



**OECD Higher Education Programme**  
**“What Works” Conference:**  
**Entrepreneurship and Higher Education**

**In collaboration with**  
**NCEE/Universities UK delegation and**  
**Aalto University**

**20-21 November 2014**

**Summary Report**



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## Summary report of the OECD Higher Education Programme's What Works Conference on Entrepreneurship and Higher Education<sup>1</sup>

### Introduction

The OECD Higher Education programme (IMHE) "[What Works](#)" conferences have been a successful series of workshops and meetings designed to assist IMHE members, as well as non-members, by reviewing current policy and practice while disseminating examples of successful innovation. The conferences are intended to equip participants with inspirational examples of institutional strategy development, and to provide an understanding of conditions for implementation and the context, measurement and assessment of impact. This is also a unique chance to meet different leaders and practitioners, to share perspectives and experiences and to build institutional capacity in designing and implementing effective higher education policies.

Continuing with this series, on 20 and 21 November 2014, [Aalto University](#) in Finland hosted an OECD Higher Education Programme (IMHE) "What Works Conference" on Entrepreneurship and Higher Education. The event was opened by Dr. Tuula Teeri, President of Aalto University, and Ms. Anna Glass, OECD Higher Education Programme, who welcomed 80 participants from 25 countries. The Conference programme can be found in Annex 1 to this report.

In order to bring as much added value as possible, the conference was structured in three parts:

- An overview of Aalto University's context, approaches and challenges in providing entrepreneurship studies to students and professionals.
- Breakout sessions, with participants split into two groups for each session, provided opportunities for international examples of entrepreneurship and higher education and for more in-depth discussion of issues. Participants could choose which sessions to attend according to their interests. Each session featured two to four field cases around the following themes:
  - developing curricula for teaching entrepreneurship;
  - courses and programmes: how we teach entrepreneurship;
  - teaching failure as impetus for success;
  - student learning outcomes and institutional ecosystems;
  - business and private sector development.
- The conference concluded with tours of the Design Factory and Startup Sauna at Aalto University, where participants were guided by student volunteers and encouraged to interact with young entrepreneurs and mentors in the process of turning their ideas into action within these facilities.

This report is not intended to relate all of the content of the Conference, but to summarise many of the main points and ideas generated during the event.<sup>2</sup> The **first part** of the report contains a summary of the main findings and recommendations accumulated over the course of the two-day Conference. **Part II** summarises presentations on Aalto University, while **Part III** reflects presentations made by invited speakers from other institutions and organisations with models to share on entrepreneurship and higher education.

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1. Note: This paper is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

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2. Presentations and texts from speakers are available upon request.



## Part I: Main findings

### Main findings from Aalto University

[Aalto University](#) (AU) made an opportunity of being an institution born after the merger of three higher education institutions. AU also benefitted from a significant wave of retiring professors, which created the occasion to recruit many young professors, national and international. The ability to convince (or impose) entrepreneurship as a priority among professors is a powerful advantage. The strong tradition of student engagement is impressive and has been elemental to AU's success.

AU's main concern is generating impact; research is a means, not an end. From the student perspective, education is not an end in itself, but part of a larger social goal.

At AU, a key lesson is that both top-down and bottom-up approaches are needed. Engaged, facilitating faculty and enabling leadership must connect. Leadership is important for setting the context and vision, articulating strategy and setting processes needed, even in an open environment. The most important role of leadership is to be engaged with the people who are working on entrepreneurship from the bottom-up.

At AU, commitment to entrepreneurship runs throughout the institution; from the president to students, everyone refers to the Startup Sauna, the Design Factory and Slush as part of the University's activities. Student activities connect with the University's efforts to commercialise science and promote social impact. There is some institutional structure, but recognising independence is a good sign of working together without being controlling.

At AU, it is recognised that not all professors are entrepreneurial, but more and more are. New hires are usually young, ambitious, forward-looking and eager for opportunities. The University encourages this behaviour.

Professors are not necessarily trained to teach entrepreneurship, although some entrepreneurship education is offered by the Aalto Business School and elsewhere; however, professors are selected for being action-oriented, engaged and part of their communities of practitioners who learn from one another. University staff have to learn how to teach entrepreneurship; it is a communal act.

### Other findings

Universities are institutions, but also communities. The aim is to get people to connect across boundaries such as institutional divisions and discipline silos. Multidisciplinary is key to entrepreneurship education and discussion should be encouraged among various actors. It is important to pay attention to culture and how to foster a culture of creativity.

For entrepreneurship education, it is important to remove barriers, not try to impose them. Within any higher education institution context, it is impossible for professors and administration to be entrepreneurial if regulations and legislation are too restrictive. Entrepreneurial behaviour is, in fact, anti-institutional and tolerance of failure makes a crucial difference in successful institutions, although this is not possible in all contexts.

Institutions may find it helpful to embark on entrepreneurship education by first taking an inventory of current existing initiatives (random acts of entrepreneurship education) and then co-ordinating efforts. Entrepreneurship education should be made available, but not compulsory.

It is also crucial to articulate the institution's strategy for entrepreneurship education for the institutional community and the broader community, including partners and contacts in industry, business and the wider labour market. In their strategic planning, institutions should allow for the fact that it is expensive and time-consuming to build an innovation ecosystem.



Institutional processes are often perceived as control mechanisms and restrictive, but they are also there to enable opportunities. People in charge of these processes should have a positive attitude toward enabling innovation.

Personalities play a role in the effectiveness of leaders and managers to promote entrepreneurship education. While there are already mechanisms to evaluate staff, it may also be important to think about the abilities of leaders to promote entrepreneurship within an institution's ecosystem.

It is important to introduce students to entrepreneurship early in their educational experience so their ambitions can be fostered. Academics should be involved and encourage students in their initiatives – and stay out of the way.

Current systems in place for quality assurance, accreditation and assessment do not fit well with the needs of entrepreneurship education. As yet, entrepreneurship education is assessed mainly internally, but there is a need to develop comparable, meaningful metrics. Almost all current assessment approaches limit team assessment, but assessment of entrepreneurship education should be team-based.

