Putting entrepreneurship in the driver’s seat

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Professor and co-founder of school
Chalmers history of Entrepreneurship

• Chalmers university spin-off rate per employee 1964-1981 was only slightly lower than at MIT and ten times higher than Stanford (McQueen and Wallmark, 1982).

  However, in the comparison, Chalmers spin-offs on average had fewer employees and thus less growth.

• Recognized one of the more entrepreneurial universities in the world (Clark, 1998, Wright et al., 2007, Philpott et al., 2011, Åstebro et al., 2012, OECD, etc).
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>Torkel Wallmark with US experience is appointed professor in microelectronics</td>
</tr>
<tr>
<td>1969</td>
<td>Holger Bohlin, Chalmers first professor in industrial management</td>
</tr>
<tr>
<td>1979</td>
<td>Innovation Center initiated by Wallmark</td>
</tr>
<tr>
<td>1983</td>
<td>Wallmark first professor in Innovation Engineering</td>
</tr>
<tr>
<td>1994</td>
<td>Chalmers transforms from state to “private” foundation-owned university</td>
</tr>
<tr>
<td></td>
<td>Chalmers co-founds Innovationskapital, Swedish US-type venture capital firm</td>
</tr>
<tr>
<td>1997</td>
<td>Chalmers School of Entrepreneurship established</td>
</tr>
<tr>
<td>1998</td>
<td>Chalmersinvest is formed expanding on CIT activities with seed investment</td>
</tr>
<tr>
<td>1999</td>
<td>Business incubator Chalmers Innovation established with 5 million € donation</td>
</tr>
<tr>
<td>2001</td>
<td>Chalmers School of Entrepreneurship together with Chalmersinvest starts Encubator</td>
</tr>
<tr>
<td>2009</td>
<td>Innovation Office West formed by 1 of 8 Innovation Office grants by gov’t</td>
</tr>
<tr>
<td></td>
<td>Chalmers School of Entrepreneurship is top-ranked by Swedish gov’t</td>
</tr>
<tr>
<td>2015</td>
<td>Chalmers launches 10 year MSEK 450 initiative into Entrepreneurship and Venture Creation while consolidating incubators and seed-financing into Chalmers Ventures</td>
</tr>
</tbody>
</table>
G-P Sept 29, 2015

Här utvecklas teknik för livet

Lärare på EntreprenörShives förhöllit sig belåtet och hjälpte
modet ur för sågat Böda bart
sista på landsvägshjälp. De
stod för Chalmers entreprenörskap och resultat
blivit företaget Monivent. En
utvecklingen som ränder det
området.

 terribly great, very endearing, the
in brushing grease on the bus, the
hurricane in the
outlet power plug.
Why Chalmers School of Entrepreneurship was started 1997
From idea to reality – every year

- Companies
- Universities
- Inventors

≈ 150 Ideas
≈ 12 Projects
≈ 5-6 Incorporations
<table>
<thead>
<tr>
<th>Version</th>
<th>Description</th>
<th>Graduate Year</th>
<th>No. of Students</th>
<th>Venture Teams</th>
<th>Ventures Incorporated (surviving)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>1 year masters (Swedish) with students recruited from the university only. A project-based pedagogy matches teams with ideas from the university environment for potential commercial development.</td>
<td>1997</td>
<td>12</td>
<td>4</td>
<td>3 (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1998</td>
<td>15</td>
<td>5</td>
<td>1 (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1999</td>
<td>18</td>
<td>5</td>
<td>1 (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
<td>15</td>
<td>5</td>
<td>1 (0)</td>
</tr>
<tr>
<td>2.0</td>
<td>1½ year masters (Swedish) with students recruited nationally. After ½ year of preparatory courses, a venture-based pedagogy is used to incubate teams with ideas for potential incorporation. A pre-incubator specially designed to partner with the program provides seed financing.</td>
<td>2001</td>
<td>23</td>
<td>7</td>
<td>6 (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2002</td>
<td>16</td>
<td>5</td>
<td>4 (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2003</td>
<td>21</td>
<td>6</td>
<td>5 (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004</td>
<td>20</td>
<td>6</td>
<td>4 (4)</td>
</tr>
<tr>
<td>3.0</td>
<td>1½ year masters expands to include a life-science specific ‘track’ (previously only general technology). The first ½ year is restructured to be a ‘business creation laboratory’, simulating venture creation using university-based ideas.</td>
<td>2005</td>
<td>20</td>
<td>7</td>
<td>5 (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2006</td>
<td>34</td>
<td>12</td>
<td>5 (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2007</td>
<td>30</td>
<td>11</td>
<td>5 (4)</td>
</tr>
<tr>
<td>4.0</td>
<td>2 year masters (English), students recruited internationally. Additional ½ year is an elective-period (2nd half of 1st year). Teams are formed at the end of 1st year, allowing for initiation of venture activities during the summer break.</td>
<td>2009</td>
<td>19</td>
<td>8</td>
<td>5 (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2010</td>
<td>35</td>
<td>12</td>
<td>5 (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2011</td>
<td>26</td>
<td>11</td>
<td>5 (1)</td>
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<tr>
<td></td>
<td></td>
<td>2012</td>
<td>32</td>
<td>12</td>
<td>5 (3)</td>
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<td></td>
<td></td>
<td>2013</td>
<td>34</td>
<td>12</td>
<td>7 (5)</td>
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<tr>
<td></td>
<td></td>
<td>2014</td>
<td>31</td>
<td>11</td>
<td>6 (5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2015</td>
<td>28</td>
<td>10</td>
<td>5 in process</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>429 149 73 (54)</td>
</tr>
</tbody>
</table>

