



CESAER

conference of european schools  
for advanced engineering education  
and research

# CESAER Task Force Entrepreneurship

Final Report (June 2016)

# The Task Force Entrepreneurship provides valuable insights to best practices and challenges for the future

- The objective of the Task Force Entrepreneurship (TFE) was to **identify best practices** from the network **and challenges** that are unmet which are in particular applicable to the European universities of science and technology
- 27 universities are member of TFE and exchanged knowledge through a two-day workshop and surveys
- **18 best practices** were found, including:
  - Fablabs that offer prototyping, meeting rooms etc.
  - University led funds for the proof of concept phase of development
- **17 challenges** were identified **that will require more attention:**
  - Balancing academic aspiration and practically relevant teaching of entrepreneurship
  - Finding suitable role models of entrepreneurship
  - Merging the scattered regional ecosystems into one European ecosystem that creates impact

Some topics will be taken to the Task Force Innovation and further elaborated

# Outline

1 Aachen workshop outcomes

2 Survey results

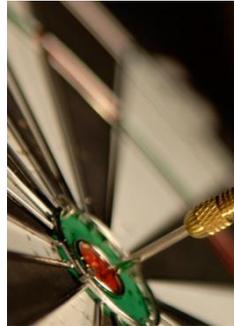
3 Combined conclusions

# The TFE delivers a collection of best practices and perceived challenges regarding Entrepreneurship

## Structure

- 30 Members from 27 European universities of science and technology
- started in Q2 2014
- planned end in Q2 2016

## Goals



- Identification of best practices among Member institutions
- Clarification of joint challenges that have to be tackled in the future

## Activity



- Two-day workshop to share best practices and foster dialogue between Members
- Conduction of survey regarding local best practices of Members

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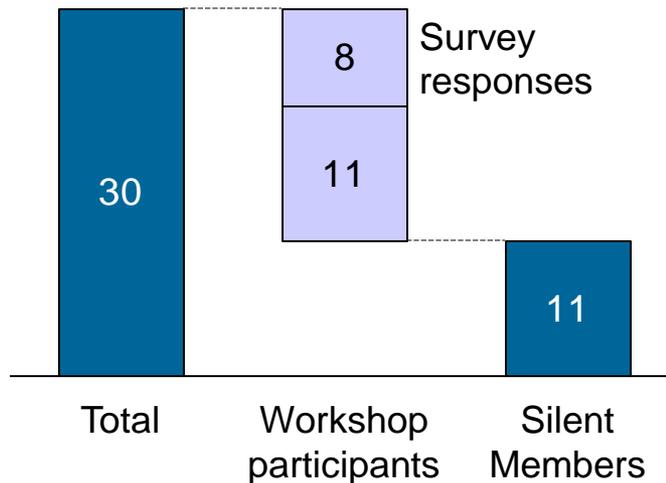
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# Members met in Aachen in order to share best practices and to discuss shared challenges

## Member participation Aachen



UNIVERSITY OF TWENTE.



TECHNISCHE  
UNIVERSITÄT  
DARMSTADT



Technical  
University of  
Denmark



RWTH AACHEN  
UNIVERSITY



POLITECNICO  
DI TORINO

## Workshop activities

1

Find challenges that are special for European universities of science and technology

2

Present and discuss selected best practices from Member institutions

Survey sent to Members for collection of further best practices and challenges

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# Politecnico di Torino identified challenges related to a necessary cultural change

## Challenge identification

Scientists are interested in publishing (foster academic career) rather than building own business

Departments form closed environments and lack multidisciplinary

Funding for TRL4–6 is missing (link between technical solution and real-life problem)

- How can a university of science and technology teach **entrepreneurial spirit**?
- How do you **incentivise researchers** to think beyond technology?
- How do you **fund the gap** between scientific research and Go-to-Market?