There still exists a myth that entrepreneurship is only about business. Entrepreneurial behaviour also needs to be developed further in the public sector, while social entrepreneurship can help to tackle society's challenges and strengthen social cohesion.



## Part II: Aalto University and entrepreneurship education

Upon opening the Conference, Dr. Teeri introduced the theme by explaining Aalto University's mission to revitalise the economy and prepare students for work through a culture of entrepreneurship, not just know-how. The University engages in a long-term strategic relationship with industry, not just in knowledge transfer from the university to business; they aim to break the boundaries between the university and society.

Over the course of the first morning, faculty members and students from Aalto University presented their programmes and approaches to entrepreneurship education. The models and approaches adopted at Aalto University were offered as examples the international audience might adapt to their own institutional needs and contexts.

### Research and education with impact

Professor Tuija Pulkkinen, Vice President for Research and Innovation at Aalto University described the evolution of AU following the merger of three institutions: Helsinki School of Economy, Helsinki; the University of Art and Design, Helsinki; and the Institute of Technology, Helsinki. The ultimate goal of AU is to help create a strong nation. The University is ranked 4th in the world as an emerging innovation ecosystem and 16th for co-publication with industry.

As a foundation based institution, much of AU's funding comes from companies that realise the disciplines addressed by the formerly distinct institutions should be merged to meet the needs of the country. AU works to develop world-class research strengths in computation and modelling, ICT, materials and new media to identify and design future potential, e.g. systems science and architecture.

AU has invested in recruiting new faculty: more than half of the current professors were hired over the last five years; 30% of appointments have been international, while 75% of applications are from outside of Finland. About a quarter of new appointments are female, which is still low, but progress has been made even in disciplines that focus on technology.

While emphasis is placed on the great challenges for research, pedagogy is organised to allow more discussion between teachers and students and for learning-by-doing. The Design Factory model has already been adopted in other locations, including Shanghai, New York and Switzerland. While entrepreneurship education has met with great success, it remains dependent on specific people in strategic positions. Until it is institutionalised, the sustainability of the programmes remains uncertain. Success depends on a continuous flow of good people and an optimistic outlook with a focus on opportunities.

Elements important to success:

- In Finland, there are strong traditions of student volunteers; student movements are very much collective, based on trust, and non-political. There is great value in having so many student volunteers to help manage and run entrepreneurship programmes. If university employees assumed these roles, many more rules would be needed. Students who take leadership positions also assume responsibility and ownership of the programmes.
- Finland also has a long tradition of professors working with industry. Many professors also run private companies in addition to their academic positions. The key to entrepreneurship education is to combine scientific education with entrepreneurship. Professors must be encouraged to be innovative to incorporate both elements.
- The Finnish government is supportive but not controlling of entrepreneurship education.

### Introduction to student entrepreneurship activity

Ms. Erika Naponen is a recent AU graduate who studied bioengineering and business. She is Program Manager for Startup Life Internship and spoke at the Conference on the story of the Aalto



Entrepreneurship Society (Aaltoes), which was inspired by student entrepreneurship ecosystems at Ivy League universities in the United States. The Society needed a home at AU and asked for a warehouse, which eventually became the Startup Sauna.

The Startup Sauna is home to a one-month programme that runs twice each term for 20 startups per batch. The programme provides one-on-one coaching with “serial entrepreneurs”, or investors serving pro-bono. The startups travel to Silicon Valley to pitch their ideas; twice each year, 1 000 people attend “demo day” at the Startup Sauna.

Slush started in 2008, originally organised by a small group of Finnish entrepreneurs. Initially hosting 2-300 attendees, the event has grown to massive proportions; in 2014, 14 000 people attended the three day event.

Startup Life is an internship programme whereby young entrepreneurs work for a month in Silicon Valley or New York to gain key skills in the most demanding startup environments that they can later use in the Finnish context. It is possible to get academic credit for participating in Startup Life, pending agreement and arrangements made with AU faculty.

Currently there are some people writing Master of Arts (MA) theses and PhD dissertations on the impact of Aaltoes. To date, 1 500 startups have been created. The Startup Life has helped 1 300 students, not only with startups, but with career support services. The “engine” of Aaltoes consists of the people, who are so young they do not yet know what is impossible.

### International Design Business Management Programme (IBDM)

Dr. Mikko Koria, Programme Director of IBDM, described the objective of the programme as “professional acceleration”: to prepare people to know how to connect things and how to be a manager upon finishing the programme. IBDM incorporates a tight balance between business, science and engineering, and designers.

### Design Factory

Professor Kalevi Ekman, Director of the Design Factory, described the institute as a “co-creation” place intended to educate the world’s best product designers. Key components of the Design Factory are advice and coaching. The Factory is a good place for “quick and dirty” early testing. The space is used for eight hours each day, every day of the year.

An important architectural design feature of the building is the open eating space, the only place to get coffee in the whole building, which “forces” interaction. A continual live web feed connects this space with a sister company in China.

### *Attributes for success*

Vision, strategy, plan; ambition, courage, commitment; skills, equipment, muscles, team-trust, respect, love; will-power to deal with the fact that nothing will work as planned, risk management, ability to leave one’s comfort zone; knowledge and expertise in a practical sense; organisation, a story to generate funds, luck and fun.

### European Institute of Technology (EIT) ICT Labs

Dr. Marko Turpeinen, Director of EIT ICT Labs Helsinki, explained that the goal of the Pan-European Innovation and Education Ecosystem is to bring together education, research and innovation for researchers to focus on commercialisation. There are EIT hotspots in seven EU countries: Finland, France, Germany, Hungary, Italy, Netherlands and the United Kingdom. AU is the key university partner and Nokia the key industry partner in Finland.

The Institute offers the Master’s and PhD degrees and summer schools for anyone. The Master’s programme has modules in different European centres and aims to develop professionals with strong



technical expertise who also have expertise in business and entrepreneurship. There are 350 students enrolled at this level across Europe, about 40 of which are at Aalto University.

The PhD programme is for students already enrolled in doctoral studies who attend EIT ICT Labs to gain business and entrepreneurship skills.

A third academic track is being launched to certify ICT competence. This programme is intended to raise the competence of Europe's professionals overall and in specific core areas in particular.

