Challenges in Industry Linkages for Higher Education Institutions

Research & Service Headquarter
Chih-Han Chang
Outline

• University-Industry Collaboration @NCKU
• Challenges
• Intellectual Property
• Entrepreneurship & Startup
• GLORIA (& Oversea Center)
R&D Funding Sources

<table>
<thead>
<tr>
<th>Year</th>
<th>MOST</th>
<th>GOV</th>
<th>ORG</th>
<th>Private</th>
<th>TT(Contract)</th>
<th>Testing</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$125.4</td>
<td>$123.0</td>
<td>$120.1</td>
<td>$115.0</td>
<td>$128.1</td>
<td>$144.5</td>
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</tbody>
</table>

Amount ($Million)
2019 THE Ranking

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>30.9</td>
</tr>
<tr>
<td>Research</td>
<td>38.7</td>
</tr>
<tr>
<td>Citations</td>
<td>26.0</td>
</tr>
<tr>
<td>Industry Income</td>
<td>99.7</td>
</tr>
<tr>
<td>International Outlook</td>
<td>33.6</td>
</tr>
</tbody>
</table>
2019 THE Ranking

Breakdown via year: INDUSTRY INCOME

Score

World Scale

Total Research Fund (US Million) vs. Research Fund from Industry (US Million)

- NCKU
- NTU
- NCTU
- Duke
- MIT
- John Hopkins

10% of research grant from industry

2010
Research & Service Headquarter (RSH)

• Established in 1996 (first in Taiwan)
• Self-funded without school budget
• Currently with 79 self-funded research/service centers
• All centers are formed with cross-disciplinary researchers
• RSH provides a flexible system in recruiting, salary and management.
Research Fund by College

2016
- NonCollege
- BioTech
- Social Sci.
- Medicine
- Lib. Art
- Science
- D&P
- EE
- Mang.

2017
- NonCollege
- BioTech
- Social Sci.
- Medicine
- Lib. Art
- Science
- D&P
- EE
- Mang.
Lesson Learned
All professional domains are capable of UIC.
Challenges in UIC

• Triple-Helix coordination
  • Government role: When to encourage and when to regulate (conflict of interest)
  • University aim: Big shot or SM business
  • Industry Expectation: Payless with immediate payback

• Mindset of Researchers
  • UIC is not research. It is the translation of the research.

• Rapid growing in technology push the model shifting in TT&UIC (Startup)

• Needs to incubate paragon successor in TT&UIC

• …
Observations

• There are various levels of IP: patent, copyright, or even treat secret/know how

• Government or university can NOT catch the true value of IP.
  • number of patent issued vs. licensed (ranking system)

• Most PIs don’t recognize the true strength of IPR.
  • treat patent as paper or credit
  • difficult to reach the PI for educate
Patent Payment Evolution

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic file</th>
<th>International file</th>
<th>Domestic grant</th>
<th>International grant</th>
<th>Total file</th>
<th>Total grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>304</td>
<td>68</td>
<td>50</td>
<td>14</td>
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<td>161</td>
<td>68</td>
<td>18</td>
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<tr>
<td>2012</td>
<td>185</td>
<td>192</td>
<td>72</td>
<td>27</td>
<td>377</td>
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<td>2014</td>
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<td>75</td>
<td>240</td>
<td>74</td>
<td>141</td>
<td>314</td>
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</table>

$10,906K  $24,610K  $30,433K  $38,367K  $36,504K
The Value of IPMS

Patent granted
- 15% licensed

TT number
- 42% with patent

TT earning
- 78% TT earning with P.

Date: 2001~2018/10

Patent granted
- 15% licensed

TT number
- 37% with patent

TT earning
- 71% TT earning with P.

Date: 2001~2017

Patent granted
- 10% licensed

TT number
- 21% with patent

TT earning
- 61% TT earning with P.

Date: 2001~2014
Lesson Learned

• Lack of right mind set for IP for most PI.
• Patent without licensing is a debt not a property in university.
• It is the quality of patent decides the value of technology not the technology itself in TT.
Entrepreneurship & Startup
Start a Startup

- Ideal/Technology
- Market size
- Team
- Fund

- Patent?
- Business Plane? (perhaps Business Model)
Two Tracks Incubation

Track 1 Training support for Lean Startup

Entrepreneurship course, forum, summer camp: to understand what is entrepreneurship and how to commercialize an idea

Track 2 Professional support for Research Translation team

Custom service in IP, Marketing, Finance, Regulation, BP as well as Fund raising All the way to Startup Company
NCKU-Silicon Valley Alumni Angel

Supported by the NCKU alumni ($20k)
Startup teams were sent to SV for 3 months

SiLican, Green feed Green feel, Quantum Dot
Startup Performance

FITI Program
Excellent Startup every year

18/24 spin-off startups in the past 5 years
Lesson Learned

• Technology is important
  Business Model is more important
  The team is the most important

• BM evaluation should start asap, even before the POC.

• Milestone payment is essential for funding in translation research.

• We support everything but passion
GLObal Research & Industry Alliance
National Cheng Kung University
since 2017
Mining in University with GLORIA recruiting Industry Member for in depth UIC
1

Dedicated AO & Customized Service

A dedicated Manager as a single contact window providing customized services
2 Joint R&D Center

“Corporate-NCKU R&D Center” → Long-term collaboration
Global Networking

- Oversea U2U platform
- Alumni
- Business
- Conferences and exhibitions
Talent Channel

- Talent cultivation
- On-job training programs
- Customized talent recruiting

NCKU’s Talents

Scholars for Corporate Lectures
Our Team

Domain expert from industry to form PM linking with Industry Members
Starting with needs in stead of technology
Global Connection: AI Corp @ Silicon Valley

GLORIA
Global Research & Industry Alliance

- Autodesk
- Noodle.ai
- Landing.ai
- Intel
- Google
UIC is marathon not sprint.
It takes time to build trust & needs room to learn.

Thank You!