* Due to the expansion to a 2 year masters, there was no graduating class of 2008.
The importance of surrogate entrepreneurship for incubated Swedish technology ventures

- Surrogate entrepreneurship has significant positive impact on incubated technology venture performance!
- Chalmers student surrogate model accounts for 30% of incubated tech venture revenue in Sweden
- The Chalmers case study indicates that appointing surrogate entrepreneurs co-vary with other entrepreneurial team formation interventions, such as
  - board formation and board participation,
  - team building and coaching,
  - action-based education,
  - organized exchanges among ventures,
  - and a prolonged nascent phase before incorporation.

(Lundqvist, 2014)
Learning through venture creation in three stages – our International MSc
Student Diversity
Class of 2014-2016

Men/Women
- Men
- Women

Nationalities
- Sweden
- Bulgaria
- Romania
- Guatemala
- Finland
- Iceland
- India
Student Diversity
Class of 2014-2016

Education Backgrounds:
- Bio Chemistry
- Biotechnology
- Industrial Engineering and Management
- Economics and Management
- Law
- Industrial Design Engineering
- Civil Engineering
- Mechanical Engineering
- Business Administration
- Media and Communication
- Automation and Mechatronics
- Electrical Engineering
- IT
- Software Engineering
- Engineering Physics
Elumni from 2015  n = 349
Based on LinkedIn
Venture Creation Programs

- Programs which utilize the ongoing creation of a venture as the primary learning vessel, including intention to incorporate
  (Lackéus and Williams Middleton, 2015)

- Team-based
- Value creating
- Iterating
- Networking
- Continual knowledge search
  (Ollila & Williams Middleton, 2011)
More than half of the world’s identified venture creation programs*

United Kingdom:
- Coventry University
- University of Buckingham
- University of Huddersfield

Nordics:
- Aalto University
- Chalmers University of Technology
- Lund University
- University of Gothenburg
- University of Tromsø

United States:
- Babson College
- Colorado State University
- North Carolina State University
- University of Oregon
- University of Texas at Austin

Central Europe:
- Université Catholique de Louvain

*www.vcplist.com

VCP NETWORK
Forum at Chalmers June 12-13, 2012
Entrepreneurship as an Individual – New Value Creation dialogic (Bruyat and Julien, 2001)
Adding Entrepreneurial Role Expectations and emphasizing Team Environment

(Lundqvist, Williams Middleton and Nowell, 2015)
Verbalizing entrepreneurial identity

“in the beginning, you pretended to be an entrepreneur, or you pretended to be an owner of a project. Now you can actually put it down in a couple of words. … I feel more like an entrepreneur now than I did 4 months ago.”

“The last few weeks of the project we started to be the real management team … We started to paint our own picture of how the world looks, and not the researchers‘ view of it. … Even though we had the role, we weren't the management team because we didn't act [as] the management team until we started to critically actually look and paint our own picture and how it was out there.”

(Lundqvist, Williams Middleton and Nowell, 2015)
2T framework for action-based entrepreneurial education

Design features in action-based entrepreneurial education:
1. Value-creation
2. Iteration
3. Team-work

(Final) Outcome-learning and Process-learning

Time 2T

(T = minute, hour, day, week, month or year)