### **Creating Shared Values: HealthSPA – the grassroots ecosystem for health and happiness startups**

Professor Raimo Seponen, Vice Dean of the School of Electrical Engineering, explained that the focus of the HealthSPA is on market-driven innovations. In practice, the HealthSPA:

- identifies problems worth solving through networking with industry, startups, and health care providers, and the insurance industry;
- funds new innovative solutions and enabling pilot programmes;
- manages, supports, mentors and networks the teams;
- spins out new companies;
- disseminates research results;
- creates a hub for the health care innovation ecosystem;
- provides innovation management education for students and industry.

While related to basic research, the HealthSPA includes a process of translational engineering. In addition it aims to build a culture of entrepreneurship among scientists. The operation is based on carefully selected cases and mentoring of project teams.

The purpose of the HealthSPA is to catalyse current and emerging research activities, translating research results toward innovative solutions in field of healthcare and wellness for improved competitiveness of Finnish industry.

### **Multidisciplinary research, education and innovation activities at Aalto University**

Professor Mauri Airila and Professor Seppo Laukkanen, Associate Vice Presidents, presented AU's vision that scholarly boundaries across disciplines will eventually fade away. This is anticipated at AU and encouraged through a number of multidisciplinary operations and platforms. The School of Engineering and the Digi Platform are two such examples.

The AU School of Engineering operates on the belief that what does not kill you makes you weaker, thus the importance of a rigorous approach. Business plans are essential and it is key to define problems. Success is measured by assessing the impact of the educational efforts on society.

The Digi Platform takes place through numerous activities, including community-building approaches such as Digi Breakfast, data camp and the "hackathon", whereby students are given huge amounts of data and asked to make something out of it – similar to real-world situations where questions have to be derived from facts. The Platform is set within the vision that digitalisation is just starting and increases in movement towards an "Internet of things" by 2020 are expected with an unprecedented number of connected devices. There are specific strengths to be refined, such as in big data science, to leverage the existing public data registers in Finland. Data science is offered as a minor across all areas of studies, enabling all students to raise their competence levels.



### Part III: International examples of entrepreneurship and higher education

#### Workshop: Entrepreneurial leadership – the challenge for universities

Professor Paul Coyle, Director of Entrepreneurial Leadership at the UK National Centre for Entrepreneurship in Education, conducted a workshop to collect participants' views on the characteristics of the entrepreneurial university. As an outcome, the nine main characteristics indicate that the entrepreneurial university:

1. has strong networks;
2. is influential;
3. supports student entrepreneurship through its curriculum and teaching;
4. undertakes applied research;
5. encourages and supports startups;
6. adapts its organisation to become more entrepreneurial;
7. develops an entrepreneurial culture;
8. exercises leadership that develops entrepreneurial mindsets and behaviours;
9. ensures its staff are entrepreneurial.

A full list of all the suggestions made by the participants in the workshop can be found in Annex 2 to this report.

During the workshop, Professor Coyle noted that a criticism against entrepreneurship education is that it is understood as the production of graduates for industry. This is not the case: entrepreneurship education should form critical thinkers, responsible citizens who are oriented toward changing things for the future, not merely trained for the jobs of today. The agenda should be pursued with employers to understand that there is added value in a long view of education for future orientation.

Leadership is essential to university-business collaboration. It is a leader's job to motivate staff by establishing a compelling vision. A leader must establish collaboration, allocate resources adequately and transparently, raise funds and make the process inclusive for all staff across disciplines.

#### Day 1 – Session 1: Teaching entrepreneurship

##### **A: Developing curriculum for teaching entrepreneurship**

*Dr. Attila Pausits, Head of the Centre for Educational Management and Higher Education Development, Danube University Krems, Austria*

Universities need new mechanisms that allow them to collaborate and interact more effectively and efficiently with their stakeholders, prepare employable students, and stimulate more entrepreneurship among them. In this new mode of knowledge production, the roles of continuing education and lifelong learning have been increased as well. Especially in the highly competitive market of postgraduate education, such mechanisms are fundamental for institutional success. Danube University Krems is one of the pioneering institutions in Europe in the field of university-based advanced education, and is a specialised institution in the sector of lifelong learning. As an entrepreneurial university, it aligns the educational services and programme portfolios, with the needs of the market. This focus requires management and curriculum development approaches, which are able to create and support market-oriented programmes.

In teaching and research the University focuses on the social, organisational and technical challenges of today, and it is developing innovative market- and client-oriented courses on an ongoing basis. The University for Continuing Education is specifically centred on interdisciplinary cross-linking and future-oriented special sectors: it offers courses that combine medicine and management, education and new media, or law and social sciences. The highest quality standards, a scientific, practical approach, and the



use of innovative teaching and learning methods are part of all courses offered at Danube University Krems.

In recent times, the development of continuing education and lifelong learning activities at higher education institutions (HEIs) as a part of their “third mission” has been given more attention within the institution. The increased autonomy of HEIs forces them to improve their budget conditions and in many cases, they see university lifelong learning (ULLL) as an additional channel of third party funding and, besides knowledge and technology transfer activities, a pillar of entrepreneurial activity.

The first, and perhaps the strongest characteristic of ULLL, is its diversity. First of all, the discipline is no longer the starting point. There is a necessity for a genuine transformation of programme designers and educators. The adoption of competences as the organising principle of a curriculum has to take into account what the exit profiles of graduating students in ULLL programmes should be and specify the set of situations that these graduates should be able to handle, now often referred to as the learning outcomes. This entails a mixture of identified competences on the basis of the real-life or work-related situations in a specific professional field and the academic logic of the educational programme. Defining the graduates’ exit profiles is thus preliminary to identifying the resources required to deal with the situations. This affects the practices of educators as well as the learning methods that students are engaged in, e.g. problem-based learning or action learning. The most important principle is to make postgraduate learning significant for the students and useful for their working environment, an aspect that has been noticeably missing from higher education for a long time. In other words, the choice of competences as an organising principle of the curriculum is a way to bring working life back into the classroom.