# EPFL emphasised how challenging the valley of death is to entrepreneurial researchers

## Challenge identification

Provision of network that “guides” entrepreneurs through valley of death with quality advice

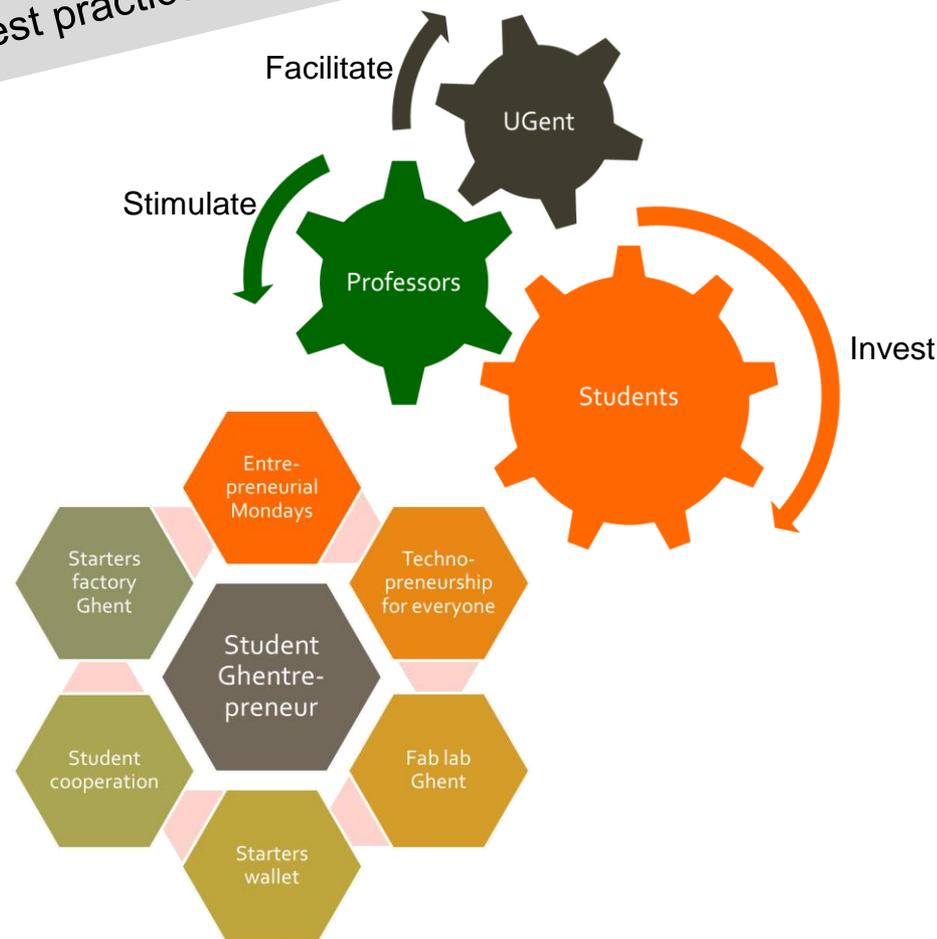
Funding the valley of death between creation of business model and growth of firm

Dilemma of supporting only a specific number of start-ups

- Who can be **mentors** the entrepreneurs really profit from?
- How can entrepreneurs build an **international network** at an early stage?
- How can “nerds” be **encouraged** to give the business idea a try?

# Ghent university presented their approach of an entrepreneurial ecosystem

Best practice example



University offers:

- Coaching by business coach
- Central information point
- Coordination of initiatives
- Promoting student entrepreneurship

Professors stimulate:

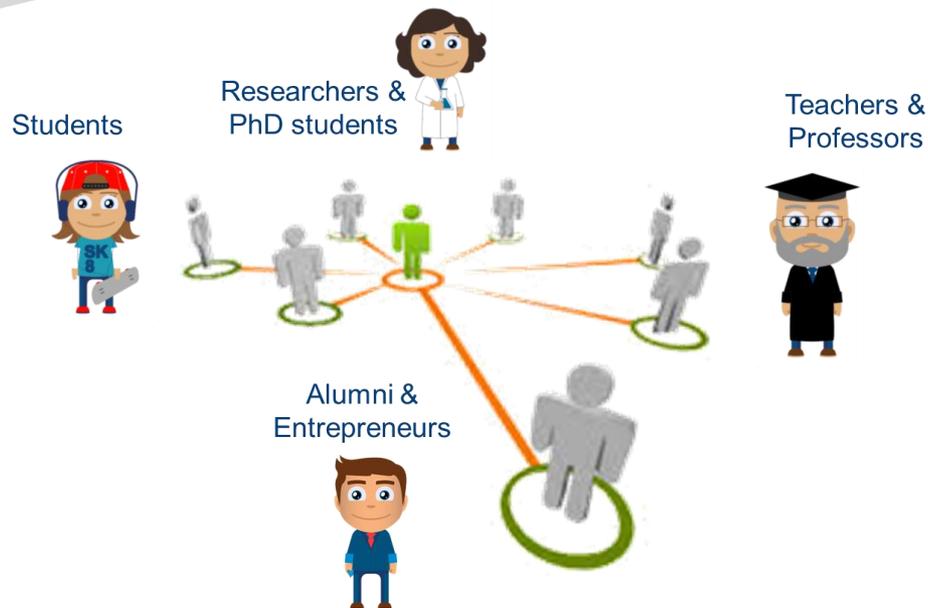
- Teach soft skills and work on real-life projects

