funding in order to ensure their longer-term development.

• The EuroTech Universities would be open to contributing to the definition of indicators to measure and define successful investment programmes in start-up activities.

• The legal framework conditions should be adapted to take into account the important contribution that universities can make to the development of innovative companies in their first years, enabling them to become more viable businesses in the longer term.

Further information on all the EuroTech Universities best practices

ENTREPRENEURSHIP EDUCATION AND TRAINING

- **EPFL COLLEGE OF MANAGEMENT AND TECHNOLOGY:** http://cdm.epfl.ch/
- **DTU SKYLAB:** http://www.skylab.dtu.dk/
- **TU/e INNOVATION LAB:** https://www.tue.nl/en/innovation/about-innovation-lab/
- **TUM ENTREPRENEURSHIP CENTER:** http://www.tum.de/wirtschaft/entrepreneurship/entrepreneurship-news/artikel/article/32405/
- **EuroTech Universities Alliance EUROPEAN VENTURE PROGRAMME:** http://eurotech-universities.eu/innovation-and-entrepreneurship/#european+venture+programme

PROMOTING ENTREPRENEURSHIP CULTURE AND CAREERS:

- **TUMentrepreneurship:** http://www.tum.de/en/tum-business/entrepreneurship/
- **TU/e High Five Lectures:** https://www.tue.nl/innoveren/agenda/15-12-2014-high-five-lezing-2-high-tech-systems-center/; http://www.brainseindhoven.nl/brainsaward-en.html
- **DTU:** http://www.copenhagenspin-outs.dk/en/spin-outs/visible-laser-beams-with-top-precision
- **EPFL LA FORGE:** http://epfl-innovationpark.ch/laforge
- **EuroTech Universities Alliance TECHNOLOGIST:** http://www.technologist.eu/

EARLY INTERNATIONALIZATION OF START-UPS

- **DTU EU-XCEL:** HTTP://WWW.SKYLAB.DTU.DK/WOO/SKYLAB-INITIATIVES/EU-XCEL-EUROPEAN-VIRTUAL-ACCELERATOR
- **EPFL VENTURE LEADERS PROGRAMME:** http://epfl-innovationpark.ch/events/event/venture-leaders-usa/
- **UnternehmerTUM ERASMUS FOR YOUNG ENTREPRENEURS:** https://www.unternehmertum.de/erasmus-for-young-entrepreneurs.html
- **TU/e "WISSENS-ALLIANZ:** http://www.wissensallianz.eu/
- **EuroTech Universities Alliance EUROPEAN VENTURE PROGRAMME:** http://eurotech-universities.eu/innovation-and-entrepreneurship/#european+venture+programme

IMPROVING ACCESS TO FINANCE

- **TU/e BRIGHTMOVE:** http://www.brightmove.nl/
- **UnternehmerTUM FUNDS:** https://www.unternehmertum.de/venture-capital.html http://www.techfounders.com/
- **EPFL INNOGRANTS :** http://vpiv.epfl.ch/innogrants

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ii. Martin, B. & McNeally, J.J. & Kay, M (2013): Examining the Formation of Human Capital in Entrepreneship: A Meta-Analysis of Entrepreneurship Education Outcomes, Journal of Business Venturing, vol. 28, no. 2, pp. 211-224.

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