*Liz Shutt, Head of Policy, University Alliance, UK*

The United Kingdom’s leading entrepreneurial universities have strengths in science, technology, design and the professions. They generate nearly 50% of the UK’s turnover from graduate startup companies, which employ over 6 000 people (full-time equivalents). They provide 50% of all sandwich placements in the United Kingdom and have more than 20 000 business partnerships. Entrepreneurial universities play a leading role within their regional economy with strong links to the key sectors. The added value of attending such a university is not just getting accepted, but what happens next.

Key elements of the collective enterprise module include:

- links to industry, businesses and established entrepreneurs;
- partnerships, working closely with employers to deliver relevant, real world learning experiences;
- bridging the gap between academic and corporate worlds;
- engagement across the whole university – encompassing a range of activities;
- employers recognising in the partnership with higher education a clear business opportunity to maximise talent and plug skills gaps.

### ***B: Courses and programmes: How we teach entrepreneurship***

*Andres Kuusik, Centre of Entrepreneurship and Innovation, University of Tartu, Estonia*

In Estonia, all elementary and secondary schools must provide elective courses on entrepreneurship if at least one student wants to take it. Vocational schools have a mandatory course of career planning including entrepreneurship options. All universities have to make entrepreneurship courses available for all students with a [flipped classroom method](#). The University of Tartu is the national leader in developing entrepreneurship education in Estonia.

The University of Tartu takes a systematic approach to entrepreneurship education. Students at the Bachelor’s and Master’s levels are expected to gain abilities to perform as an entrepreneur in their fields. PhD students participate in knowledge transfer and innovation. Within the University, the Centre of



Entrepreneurship and Innovation is the hub of all entrepreneurship activities within the community, connecting:

- the Faculty of Entrepreneurship;
- incorporation of entrepreneurship in pedagogy across the University;
- the Idea Lab and Proto Lab;
- incubators;
- mentors;
- workgroups.

The University also takes a systematic approach to teacher training in entrepreneurship pedagogy and in supporting pre-incubation of ideas and startups, which may move on to the full incubation stage, beyond the University.

Throughout the incorporation of entrepreneurship education, lessons learned within the University include:

- faculties are not happy accepting entrepreneurship courses in their programmes;
- students do not like the flipped classroom method;
- it is hard to get new students into the pre-incubator;
- the same assessment contingent should visit all events.

### ***C: Teaching failure as impetus for success***

*Rohan Workman, Manager, Melbourne Accelerator Program, The University of Melbourne, Australia*

The Melbourne Accelerator Program (MAP) aims to raise the culture of entrepreneurship within the University. It is comprised of a startup accelerator and a number of non-accelerator activities. MAP Startup Accelerator provides AUD 20 000, office space and mentoring, along with travel to Silicon Valley to top startups on campus.

Non-accelerator activities include programmes and events designed to up-skill and connect aspiring entrepreneurs to broaden and deepen the talent pool. These activities include:

- public forums – large public events designed to inspire people to start businesses;
- master classes – workshops on the practical skills required to run a startup;
- feeder programmes (Startup Velocity, Escape Velocity and Terminal Velocity) to assist those with ideas progress their startups.

At the University of Melbourne, the key lessons learning from the MAP experience have been that:

- culture change takes time;
- stakeholder engagement is critical;
- the programme should sit on the fringe of the University;
- the quality of mentors is paramount;
- focus should be on the substance of the programme.

*Eric Zimmerman, Director of Research Office and Global Engagement, Interdisciplinary Center Herzliya, Israel*

“Success is not built on success. It’s built on failure. It’s built on frustration. Sometimes it’s built on catastrophe.” - Sumner Redstone

What does one need to succeed in anything? Knowledge, capacity and vision come to mind. By vision I mean the tenacity to dream, to dare. One has to lift oneself up out of the comfort zone, pushing the limits of imagination to break the status quo and challenge commonly accepted notions. This by necessity



means taking (calculated) risks. This could, of course, lead to failure. But it is precisely at this juncture that one can grow by capitalising on the opportunity to reflect, internalise, re-think, re-group, and most importantly re-try. The last thing one should do here is to give up, to regress, to retreat.

Life is linear at the macro level. There is a start date. There is an end date. At the micro level, though, life is anything but linear. It is a series of loops; learning loops. At the personal and professional levels we all experience ups and downs; successes and failures. It is how we confront these moments that define us and determine how we live our lives.

What is failure and what is it not?

- Failure is normal; it is commonplace. It is not unusual. It is a requirement of life, of growth. Building a resilient culture involves recognising that failure can and will occur, and that in innovation the odds of failure may increase dramatically. And innovative culture prepares to test concepts and learn from mistakes to assure perpetual innovation and improvement.
- Failure is inevitable; we might as well embrace it. How we fail is key. Probably the best-known British entrepreneur of our day, Sir Richard Branson, has said: “Do not be embarrassed by your failures, learn from them and start again.”
- Failure is liberating; the worst has already happened. It drives change; it is a pathway to improvement. Failure is an educational lesson, a tool. One can fail better.
- Failure fuels contingency plans. Preparing for the possibility of failure makes an organisation more adaptable. And it forces you to do your homework.
- Failure enables us to recognise and value success.
- Failure builds character, strength; it differentiates us. A willingness to fail displays courage, risk-taking, envelope-pushing.
- With every failure you are more likely to succeed “next time”. Building a team approach to effective risk assessment and decision making results in a stronger organisation. All of us can and should learn from how successful organisations respond to and address failure; and conversely, how struggling organisations do not. Recognising the potential impact of failure on decision-making or other processes helps to gird that process against failure.
- Failure does not necessarily show weakness. Think of one of the great American basketball players, Michael Jordan, who said: “I can accept failure, everyone fails at something. But I can’t accept not trying.”
- Failure does not necessarily demonstrate lack of intellect; it does not necessarily reveal lack of good judgment.
- Failure does not necessarily show poor planning; it does not necessarily demonstrate bad management

It is true that:

- Failure can be inefficient. We never know when we initiate any project whether it will fail or succeed. Clearly, starting any project when you know it will fail is inefficient. You should expect to succeed, but preparing for failure allows you to adapt.
- Failure can be demoralising. Morale is often impacted by success or failure, and that impact is in turn governed by expectations. An organisation that expects to succeed at all times is perhaps not as well prepared for inevitable failure whereas a culture that expects to learn from failure may be more resilient.
- Failure can be politically divisive, yet much of the fallout from failure is driven by the buy-in or lack of buy-in to the initial idea. Universities should have a process that facilitates buy-in to new ideas or pilots, with full knowledge of risk, so that all can learn from identifying the factors that led to failure.



