Supporting Entrepreneurship, Innovation and Research Engagement in Universities – a Danish Example

Frank Gertsen
Professor in Innovation Management
Aalborg University, Denmark
Visiting professor at CInIS, University of Western Sydney
Agenda

Aalborg University (AAU), and its outreach
Supporting entrepreneurship and innovation at AAU

Examples:
- Incubator
- Wofie ’08 - offer innovation training to students
Aalborg University

1974: Established Aalborg University Center

2007: Aalborg University (AAU) – today

- 5 faculties
  - Humanities
  - Social Science
  - Engineering, Science and Medicine
  - Danish Building Research Institute

Main missions
- Education
- Research
- Outreach
  - International
  - Regional (Denmark)
## Academic staff 2006

<table>
<thead>
<tr>
<th>Category</th>
<th>Full Professor</th>
<th>PhD-stud.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities</td>
<td>149</td>
<td>15</td>
</tr>
<tr>
<td>Social Science</td>
<td>200</td>
<td>20</td>
</tr>
<tr>
<td>Engineering, Science and Medicine</td>
<td>884</td>
<td>87</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,243</strong></td>
<td><strong>127</strong></td>
</tr>
</tbody>
</table>

Approximately 13,000 students
KT activities at AAU - and their users

Public debate
- Exploratorium (for younger students)
- Primary school
- High school

International cooperation
- MATCH-MAKING
- Advisory bodies

Career Center
(student and career counselling)

Incubators

Consulting services

Commercialization

Non innovative SME
- Voters

Innovative SME
- Politicians

Public Institutions

Companies with R&D
- Big multinational Companies

WEAK USERS
- Publications
- Regional cooperation
- Network activities
- Knowledge-intensive entrepreneurship
- Student projects (in cooperation with companies)

STONG USERS
- Patents
- Collaboration projects
- Lifelong learning
- Continuing education
- Spin Outs
- Outreach

www.aau.dk
Collaboration with Aalborg University

Student-projects (a back bone)
Industrial PhD./PhD.
Co-funding of staff and instruments
Projects (AAU-company)
Projects (AAU-company-foundation/research council)
Use lab-facilities
Hire researchers/consultants
Rental of office space on campus
Networking activities
Dedicated courses
Write common applications
Contact international/national
The Aalborg model

*Problem-based Project Organized Learning*

Extensive student group work  
One project each semester (50%)  
Course work (50%)  
Each group has a supervisor  
Often self composed group and projects within themes and in collaboration with companies  
Individual assessment at the end of the semester
Group Work

Projects elaborated in groups of 2-8 persons
Every group has assigned office space
More than 1200 group rooms available.....
Supporting Entrepreneurship at AAU (SEA)

- Increased focus in 2001
- Target groups: Students, candidates, phd students, employees
- Three areas in focus: Teaching, research, creating and supporting entrepreneurship activities

Teaching:
- Single courses in entrepreneurship at all faculties
- New educational programmes in entrepreneurship

Research:
- Strong research environment in innovation
- Entrepreneurship was/is lacking behind – (now 3 courses)
- All three faculties are involved in the coordination of scattered activities

Creating an innovative culture and supporting the creation of businesses:
- “SEA” is creating the culture
- Creating networks of entrepreneurs
- Training entrepreneurship in practice – businesses are created
The vision for programmes and activities - maturity contingent support of entrepreneurship

- Motivation and culture
- Entrepreneurship courses

1. - Creating the business plan
   - Mentoring by experienced entrepreneur
   - Embedded business incubator

2. - Networking
   - Specialized coaching from professionals
   - Access to financing

3. - Management groups

4. - Networking activities
The coherent system of innovation (‘V.I.P.’)

• Creating a framework for entrepreneurs
• Based on partnerships within the region – and outside. Including
  – The established business community
  – Science Parks
  – National Entrepreneurship Academy, IDEA
  – North Jutland Regiony
  – The surrounding municipalities
  – Venture Cup
  – Connect Denmark
  – Several others
Current projects - examples

• Events, and introductory courses in entrepreneurship – for knowledge based idea

• ‘Embedded business incubators’
  - Placed within the scientific environment with access to laboratories, databases etc.
  - Open for students, postgraduates students and others.
  - Strong focus on how to commercialise business ideas
  - Incubators at Department of: Production, Computer Science, Health Science and Technology, VR Media Lab, Business Studies, Architecture, Physics and Nanotechnology
  - Weekly courses, mentor, advisors from the business, internal supervisor
Current projects – more examples

- 8W – training entrepreneurs
  - Held twice a year for starting entrepreneurs
  - Mentor is provided for all start-up teams
  - More than 250 have participated in 5 years
  - Series of 8 sessions 5-9 pm (presentation/discuss.)
Current projects - examples

• “Creativity Lab” – increased focus on creativity
  – A room created for supporting the creative process
  – A mobile crew for “rent” (companies, institutions)
  – To be used by all kinds of students

• IDEA – International Danish Entrepreneurship Academy
IDEA – International Danish Entrepreneurship Academy – I

‘MVission’

- Develop knowledge-based entrepreneurship/innovative competences in higher education and establish international/national network of relevant actors

Support activities

- New educational programs and teaching initiatives
- Student growth houses, associations, and networks
- Teaching materials
- Research projects
IDEA – International Danish Entrepreneurship Academy - II

Organization

- National level coordinator and 5 regions of Denmark
- Collaboration between more than 30 partners across Denmark
- Universities, business schools, larger companies etc.
- Aim is to create more and better entrepreneurs across the education system.