Students invest:

- International business plan competitions, internships and seminars
- Successful entrepreneurs engage with university activity to encourage future entrepreneurs

# KU Leuven highlights the strong interaction between all stakeholders

Best practice example



- Doctoral schools include courses on entrepreneurship
  - modular programme with coaching
  - in form of contest with pitching event
- YouReCa (Young Researchers Career) as one-stop-shop for career related activities for young researchers
- Active role of TTO
  - Supporting entrepreneurship in collaboration with faculties
  - Providing incentives for researchers
  - Providing seed funding
  - Regional development and setting up incubator
- Entrepreneurship included in education policy of university
- Launch of Leuven Community for Innovation driven Entrepreneurship (LCIE)
  - university wide initiative driven by students
  - students providing support for start-ups

# Aalborg university demonstrated their approach of making entrepreneurship their daily business

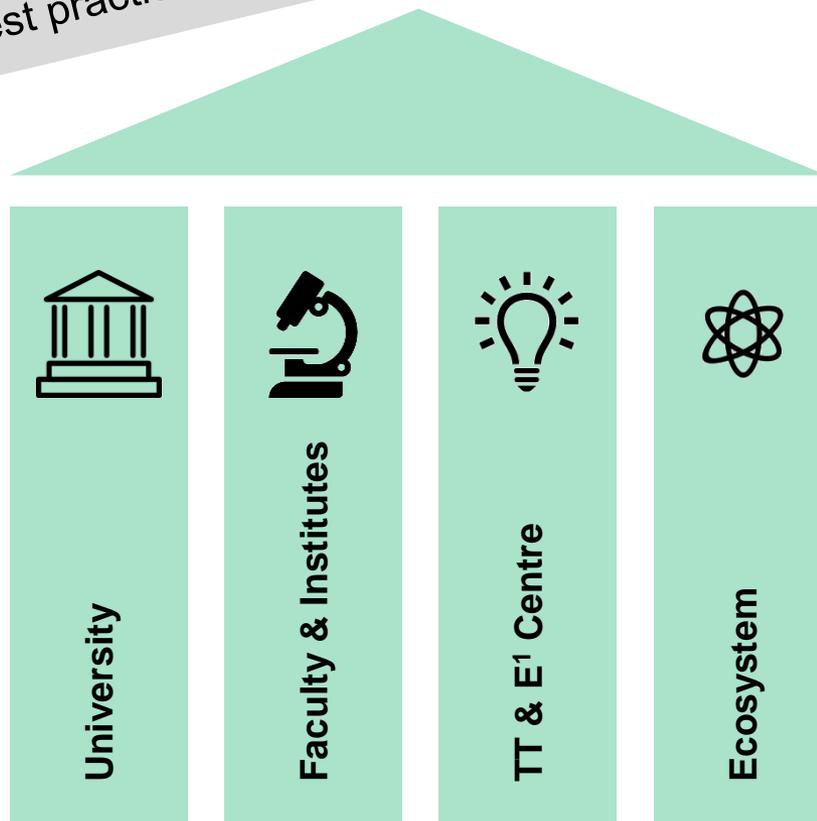
Best practice example



- AAU incubator
  - Workshops
  - Informal counselling on business ideas
  - Platform for team building
- Events & Competitions
  - Annual workshop on entrepreneurship & innovation
- Entrepreneurial Education
  - Creative thinking
  - New venture creation
  - Entrepreneurial Engineering
- Community
  - Kickstart Aalborg