- Failure is not necessarily smart in a competitive environment. Too much failure leads to a terminal state. It can be instructive to look at how successful organisations address competitive failure for lessons that can be learned from others. Failing to embrace this concept suggests failure never exists.
- Failure is potentially disruptive. Flexibility is necessary; a process that cannot withstand failure is destined to fail.

## Day 2 – HEInnovate

*David Halabisky, LEED, OECD; Georgi Dimitrov, European Commission, DG EAC*

In 2013, the OECD and the European Commission (EC) Uni Business Forum launched [HEInnovate](#), a self-assessment tool for higher education institutions to gauge their level of entrepreneurship. The tool was developed in response to the need for clearer understanding and greater awareness among higher education institutions. HEInnovate is open to all higher education institutions and offers a systematic approach to conducting self-assessment to diagnose an institution's strengths and weaknesses, at the time of assessment and over a period of time, by linking the institution's results to other work in the field (e.g. work of the OECD).

To date, more than 500 higher education institutions have participated in HEInnovate, many in countries outside the European Union. According to feedback, the tool is mainly used for a holistic approach to self-assessment and to track stakeholder perceptions. Depending on the results an institution receives, the tool points to existing materials and case studies that may help with improvement. Furthermore, participating institutions can set up groups (students, faculty, administrators, etc.) and compare results, which often results in constructive discussions and debates.

## Day 2 – Motivating students to be entrepreneurial

*Walter Bender, CEO and Founder, Sugar Labs; President, One Laptop per Child; Former Executive Director, MIT Media Lab*

Motivating students to be entrepreneurial is not done by stuffing them with information and the “carrot and stick” model is not helpful, either. To raise a generation of entrepreneurs, the teacher has to throw away the stick (disciplinary approach) and take an intellectual risk. There are many ways to motivate students, e.g. autonomy, mastery (let them master something), purpose.

There are several pilot approaches to motivating school children in Nigeria and Pakistan. Free software – or the preferred term “software libre” – is a key component. The authorship of the software is used as a metric of success; 30% of programming comes from 12-year-olds. These children are shaping the software in ways that are meaningful to them.

The MIT Media Lab has several unique attributes: staffed by self-proclaimed “smartest people”, the faculty are bright, but not team players. Change is a constant due to students, who come and go. The Lab works closely with industry and receives very little government funding, however the approach with industry is on the Lab's terms. Industry partners are told: if you know what you want to solve, don't come here; if you don't know the problem you want to solve, then we can help you identify the problem. The main challenges of the Media Lab are dealing with MIT administration and the MIT intellectual property office, with whom there is constant tension.

## Day 2 – Session 2: Assessing entrepreneurship

### **A: Student learning outcomes and institutional ecosystems**

*Rozilini M. Fernandez-Chung, Vice-President for Quality Assurance, HELP University, Malaysia*

Policies in Malaysia are perceivably very conducive to entrepreneurship in higher education. Many Ministries and agencies are promoting entrepreneurship by instituting creative activities, loans for entrepreneurs, etc.



At early education levels, there are some compulsory entrepreneurship courses/modules. Every undergraduate degree in Malaysia must have some components of entrepreneurship, because it is built into overall learning outcomes.

Several important lessons can be learned from the experience in Malaysia:

- The propensity for entrepreneurship is individual.
- Beware of making entrepreneurship compulsory: this kills entrepreneurship.
- There is a limit to what data on entrepreneurship can reliably relate; e.g. data cannot link the causality from policy to results in terms of the number of entrepreneurs, etc.

After 35 years of investment in entrepreneurship, several studies have been conducted, from which findings reveal several challenges:

- There is still a very low level of entrepreneurship education.
- There is large variation between skill expectation and acquisition; a lot of this has to do with pedagogy: teaching is done mostly through lectures; students are usually assessed through exams. The result is that teaching and learning has adversely impacted the development of entrepreneurship due to the way it is conducted.
- These trends may be reversed through action on, for example:
  - Traditional lecturers lack the necessary skills and experience to teach entrepreneurship. They are good teachers in theory, but have no knowledge of teaching practice.
  - Students have a lackadaisical attitude toward entrepreneurship: if it is compulsory, they don't do it, but if it is optional... maybe they still won't do it?
  - There is a general belief that entrepreneurs are born, not made; entrepreneurship cannot be taught.
  - The "Asian" problem: parents do not see entrepreneurship as a profession. But the studies are limited to people who become entrepreneurs, not about entrepreneurship skills.

Recommendations following the identification of challenges include:

- Review of curriculum content, pedagogy and assessment.
- Links with the private sector should be improved.
- HEIs focus on traditional programmes – in fact public universities focus more on it (interesting – why?)
- Policies are inhibitors: for example the "one degree more" policy states that a teacher in a Bachelor's programme must have at least a Master's degree; as a result, many successful businessmen cannot come in to teach at the undergraduate level and MBA classes are taught by people who have no business experience. Although there are lots of activities, ministries work in complete silos and students are not encouraged to engage.

In all, there is awareness of the ambition and need to have entrepreneurship education in Malaysia, but current methods are not effective. There is a need to redesign curriculum and assessment practices as well as student choice. Students should be encouraged to appreciate the value of entrepreneurial activity through a voluntary approach. It is important to educate society and parents to view entrepreneurship as an alternative vocation. All of this should be put to work in the classroom.

*Eric Zimmerman, Director of Research Office and Global Engagement, Interdisciplinary Center Herzliya, Israel*

#### *Israel as a startup nation*

What makes the Israeli experience unique is not translatable, but can be shared. Israel is a small country where it is common to question everything, respect knowledge, and the religious culture of obedience also permits the ability to adapt.



Youth movements are entrenched in Israeli culture. We teach children to be independent and free thinkers. Education follows the Jewish tradition of questioning everything, including the professor and the answer to a question.

