White paper
Entrepreneurship

Tech strategy process 2020-2021

December 2020

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1. Introduction

1.1 About the white paper

In this white paper, a group of Faculty experts described their idea of how the overall ambitions of Tech's effort in Entrepreneurship could be put into practice in the future. The focus group represented all seven departments, the AU School of Engineering and the two national centres and thus, reflected the broad diversity of Tech's current status in entrepreneurship. Some parts of Tech have a long/strong tradition of entrepreneurship, while to others entrepreneurship would be a new initiative.

The purpose of the white paper is to contribute with professional analyses, knowledge and ideas for the development of a strategy for the faculty. The white paper defines a long-term ambition as well as pointing out key action areas, where Entrepreneurship can start, and from where it can be strengthened in the future.

The white paper has been prepared in November and December 2020, where it will be handed to the Dean's Office and the Faculty Management of Tech, who will make the decision of implementing initiatives in Entrepreneurship.

The white paper has been developed in an accelerated process where a group consisting of 12 employees from Tech's departments has put forward ideas of how the faculty could work with a strategic focus on Entrepreneurship. Thus, the white paper emerges from a specific context and a specific group of employees with unique competences and professional expertise, and is to be regarded as such. Ambition, timeline, initiatives etc. should be adjusted based on the individual department, given the diversity in the starting point for implementing entrepreneurship, and it should be reviewed on a continuous basis as the capability in entrepreneurship is strengthened. There should be a concrete evaluation before all major initiatives are set going.

2. Focus and status for Entrepreneurship

2.1 Definition and delimitation of the theme

Entrepreneurship is the willingness, the courage, the motivation to start a new business. It includes spinouts and start-ups from both students and employees.

However, in this white paper, and based on the framework provided for the focus group (the 'how' questions listed below), there was a need to define the **'entrepreneurial faculty'** to represent the broader concept of what Tech should achieve to strengthen its current position. The focus group agreed that the 'entrepreneurial faculty' requires a solution-oriented mind-set that includes:

- **entrepreneurship**
- **intrapreneurship**
- **innovation**
- **spinouts**
- **start-ups**
- **collaboration with small, medium and/or large companies and**
- **knowledge transfer to small, medium and/or large companies**

Therefore, throughout this white paper, the term 'entrepreneurial faculty' refers to, and includes the bullet points listed above.

Questions, provided by Tech and delimiting the focus group workshops, were:

- How do we ensure coordinated collaboration across disciplines to develop entrepreneurial solutions?
- How do we ensure an open door to collaboration between TECH and external companies?
- How do we ensure that students and researchers have the right competencies to create start-ups? What can we learn?
- How do we ensure a professional anchoring and value creation in relation to the set-up in The Kitchen?
- How can The Kitchen contribute to the success of the scientific communities on entrepreneurship?
- What barriers, including the culture in relation to entrepreneurship, are there in relation to us becoming strong in entrepreneurship?

2.2 SWOT-analysis

The starting point for the white paper was a SWOT-analysis, describing the strengths, weaknesses, opportunities and threats for Tech's effort in Entrepreneurship. Thus, the SWOT-analysis is a situation analysis that provides an understanding of the framework conditions that underlie the initiatives listed

below. Each representative in the focus group made a SWOT-analysis on behalf of his or her own department. The focus group represented all the Faculty's different departments and represented different traditions, ideas and possibilities. It should be noted that the following generalised outcome of SWOT-analysis does not explicitly reflect the diverse starting point for each department at Tech in relation to entrepreneurship.

In general, the conditions for strengthening entrepreneurship at Tech are good: Tech has an inherent focus on impact on the outside world, and Tech represents many angles to green transition, engineering and science with an interdisciplinary approach. On the other hand, Tech lacks an overall culture for entrepreneurship, both among students and staff, and the structures supporting an entrepreneurial faculty are weak.

The SWOT-analysis as a whole is found in Appendix A.

