Academia and Industry

Campus is the playground of innovation
Incubator is the core of innovation
Content

• Academia and Industry
  – Is gap between academia and industry?
  – Does worth to bridge gap?
• Observation from NTHU data points
• How to bridge academia and Industry in Tsing Hua University
  – Vision and Action
  – Organization and function
Academia and Industry - is gap there?

**Academia**
- Talent people
- Advanced laboratory
- Papers/patents/know-how

**Industry**
- Market sense
- Product
- Fund
Observation from NTHU data points – research budget

MOE new program – ATU project (Aim for Top University)
Increased NTD10B / yr (NTD50B for 5 years)
Observation from NTHU data points – Industry grants research funding

Industry grants RD fund to academia that dance with government matching budget
Yes, there is gap

BUT WORTH TO BRIDGE?
Observation from NTHU data points – Start-ups category

<table>
<thead>
<tr>
<th>Industry</th>
<th>no. of startups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bimedical</td>
<td>25</td>
</tr>
<tr>
<td>ICT</td>
<td>98</td>
</tr>
<tr>
<td>Material Science</td>
<td>8</td>
</tr>
<tr>
<td>Literature &amp; others</td>
<td>10</td>
</tr>
<tr>
<td>Sum</td>
<td>141</td>
</tr>
</tbody>
</table>
Observation from NTHU data points - incubator

NTHU incubator startups survival rate

- Dismissed: 30.51%
- Survival: 69.49%

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total startups incubated</td>
<td>141</td>
</tr>
<tr>
<td>Survive over 3 years</td>
<td>82</td>
</tr>
<tr>
<td>IPO</td>
<td>9</td>
</tr>
<tr>
<td>Move to Science park</td>
<td>11</td>
</tr>
<tr>
<td>New-startup w/n 3 years</td>
<td>23</td>
</tr>
<tr>
<td>No. of dismissed</td>
<td>36</td>
</tr>
</tbody>
</table>
Observation from NTHU data points – At glance of WW survival rate

Above US & Israel
Observation from NTHU data points – IP inventory of patent status

Top 100 Worldwide Universities Granted U.S. Utility Patents in 2014

1. UNIVERSITY OF CALIFORNIA, THE REGENTS OF .......................................................... 453
2. MASSACHUSETTS INSTITUTE OF TECHNOLOGY .................................................. 275
3. TSINGHUA UNIVERSITY .......................................................... 230
4. STANFORD UNIVERSITY .......................................................... 182
5. UNIVERSITY OF TEXAS .......................................................... 174
6. CALIFORNIA INSTITUTE OF TECHNOLOGY ...... 172
7. WISCONSIN ALUMNI RESEARCH FOUNDATION.............................................. 153
8. JOHNS HOPKINS UNIVERSITY .......................................................... 140
9. COLUMBIA UNIVERSITY .......................................................... 119
10. UNIVERSITY OF MICHIGAN .......................................................... 118
11. NATIONAL TSING HUA UNIVERSITY .......................................................... 114

26. UNIVERSITY OF UTAH RESEARCH FOUNDATION........................................... 75
27. UNIVERSITY OF WASHINGTON .......................................................... 74
28. CORNELL UNIVERSITY .......................................................... 70
29. UNIVERSITY OF PITTSBURGH .......................................................... 70
30. UNIVERSITY OF CENTRAL FLORIDA .................................................. 66
31. RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK ......................... 65
31. TECHNION RESEARCH AND DEVELOPMENT FOUNDATION, LTD ......................... 65
33. MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH ......................... 64
33. UNIVERSITY OF MARYLAND .......................................................... 64
35. RUTGERS UNIVERSITY .......................................................... 61
36. UNIVERSITY OF CHICAGO/UCHICAGO ARGONNE

10
Observation from NTHU data points – tech-transfer revenue

High CP of research investment vs. patent volume
Observation from NTHU data points – patent application from 1996 -2014

Continuous growth of volume
Observation from NTHU data points – patent category distribution

Diversified IP

Years: 1996 to 2014

Categories: ICT, Material/Energy, Biomedical, Literature/ Others
Observation from NTHU data points – tech-transfer revenue

Industry license IP growing faster than grant research fund and aged (>7 years) IP is major part
Observation from NTHU data points – Entrepreneur alumni in Taiwan

<table>
<thead>
<tr>
<th>Entrepreneur alumni of NTHU</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of IPO company in Taiwan (Alumni play the role of Founder and/or Chairman)</td>
<td>35</td>
</tr>
<tr>
<td>Employment in 2014</td>
<td>53,148 staffs</td>
</tr>
<tr>
<td>Revenue sum in 2014 (base on latest 5 years average)</td>
<td>NT$285,774 M</td>
</tr>
<tr>
<td>Market Cap (sum of top in history record)</td>
<td>NT$585,297 M</td>
</tr>
</tbody>
</table>
Observation from NTHU data points – gap is there but worth to bridge

• Technology and knowledge frontier
  – Talent people, equipment and government funding
  – Only one Taiwan university of top 15 in the record of 100 WW Universities in U.S. Patents Granted successive 3 years

• Dedicated nurturing platform
  – Far beyond WW average of startup survival rate
  – Strong resources to incubator members
    • Alumni
    • WW alliance (high education network, research center, labs ...)
    • Geographical advantage (Science park, ITRI, National Labs ... )
How to bridge – Long term strategic collaboration

• Waterfall engagement – past
  – Loosely couple

• Early engagement – on-going
  – Friendship

• Long term collaboration
  – Partnership
How to bridge – Vision

• Academia serves life-long education needs
  – Talent people
  – Technology and knowledge
  – Experimental and experiences environment
  – Innovation platform
How to bridge – Fully integrated & top tier org. in campus

- President/ VP
- Director of OCIC
- Executive of Operation

Engagement office
- Engagement/promotion/service

IP and TT office
- IP management & Tech transferring

Innovative Incubation center
- Startup incubation/nurturing

Joint research center & Program office
- Germination Proj./Spark Anchor Univ./Campus inno. Program/Joint research Office
  - Delta
  - Mediatek
  - TSMC
  - CSC China Steel....
How to bridge – Action

• Build PM function to facilitate innovative team needs
  – Startup
  – Proto-type
  – Market test
  – Resources sourcing

• Strengthen interdisciplinary collaboration
Summary – Academia and Industry

• Yes, there is gap
• But worth to bridge
• How to bridge
  • NTHU continues to execute vision direction
  • Start to develop partnership with long term viewpoints
  • Welcome call Tsing Hua OCIC, not only Tsing Hua
    – We will help engage other schools too
    – NTHU OCIC : https://www.facebook.com/nthuocic
    – TEL: +886 (3) 5162304 Ms. Liu Ya-Huan 呂亞桓
Let’s build partnership!!

Academia

Industry

Partner together
Life-long learning