The Interdisciplinary Center Herzliya is small, private and highly international. We ask: how can we teach it and should we teach it? There are skills and behaviours that can be reinforced. Projects are student-generated. There are no incentives; no money from student projects.

Undergraduate programmes are three-year. All students can compete to go to the Zell programme, for which 20 students are selected. The programme includes a trip to Silicon Valley, alongside degree requirements. The third year is very intense.

Studies can be reinforced by developing workable strategies taught by real world people, not just theorists. Alumni have an important role and they provide capital, mentoring and internship opportunities. Networking is key. In addition to good academics, it is important to be connected with important businesses in the private sector.

### ***B: Business and private sector development***

*János Vecsenyi, Executive Director, European Forum for Entrepreneurship Research*

[The European Forum for Entrepreneurship Research](#) (EFER) fosters and promotes research and teaching in the field of entrepreneurship at institutions of higher education across Europe. EFER works with an extensive network of schools and professors from across Europe and around the world.

Over the past 25 years, EFER put entrepreneurship on the roadmap of European higher education and developed a network of first-class European professors and active entrepreneurs. EFER is now moving forward to build on this impact and reach out as educators to the entrepreneurs and job-creators of tomorrow.

#### Entrepreneurship education in Europe

Entrepreneurship has never been more important in Europe than it is today, as entrepreneurs are the drivers of job creation and economic growth. To catalyse more entrepreneurship in Europe, a change of mindset is needed. Education can, therefore, play a critical role. Universities, in particular, play a critical role in the entrepreneurial ecosystem, both in terms of training students, as well as serving as a hub to connect academia and business. The development and training of teachers, in addition to engaging entrepreneurs in the classroom, are key components for entrepreneurship education. More and better quality entrepreneurship courses can contribute to more students becoming future entrepreneurs.

#### EFER's role in entrepreneurship education

- Raising the visibility and impact of entrepreneurship education across Europe.
- The trained alumni professors impact the development of multiple students as potential international entrepreneurs.
- Creating lasting collaborative networks.
- The ongoing relationship of EFER alumni academics, entrepreneurs and practitioners is facilitated through common cross-border projects and networking meetings.
- Increasing use of interactive teaching approaches at European universities.
- Funding for new European-based entrepreneurial case studies.
- EFER alumni return to their home institutions and share their knowledge with peers, training is valued by institutions as more professors are sent each year.
- Case studies are integrated into coursework, and more European materials are developed.



### Developing and tracking European “gazelles”

Through the Champions project, 20 Eastern European entrepreneurs, or “gazelles”, who built their business beyond their own borders, were identified and case-studies were developed based on their stories. Students can now relate to an entrepreneurial journey from their home countries and environments. Universities are positioned as Centres of Dynamic Entrepreneurship to facilitate alumni collaboration with each other and with faculty.

EFER’s programmes on entrepreneurship teaching have been developed to address the gaps and needs identified in Europe through the research work conducted by EFER over the years. After these programmes, many alumni have revamped their teaching approaches and are working on further building the entrepreneurship programmes within their institutions.

EFER has also hosted numerous roundtables, seminars and conferences. Through these programmes and activities, EFER has focused on building links between academia, practitioners, and students in Eastern and Western Europe.

### European Entrepreneurship Colloquium (EEC)

The EEC is an intensive one-week residential programme, specifically designed for European professors and educators seeking to integrate more effective, appropriate and interactive approaches, and practical skills in teaching entrepreneurship. The EEC places heavy emphasis on the European dimensions of entrepreneurship, interactive learning approaches and exposure to the real world practices.

As of 2014, 538 professors from 205 universities in 48 countries worldwide have been trained in teaching entrepreneurship through the Colloquium.

EEC 2015 will take place on 19-25 July in Munich, Germany. Hosted by UnternehmerTUM at the Technical University of Munich, the programme will have the overall theme of “Technology and High-Growth Entrepreneurship”.

### *Mikko Vieltojärvi, Union of Students in Finnish Universities of Applied Sciences (SAMOK)*

Some entrepreneurship should be compulsory, but it is not for everyone. A number of tools, e.g. legal tools, are critical to help students. One important aspect is that, although they may want to be entrepreneurs, not all students will have the necessary skills or business ideas. Nursing studies, for example, need support for entrepreneurship; they have possibilities for ideas, but are not always eager to be entrepreneurs, whereas business students have the desire, but not always the ideas.

Learning outcomes for entrepreneurship are not necessarily different from other disciplines, e.g. students do not always know how to market their competences, but need help to make them visible.

### *Ioana David, President, European Confederation of Junior Enterprises (JADE)*

[JADE](#) is a student-formed and run enterprise offering consultancy to real companies. Students from undergraduate and graduate programmes run the Confederation on their own and want to connect with the labour market long before they graduate. Members generate innovation, creativity, etc. by creating a safe environment.

JADE believes that entrepreneurial education is a key for European youth to achieve:

- the right skills;
- the right business knowledge;
- successful work-life balance.

The concept was born in France, where the gap was recognised between what is taught in the university and what is needed in the world of work. The concept then developed in other countries, across Europe and then beyond. Today, JADE spans 12 countries, 280 J-enterprises, 20 000 students, and has generated EUR 16 million, which has all been reinvested in teaching (not for profit).



The typical student member is 18-24 years old, studies business, economics and engineering (but not exclusively), spends at least two years in the movement, is highly career oriented and considers him/herself to be entrepreneurial. The main drive for many students in fields such as health is not money or skills development, but to make a positive impact.

Research done with the European Commission shows that JADE students are more likely than non-JADE students to be risk-taking, adaptable, and to have other skills useful for entrepreneurship. The ambition to start a business is more common among JADE alumni than regular students.



### More about the OECD Higher Education Programme (IMHE)

The OECD Higher Education Programme (IMHE) is a permanent forum in which education professionals worldwide can exchange experiences and benefit from shared reflection, thought and analysis in order to address issues that concern them.

The Programme's activities have a global reach and include monitoring and analysing policy making, gathering data, and exchanging new ideas, as well as reflecting on past experience. These activities assist members to contribute to the development of higher education internationally, nationally and locally.