3. Ambition for Entrepreneurship – strategic direction

3.1 Strategic ambition and indicators

AMBITION:

Tech is a leading research-based 'entrepreneurial faculty', based on our inclusive culture and collaborative system, committed to the sustainable green transition

The focus group agreed during a workshop on the above one-liner as a general recommendation and strategy for The Faculty of Technical Sciences at AU. To achieve becoming a leading entrepreneurial faculty it is important to realize that this requires a change in culture and motivation for researchers and students. A quote to define this is that *'Culture eats strategy for breakfast'* (Peter Drucker). To achieve this ambition within green transition, Tech will need to think outside the box, moving away from business as usual into the entrepreneurial development and societal transition. This transition will challenge society, as well as Tech.

Entrepreneurship could be AU's fourth leg (to complement research, education, policy advice). The ambition is general, but the focus group identified the need of dividing the effort to reach the ambition in the entrepreneurial area into two key areas: ***Culture and Structure.***

The division between culture and structure is used in the following white paper to explain and clarify the focus group's thoughts on the dilemmas, focus areas and attention points.

3.2 Key dilemmas

The dilemmas were identified by the focus group during and between workshops. The dilemmas below here are ranked in approximate order of importance. The dilemma between the university's existing core activities – teaching, research and, in part, policy advice – and entrepreneurship should be prioritized.

CULTURAL dilemmas

KPIs based on research and teaching excellence	↔	**KPI based on delivering on an 'entrepreneurial faculty'**
Incentives for core activities: **Teaching, research & policy advice** (obligation, publication, impact)	↔	**Incentives for delivering on an 'entrepreneurial faculty'** (informal)

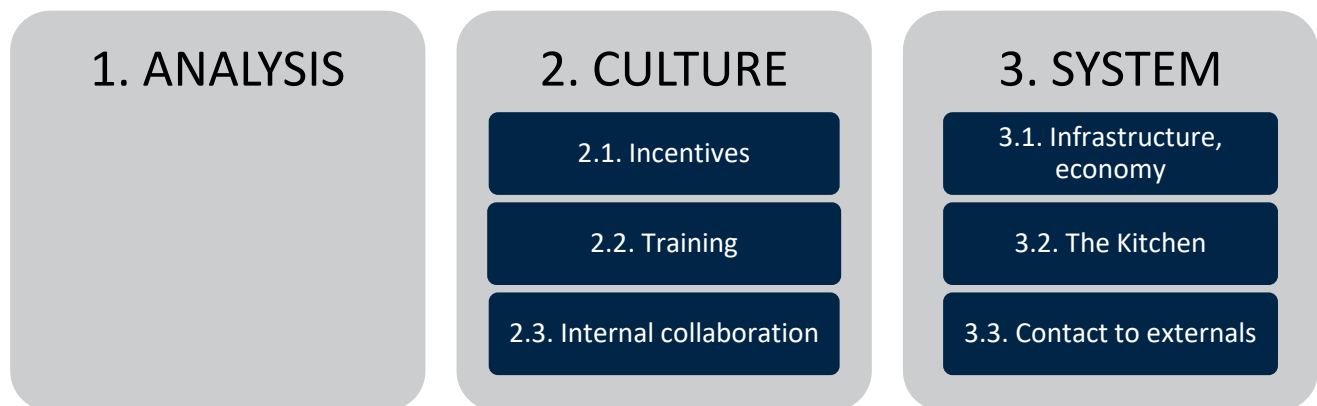|		
Studying, study process (demand for progress, passing exams)	↔	**Entrepreneurship** (personal interest)
Publications	↔	**Patents**
Fundamental research: Approach is discipline / hypothesis based	↔	**Applied research: Approach is interdisciplinary / problem based**
Geographically dispersed departments	↔	Wish for close collaboration
Single mandatory courses in entrepreneurship	↔	Embed entrepreneurship in "all courses"
Theoretical training - WHAT	↔	Practice training – HOW
Fundamental/Scientific courses	↔	Entrepreneurial courses
Collaboration big companies	↔	Partnership with SMEs / start-ups
Subcultures can be good and strong	↔	Inclusive cultural change unify
Academic "network"	↔	Entrepreneurial "true" network