# RWTH Aachen builds on four pillars that target the promotion of entrepreneurial activity

Best practice example



- University creates the best framework
  - Set up incentives
  - Provide infrastructure
- Faculties and institutes mobilise and educate students and researchers
  - Establish entrepreneurial ambassadors
  - Form network of scientific consultants
  - Root start-up support in education
  - Offer more extra-curricular events
- TT&E<sup>1</sup> Centre acts as one-stop-shop for transfer and entrepreneurship activities
  - Establish an incubator program
  - Improve Pre-Seed funding support
- Formation, advancement and maintenance of network
  - Form active founders' community
  - Integrate (trans)regional business partners
  - Foster cross-university collaboration

<sup>1</sup> Technology Transfer & Entrepreneurship

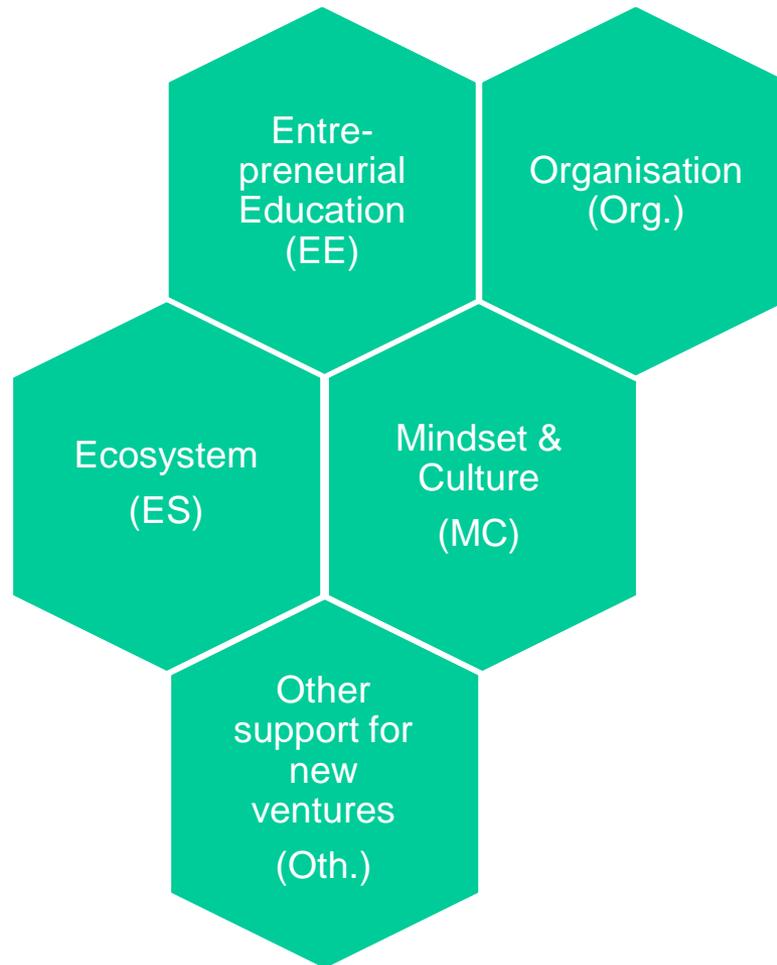
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# Several dimensions of university engagement were regarded when it comes to fostering entrepreneurship



- The entrepreneurial education inside and outside the classroom, interdisciplinarity and the curriculum
- The organisational structures that include collaboration between faculties and departments
- The ecosystem that surrounds the university and includes other organisations, local industry, chamber of commerce or municipalities
- The mindset of students, professors and other stakeholders and their entrepreneurial culture
- Other support instruments for new ventures that are applied such as funding

# The commitment of exalted staff supports cultural change and promotes alternative career paths

Best practices	Count <sup>1</sup>	Dimension
Compulsory Entrepreneurship courses		EE
Close to practice education (e.g. case studies, business games)		EE
Educate employees in terms of E&I <sup>2</sup> and raise awareness		EE
Community of interested professors/researchers/students		Org., M&C
Assigned responsibilities in each department <sup>3</sup>		Org.
Entrepreneurship centre close to/merged with TTO		Org.
Institute/Chair dedicated to Entrepreneurship open to all students		Org.
Strong commitment of e.g. professors (who push new career path)		M&C
Partners are located in close proximity (e.g. on campus, in fablab)		ES