The Programme's strategic position within the OECD provides members with access to the OECD's rich evidence base, as well as to a recognised international network, drawing together higher education professionals, leaders, and policy makers, managers and researchers.

Higher education institutions, government departments, agencies and other higher education organisations from across the globe can apply to become members of the OECD Higher Education Programme (IMHE) and benefit from privileged access to a range of products and services developed within the Programme, under the oversight of the IMHE Governing Board.

Products and services for members include:

- programme member-only events that enable members to connect with other members – physically or virtually – to discuss topics of common interest;
- an annual publication for members on *The State of Higher Education*, annually, delivering comparative data, key policy developments in countries and thoughtful analysis of current higher education developments and policy challenges;
- a quarterly brief, *What it Means for Higher Education*, designed to help members navigate through the richness and abundance of OECD data and analysis on topics that have an impact on higher education, such as migration trends, demographics, economic growth, public finances, income equality and social mobility.

For more information about the OECD Higher Education Programme (IMHE) and how to join it, please see our website: [www.oecd.org/edu/imhe](http://www.oecd.org/edu/imhe)



# Annex 1

# Programme



## Thursday, 20 November

Otaniemi Campus, Open Innovation House

Address: Otaniementie 19-21, Espoo

Day 1	Location
<p><b>8:30</b>    <b>Participants check in</b></p>	Lobby, Open Innovation House (OIH)
<p><b>9:00</b>    <b>Welcome</b></p> <ul style="list-style-type: none"> <li>• Tuula Teeri, President, Aalto University</li> <li>• Anna Glass, OECD Higher Education Programme (IMHE)</li> </ul>	Seminar Hall, (OIH)
<p><b>9:15</b>    <b>Research and Education with Impact</b></p> <ul style="list-style-type: none"> <li>• Tuija Pulkkinen, Vice President Research and Innovation, Aalto University</li> </ul> <p><b>Introduction to Student Entrepreneurship Activity</b></p> <ul style="list-style-type: none"> <li>• Erika Noponen, Program Manager, Startup Life Internship</li> </ul> <p><b>Discussion:</b> Characteristics of Student Entrepreneurship: Key Success Factors, etc.</p>	
<b>10:15</b> <b>Coffee break hosted by Aalto University</b>	
<p><b>10:30</b>    <b>Workshop: Entrepreneurial leadership – the challenge for universities</b></p> <ul style="list-style-type: none"> <li>• Paul Coyle, UK’s National Centre for Entrepreneurship in Education</li> </ul>	
<p><b>11:30</b>    <b>Introduction to International Design Business Management programme IDBM</b></p> <ul style="list-style-type: none"> <li>• Mikko Koria, Programme Director, IDBM</li> </ul> <p><b>Introduction to <a href="#">Design Factory</a></b></p> <ul style="list-style-type: none"> <li>• Kalevi Ekman, Director, Design Factory</li> </ul>	
<b>12:30</b> <b>Lunch hosted by Aalto University</b>	
<p><b>13:30</b>    <b>Introduction to <a href="#">EIT ICT Labs</a></b></p> <ul style="list-style-type: none"> <li>• Marko Turpeinen, Director, EIT ICT Labs Helsinki</li> </ul>	Seminar Hall, OIH
<p><b>14:00</b>    <b>Session 1: Teaching entrepreneurship</b> 3 Groups</p>	Seminar Hall, AppCampus



Day 1	Location
<p>Themes and speakers:</p> <p><i>Developing curriculum for teaching entrepreneurship</i></p> <ul style="list-style-type: none"> <li>• Attila Pausits, Head of the Centre for Educational Management and Higher Education Development, Danube University Krems, Austria</li> <li>• Liz Shutt, Head of Policy, University Alliance, UK</li> </ul> <p><i>Courses and programmes: how we teach entrepreneurship</i></p> <ul style="list-style-type: none"> <li>• Tapio Siik, Head, Aalto Center for Entrepreneurship, Aalto University, Finland</li> <li>• Andres Kuusik, Centre of Entrepreneurship and Innovation, University of Tartu, Estonia</li> </ul> <p><i>Teaching failure as impetus for success</i></p> <ul style="list-style-type: none"> <li>• Rohan Workman, Manager, Melbourne Accelerator Program, The University of Melbourne, Australia</li> <li>• Eric Zimmerman, Director of Research Office &amp; Global Engagement, Interdisciplinary Center Herzliya, Israel</li> </ul>	<p>premises</p>
<p><b>15:00</b> Coffee break hosted by Aalto University   <i>Optional: tour of EIT ICT premises</i></p>	
<p><b>15:30</b> <b>Creating shared value – Case HealthSPA – the grassroots eco-system for health &amp; happiness start-ups</b></p> <ul style="list-style-type: none"> <li>• Christian Lindholm, co-founder <a href="#">HealthSPA</a></li> </ul>	<p>Seminar hall, OIH</p>
<p><b>16:00</b> <b>Multidisciplinary Research, Education and Innovation Activities at Aalto</b></p> <p><i>Health Factory - Innovation Foundation of MedTech Businesses</i></p> <ul style="list-style-type: none"> <li>• Raimo Sepponen, Vice Dean, School of Electrical Engineering</li> </ul> <p><i>Aalto Platforms for Multidisciplinary Research, Education and Innovation</i></p> <ul style="list-style-type: none"> <li>• Mauri Airila, Associate Vice President and Seppo Laukkanen, Associate Vice President</li> <li>• Aalto Energy Platform – Eeva-Leena Rautama, Project Manager, Aalto University School of Chemical Technology</li> <li>• Aalto Digi Platform – Ella Bingham, Research Coordinator, Helsinki Institute of Information Technology (HIIT)</li> </ul>	
<p><b>18:00</b> <b>Day 1 Closing remarks</b></p>	