STRUCTURAL dilemmas

Open door collaboration	↔	Protect IP for spinouts / start-ups
Securing IP, rigorous contracts	↔	Fast negotiation & administration
Dispersed locations for staff	↔	Centralised support by TTO and the Kitchen
Learning-by-doing	↔	Theoretical, research-based learning
AU infrastructure (The Kitchen)	↔	Tech infrastructure (research)
AU profiling in entrepreneurship	↔	Tech profiling as an 'entrepreneurial faculty'
Fast track contracts provided for research	↔	Fast track contracts needed for spinouts and start-ups
Department activities	↔	Faculty level activities
"Knock on our door" – (we are currently Closed)	↔	AU Ecosystem for SME's and Start-ups (need to show we are Open)

3.3 Possible key action areas

The focus group members all provided their thoughts on possible focus areas that could be implemented in order to deliver on the overall ambition. The key actions were categorised into sub-sections, in order to highlight the most important focus areas and to make it easier to understand the context and discussion between the members of the focus group..

The focus group emphasised that it does not see that all staff and students should or could become entrepreneurs or even entrepreneurial. Probably, only a fraction of the staff and students will become actual entrepreneurs. The core faculty activities could still be research, education and policy advice, but a more widespread entrepreneurial mind set and culture is needed to deliver on the ambition of becoming an 'entrepreneurial faculty'. It is important that the faculty strategy define KPI's for the various entrepreneurial activities that should define the entrepreneurial faculty.

A condensed presentation of the most important focus areas:

1. ANALYSIS	2. CULTURE	3. SYSTEM
	2.1. Incentives	3.1. Infrastructure, economy
	2.2. Training	3.2. The Kitchen
	2.3. Internal collaboration	3.3. Contact to externals

1. Analysis
- Performing a barrier analysis with involved parties (researchers, students, businesses/SMEs, etc.) to establish a more detailed perspective with respect to what it will take to increase entrepreneurial activities and to become an 'entrepreneurial faculty'.

2. Culture

2.1 Culture - Incentives
- Create a reward system/incentive model (curriculum, money, time, ECTS points) that facilitates a cultural change, in which entrepreneurial activities become an attractive alternative/addition to research.
- Create KPIs that represent a transition to the 'entrepreneurial faculty':
    o Create KPI's around impact and success, e.g. acknowledging patents, start-ups, spinouts, partnering with SME's and start-ups,
    o Create KPI's on percentage students and researcher entering into start-ups or spinouts.
- Branding towards recruitment of entrepreneurially minded students, that TECH can be the route to creating you own business.
- Highlight the AU double degree system for entrepreneurship.
- Pixie book on examples and success stories, FAQs for both research-based start-ups and spinouts, as inspiration.

2.2 Culture – Training
- Teaching entrepreneurship: Mandatory to offer basic entrepreneurship course for all students
- Collect and showcase some successful examples of research-based spin outs and start-ups within the green transition; their journey to success, as inspiration
- Targeted training the trainers: Train course responsible and key teaching staff to ensure entrepreneurship is embedded into all courses, where relevant

- Include external companies in courses to have good cases presented – best incentive!

2.3 Culture – Internal collaboration

- Launch an (annual) cross-faculty brain storming day for knowledge exchange and to inspire collaborations across departments in the Tech faculty
- Enhance and actively facilitate closer collaboration between institutes/centres to facilitate entrepreneurship and interdisciplinarity
- AU interdisciplinary centers should focus more on entrepreneurship – as many of them are already including several departments, thus they can provide a basis for interdisciplinary collaboration in research-based entrepreneurship.

3. System

2.43.1   System – Infrastructure, economy

- Fast track start-up/spinout contracts and collaboration agreement templates from TTO
- Local lab-spaces where students can interact with the applied field that connects to the theoretical and research-based learning.
- Tech cost analysis and guideline for how to create 'open facilities' and provide paid access to Tech research infrastructure for spinouts, start-ups and external spinouts / SMEs.
- Funding/economic model for partnerships and capital investments from AU and externally

2.53.2   System – The Kitchen

- A system similar to the Tech fundraisers: Identify structurally how to have a local entrepreneurial ambassador/liaison officer who will connect internally with staff, to other departments and to The Kitchen – a local entrepreneur at all places
- A member of The Kitchen could be placed, e.g., one day a week, in the different departments and sections to be close to the staff they should help and encourage. Also, in curricular activities.
- A wish for The Kitchen: Be more visible; reach out to the departments and centres.