<sup>1</sup> Number of times mentioned by Member institutions as a measure for perceived fulfilment

<sup>2</sup> Entrepreneurship & Innovation

<sup>3</sup> who also influence the university's policy making

# Few Members do already have innovative ecosystem approaches in place such as shared labs

Best practices	Count <sup>1</sup>	Dimension
Connect entrepreneurs with business partners in events		ES
Regional network to municipalities, industry partners etc.		ES
Link entrepreneurs to successful alumni through events		ES
Interdisciplinary courses to connect students across faculties		M&C
Teaching is based on problem-based learning		M&C
Internal grants and funding in place		Oth.
Lab that provides prototyping facilities, meeting rooms etc.		Oth.
Initial support is standardised to focus on most advanced teams		Oth.

<sup>1</sup> Number of times mentioned by Member institutions/Perceived fulfilment

# Many Members perceive it to be difficult to find role models for entrepreneurship

Challenges	Count <sup>1</sup>	Dimension
Shifting time in curriculum from classic fields to E&I <sup>2</sup>	●	EE
Academic aspiration vs. practical relevance of education	●	EE
Streamlining and promotion of courses across all faculties	◐	EE
Students must not attend courses from other faculties	◑	EE
Find entrepreneurial role models (with academic skills)	●	EE; ES; M&C
Include trends such as digitalization early on	◑	EE
Difficult initialisation of cross-department/faculty activities	◐	Org.
Allocated budget by university is insufficient for initiatives	◐	Org.
Separation of TTO and Entr. activities lead to inefficiencies	◑	Org.

<sup>1</sup> Number of times mentioned by Member institutions as a measure of perceived severity

<sup>2</sup> Entrepreneurship & Innovation

# Students of science and technology need to become less afraid of starting their own business

Challenges	Count <sup>1</sup>	Dimension
Uncertainty on how to fund and how to support fast growth		ES, Oth.
Merge scattered, European ecosystems into influential one		ES
Establish university as regional contact point for entrepreneurship		ES
Bundle regional activity to maintain optimum of activity <sup>2</sup>		ES
Risk-averse students that prefer secure jobs in existing industry		M&C
Establish founding as new career path that is an actual alternative		M&C
Funding of research on TRL4-6 and long time to market industries		Oth.
Funding landscape is scattered		Oth.
Refinancing <sup>3</sup> through acquisition of shares becomes difficult		Oth.

<sup>1</sup> Number of times mentioned by Member institutions/Perceived severity

<sup>2</sup> Too much activity in region leads to decreasing interest from future entrepreneurs

<sup>3</sup> Expenses for coaching and all support activities for entrepreneurs at university

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# Outstanding best practices were identified and implemented examples were presented

## E. Education

- Compulsory entrepreneurship courses as well as teaching of practical skills
- Education of (non academic) staff in order to raise awareness
- Raise interdisciplinarity wherever possible

## Organisation

- Assignment of a person responsible in all faculties who defend entrepreneurial interests in the dialogue with university's management
- Close relationship between TTO and Entrepreneurship centre

## Ecosystem

- Close proximity of researchers and external partners e.g. in shared labs
- Bringing future entrepreneurs in touch with alumni who have successfully started their own business

## Mindset & Culture

- Strong commitment of exalted personalities within faculties promote new career path
- Platforms where interested students and researchers can meet across all faculties to bundle competencies



- DTU Skylab that combines a prototyping workshop, office facilities, social space and event rooms where students and external partners can meet
- AC<sup>2</sup> in Aachen is a competition where teams find each other and business plans are build with the support of the regional ecosystem

# Many challenges were identified that need to be tackled in the future

## Challenge

- Shifting time in curriculum from classic fields to E&I
- Academic aspiration vs. practical relevance of education
- Find entrepreneurial role models (with academic skills)
- Risk-averse students that prefer secure job in existing industry
- Funding of research on TRL4-6 and long time to market industries

## Action that might tackle the challenge

- Commit the university's management strongly
- *Action to be identified*
- *Action to be identified*
- Increase interdisciplinarity in teaching and promote new career path through professors
- Start own seed-fund in collaboration with network

Only few challenges can be tackled by best practices that are identified today

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