Budget ~17 mill. AUD over 4 years

- Government 8
- Private (Danfoss) 2
- Misc. + co-funding 7

Further details:

- [www.idea-denmark.dk](http://www.idea-denmark.dk) (e.g., Annual Report)
- [www.idea-nord.dk](http://www.idea-nord.dk) (Aalborg University and professional schools) (limited English text available, sorry)
Examples of Entrepreneurship/innovation initiatives at AAU

- The incubator
- IPR and commercialization course
- MINE Workshop
- IDEA North Conference
- Solution Camp ‘07
- Commercialization Camp
- Teach the teacher (Uni – prof. BSc)
- WOFIE ‘08
The incubator set-up at Aalborg University

- Half-year period (some are extended)
- Central coordinator (SEA-staff at AAU Innovation)
- Local incubator coordinators (e.g., me) ‘embedded’
- Supervisor(s) – relevant skills (70 h ext/int)
- Mentor – an external entrepreneur/venture (new)
- Weekly course attendance
- The hosting dpt. gets a grant per student to cover costs
- First period funded by Government/EU social fond, now regional development money
- Recruitment: Students, candidates, phd students from AAU. Criteria considered:
  - Motivation and (technical) skills
  - Innovation/knowledge level
  - Growth potential and market relevance
  - Timing issues
Incubator program, ex. second half 2007

- Kick off meeting
- Marketing course
- Milestone meeting (individual)
- Business economy course
- Sales and presentation course
- Milestone meeting (individual)
- Funding opportunities course
- Legislation course (incl IPR)
- Mid-term evaluation
- Corporate Game (simulation gaming)
- Creativity Camp
- Connect Denmark networking meeting
- Networking meeting (sharing/learning internally)
- Networking meeting (sharing/learning internally)
- Evaluation
(total: 76)
Former incubators current situation

- In different job or study: 39%
- Full time company: 20%
- Part time company: 20%
- Cont. Work on idea in incubator, no. Income: 21%

About half of business ideas are generated by projects which are part of studies.
A (so forth) successful incubator case

- A new measuring instrument to increase the success rate at hip prosthetic operations

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
Implant and reamer

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
To large cup creates fractures
Loosening of cup due to osteoporotic (soft) bone

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
Loosening of cup due to hard bone

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
The purpose

- Enable more qualified decisions by surgeons regarding **interference fit btw hip socket cup and and hip socket**
- Better efficiency/quality/cost, less ‘rework’, less pain

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
Measurement tool prototypes

Prototype 1
• Ready

Prototype 2
• Redesign
• Electronic
• Visualization
• Better data

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
Market (and patents)

- 1+ mill. Pcs per year (conservative esti.)
- Est. sales prices 100 $

Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
Thanks to entrepreneurs Søren Grøndahl Buch (MSc), Eske Winther Petersen (MSc), Poul Torben Nielsen (consultant surgeon) for providing presentation materials
A hip-hurray for the incubator

The National Winners of Venture Cup 07/08
2nd prize (125.000 DKK ~ 27.000 AUD)

Medichanical Innovation (AAU)
A new measuring instrument to increase the success rate at hip prosthetic operations
Some case-learnings

💡 Came out of a bachelors thesis, collaboration with the local hospital (crossing disciplines)

💡 The incubator program - a successful kick-start

-Coaching by relevant university people, training in business planning, communication, IPR, counselling with experienced entrepreneurs, legislation, building a network around the business

💡 Exposure/leverage, e.g., through regional/national venture competition

💡 A good complementary team
Evaluation report on student greenhouses in Denmark - from summary for Aalborg

**Pros**
- Six month development period
- Building on student’s own projects
- Team – not individual – based
- Advisor team
- Associated information officer
- SEA network for teachers
- KreaLab

**Cons**
- Many activities, complex structure (SEA, IDEA, Greenhouse, KreaLab, Incubator, BizBest etc)
- Consider earlier recruitment (while student) to start maturing the idea
WOFIE

The largest workshop in the history of Aalborg University

- WOFIE´08 – interdisciplinary workshop focusing on innovation and entrepreneurship took place in the spring of 2008.
- WOFIE´08 was offered to all master students at Aalborg University (Aalborg, Esbjerg and Ballerup)
- 474 master students from all faculties were enrolled
The Goal of the Workshop
WOFIE’08 should give the students knowledge about how interdisciplinary development can lead to innovative concepts and strategies with business and development potentials.

Based on
- interdisciplinary collaboration (broad palette of master students)
- expert inputs, e.g., about future trends
- interdisciplinary groups of students are to develop innovative and unique concepts
- the students will further develop strategies with business and development potentials

Video clip
WOFIE

Teaching Methods and Tools

Interdisciplinary groups of 5-6 students  
Seven locations at Aalborg University (Aalborg, Ballerup and Esbjerg)  
Guided by a detailed Wofie ‘script’ for location leaders and supervisors

Methods

• Presentations via Livestreaming (one-way TV-transmission)  
• Following each presentation an online Q&A was open for 1-2 hours  
• WOFIE Brain Bank – student write 5-10 key competences in their online WOFIE profile, for sharing competences among students.  
• Highlights documented on WOFIE-TV – each night  
• WOFIE-TV and other WOFIE information accessible via www.wofie.aau.dk or www.wofie.dk

Tools

• Focus on creative methods (The creativity lab)  
• Generating new and innovation ideas and concepts  
• Business plan development
WOFIE

A few wrap ups

Evaluation is in progress, but generally considered a success

It is designed to be scalable and less dependent on location
AAU would like to make an ECIU-WOFIE
(European Consortium of Innovative Universities)

Further information

WOFIE www.wofie.dk
http://youtube.com – search aauwofie