## Friday, 21 November

Otaniemi Campus, TUAS-building

Address: Otaniementie 17, Espoo

Day 2	Location
<p><b>9:00 Summarising highlights of Day 1</b></p> <p><b>9:30 Promoting the entrepreneurial &amp; innovative HEI: barriers and enablers</b></p> <p><i>HEInnovate: A demonstration of the tool and discussion of its application</i></p> <ul style="list-style-type: none"> <li>• David Halabisky, LEED, OECD</li> <li>• Georgi Dimitrov, European Commission, DG EAC</li> </ul> <p><b>Motivating students to be entrepreneurial</b></p> <ul style="list-style-type: none"> <li>• Walter Bender, CEO and Founder, Sugar Labs; President, One Laptop per Child; Former Executive Director, MIT Media Lab</li> </ul>	<p>TUAS-building Seminar hall 2005</p>
<p><b>10:00 Coffee break hosted by Aalto University</b></p>	
<p><b>10:30 Session 2: Assessing Entrepreneurship</b></p> <p>Themes and speakers:</p> <p><i>Student learning outcomes and institutional ecosystems</i></p> <ul style="list-style-type: none"> <li>• Rozilini M Fernandez-Chung, Vice President (Quality Assurance), HELP University, Malaysia</li> <li>• Eric Zimmerman, Director of Research Office &amp; Global Engagement, Interdisciplinary Center Herzliya, Israel</li> </ul> <p><i>Business and private sector development</i></p> <ul style="list-style-type: none"> <li>• Mikko Vieltojärvi, Union of Students in Finnish Universities of Applied Sciences (SAMOK)</li> <li>• János Vecsenyi, Executive Director, European Forum for Entrepreneurship Research</li> <li>• Ioana David, President, European Confederation of Junior Enterprises (JADE)</li> </ul>	<p>TUAS-building Seminar hall 2005</p>
<p><b>12:00 Closing Plenary</b></p> <p>Discussion</p>	
<p><b>13:00 Lunch break</b></p>	
<p><b>14:00 Guided tours of Design Factory and Startup Sauna</b></p>	



## Annex 2

# Characteristics of the entrepreneurial university<sup>3</sup>

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3. This annex is only available in the PDF version of the document

**The Entrepreneurial University has:**

**1 Has strong networks**

- Good cooperation with stakeholders outside the university
- Connected with the needs of the region
- Able to change and meet society needs
- Linked with industry
- Embedded with industry collaboration
- Cooperation with companies
- Encourages links with industry
- Engages and interacts with business community
- Has a relationship with entrepreneurs
- Creating new links with the professional world
- Innovative technology transfer
- Flexible and reactive to its environment
- Internationalised

**2 Is Influential**

- A leader in society
- Key community stakeholder
- Innovative and not afraid to be outside the pack
- Contributing to policy making
- Seeking to overcome barriers and obstacles in the external context
- Has a strong drive to actively participate as an actor in the (local) economy
- Has an impact on regional social and economic development
- Creates jobs
- Cultivates entrepreneurial minds, cities, regions and organisations
- Part of a wide ecosystem of enterprise, organisations, institutions to co-work with

### **3 Supports student entrepreneurship through its curriculum and teaching**

- Promotes entrepreneurship and is student centric
- Actively encourages entrepreneurship in students
- Has a drive to prepare students to think about entrepreneurship
- Designing new curriculum and projects
- Innovation in the curriculum
- Entrepreneurial curricula
- Supports student initiatives
- Developing student skills e.g. working in groups
- Encouraging students to take risks and not limit them in their thinking
- Supporting autonomy and faculty/students taking chances
- Giving students time and space
- Innovative teaching practices
- Emphasis on learning not teaching
- Problem and project based education
- Project oriented
- Real business projects not just case studies
- Enterprise and innovation embedded in teaching
- Lots of teamwork instead of lectures
- Learning by developing
- Workshops and labs
- Facilitating, coaching and networking
- Provides a role model to students
- Entrepreneurial teachers who act as real life role models
- Contacts to private sector - internships and mentoring
- Mentors and experts are involved from outside the university
- Identifying opportunities to improve teaching
- Able to house academic practitioners and students as one community of learners

### **4 Undertakes Applied Research**

- Innovative research
- Enterprise and innovation embedded in research
- Research that is relevant to industry
- Research linked to real world needs
- Multi-disciplinary research that is commercialised
- Commercial applications and outputs of research activities

### **5 Encourages and Supports Start-Ups**

- University provides a platform/ecosystem to have start-ups (research, incubators and investors)
- Has incubators and start up labs
- Supports faculty to develop innovative start ups
- Supports business start up training and education

## **6 Adapts its organisation to become more entrepreneurial**

- Efficient operations
- Innovative governance
- New organisational structures
- Flexible in structure
- Not overly hierarchical
- Supports innovation with facilities
- Cross faculty cooperation
- Interdisciplinary at every level
- Matrix like
- Economically sustainable (self funding)
- Raising funds
- Provides space dedicated to entrepreneurs
- Provides infrastructure
- Student led decision making

## **7 Develops an entrepreneurial culture**

- Ambitious
- Adventurous
- Dynamic
- Confident
- Innovative
- Risk taking
- Open mindset
- Flexible
- Able to adapt and agile
- Enthusiastic atmosphere
- Seamless across education, research and community outreach

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## **8 Exercises leadership that develops entrepreneurial mindsets and behaviours**

- Encourages staff and students to act entrepreneurially
- All staff and students supported to be innovative and goal-oriented
- Engaging and supporting staff to work more creatively
- Identifying opportunities to share knowledge and to develop an entrepreneurial mindset
- Increasing opportunities for staff and students to develop, explore and implement their ideas
- Supports bottom up initiatives
- Working out of the comfort zone
- Accepting of failure
- Fosters new ideas and creative projects
- Supportive of entrepreneurial initiatives
- Open to creativity and ideas
- Continuously seeking opportunities
- Continuous willingness to review its processes



- Shared leadership which turns the entire university community entrepreneurial
- Stimulating and encouraging collaboration
- Ready to remove barriers to collaboration
- Encourages diversity of opinion
- Trust based
- Climate for discussion and debate (uncomfortable)
- Supporting leadership
- Non bureaucratic
- Motivated staff/personnel
- Trust within the organisation at all levels
- Professional leadership
- Supports leadership development e.g. the Bosch Leadership programme
- Innovation and enterprise indicators used in management

### **9 Ensures its staff are entrepreneurial**

- Hires entrepreneurial staff
- Professors have their own entrepreneurial experience
- Professors with business experience
- Rewards collaboration (internal/external) not publications
- Encourages interactive teams