2.63.3   System – Contact to externals

- Work with local and national business associations / networks to reach companies
- Hire business outreach consultants who have a business network to make contacts
- Support from the faculty to create reach out events – like brainovation days
- Collaboration with others existing incubators: Some external incubator environments fit better than AU – e.g. Food & Bio Cluster DK for primary agriculture.

4. Attention points for realisation of ambition

It is critical to strengthen incentives for becoming an 'entrepreneurial faculty'. If the incentives for entrepreneurship do not improve, it will be difficult to achieve the ambition.

There is substantial experience within entrepreneurship in a few departments. Establishing formalised exchange of experience between entrepreneurship-strong and -weak departments will improve chances of becoming the 'entrepreneurial faculty'.

There are very experienced entrepreneurship environments at and outside AU. Learning from the better ones, e.g., BSS and international collaboration consortium / partners will also improve the likelihood for success as an 'entrepreneurial faculty'.

It is important to align the outcomes of the present white paper with the other focus group outcomes, particularly the focus group on the green transition.

5. Process plan for working with Entrepreneurship

After the three workshops, it is clear that the departments in the Faculty are very different in terms of how far they are in the entrepreneurial area, how much they want to focus on it, and hence, what is possible for them.

This diversity is important to consider in the subsequent process plan, timeline, expectations and strategy for the Faculty in relation to becoming an 'entrepreneurial faculty'.

A conclusion is that to be able to strengthen entrepreneurship at Tech, focus should initially be on the cultural changes needed, but that some of the structural changes should also be overcome to increase the likelihood for success.

The focus group has agreed that these steps are the first and most important ones to take:

A. Performing a barrier analysis with involved parties (researchers, students, business/SME, etc.), in order to ensure a more detailed perspective with respect to what it will takes to increase entrepreneurial activities and become the 'entrepreneurial faculty'.
B. Create a reward system/incentive model (money, time, ECTS points, curricular) that facilitates a cultural change, in which entrepreneurial activities become an attractive alternative to research, teaching and policy advice.
C. Create KPIs that represent a transition to the 'entrepreneurial faculty':
    a. Create KPI's around impact and success, acknowledging patents, start-ups, spinouts, partnering with SME's and start-ups.
    b. Create KPI's on percentage students and researcher entering into start-ups or spinouts.
D. Mandatory to offer basic entrepreneurship course for all
E. Create fast track start-up/spin out contracts and collaboration agreement templates from TTO
F. Create local lab-spaces where students can interact with the applied field that connects to the theoretical and research-based learning.
G. Identify structurally how to have a local entrepreneurial ambassador who will connect internally with staff, to other departments and to The Kitchen and link to industry (similar to the Tech fundraisers)
H. Establish formalised system to facilitate that students get access to the entrepreneurial research areas outside of Campus (the hatcheries to supplement the Kitchen on Campus)

6. Composition of the focus group

Chair   Michelle Williams, FOOD
Chair   Stefan Borre-Gude, ASE
AGRO   Henrik Brinch-Pedersen

ANIS	Jan V. Nørgaard
ANIS	Mette Olaf Nielsen
ASE	Helle Wivel
BIOS	Annette Bruhn
BIOS	Stine Slotsbo
DCA	Margrethe Høstgaard
DCE	Michael Strangholt
ENG	Henning Sejer Jakobsen
ENVS	Hans Sanderson
ENVS	Pedro Carvalho
FOOD	Stella Spanou
QGG	Kristian Meier
Tech	Ida Grarup, secretary
Tech	Thomas Plesner, facilitator

7. Appendix (not included)

Appendix A: SWOT-analysis