An Innovation Driven Triple Helix Cooperation at NTUST (Taiwan Tech)

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Agenda

Taiwan Tech

- Introduction
- Office of Research and Development (Bridge/Connector)
- Intellectual property
- Incubator
- Northern Technological and Vocational Major League
Pivotal Role

Innovation

Government

Industry

University

Qualified members of the industry and society
## Rankings of Taiwan Tech

<table>
<thead>
<tr>
<th>QS World University Rankings by Subject 2014</th>
<th>World Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science and Information Systems</td>
<td>51-100</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>101-150</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>151-200</td>
</tr>
<tr>
<td>Electrical and Electronic Engineering</td>
<td>101-150</td>
</tr>
<tr>
<td>Education and Training</td>
<td>151-200</td>
</tr>
<tr>
<td>Civil and Structural Engineering</td>
<td>101-150</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>151-200</td>
</tr>
<tr>
<td>Project acronym</td>
<td>Project full title</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>NANOCOOL</td>
<td>“FP7 sustainable and customized project”</td>
</tr>
<tr>
<td>SUS-CON</td>
<td>“Sustainable, innovative and energy-efficient Concrete, based on the integration of all-waste materials”</td>
</tr>
<tr>
<td>CETIEB</td>
<td>“Cost-Effective Tools for Better Indoor Environment in Retrofitted Energy Efficient Buildings”</td>
</tr>
<tr>
<td>HOLISTEEC</td>
<td>“Holistic and Optimized Life-cycle Integrated Support for Energy-Efficient building design and Construction”</td>
</tr>
<tr>
<td>DHISGLCB</td>
<td>“Development of Heat Insulation Solar Glass for Low Carbon Buildings“</td>
</tr>
<tr>
<td>Robot-Doc</td>
<td>“Robotics for Development of Cognition“</td>
</tr>
</tbody>
</table>

Bridge Taiwan and Europe in jointly participate in Framework Program to enhance the collaborations with EU
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Triple Helix Cooperation

Industry

- Revenue
- Equipment
- Market Sensitivity

Government

- Law/Regulation
- Sponsor
- Resources

University

- Talent
- R/D
- High Precision Instruments
Structure of Industry-University Collaboration support

ORD

- General Affairs Center
- Technology Transfer Center
- Business Incubation Center
- Industry University Cooperation Center
- Industry Service Center
Agenda

Taiwan Tech

Introduction
Office of Research and Development (Bridge/Connector)
Intellectual property
Incubator
Northern Technological and Vocational Major League
Intellectual property

- Obtain research and development resource of the government
- Improve competitiveness of research and development
- Cooperate with industry
- Enhance competitiveness

Graph showing the distribution of funding from MoST, MoE, and Industry-University Coop. Funding from 2012 to 2014 with an average (AVG) for (USD/M).
Cases of Technology Transfer and Licensed Patents

(Amount : US$0.47M)

538
63%

315
37%

Number of Patent Licensed

3%

Accumulated Patents: 1,266

(Amount : US$0.85M)

Number of licensed patents

Number of technology transfer
### Intellectual property

<table>
<thead>
<tr>
<th>Key Items</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patents (Granted)/year</td>
<td>24</td>
<td>59</td>
<td>34</td>
<td>61</td>
<td>46</td>
<td>75</td>
<td>120</td>
<td>182</td>
<td>188</td>
</tr>
<tr>
<td>Number of Technology Transfer Case</td>
<td>32</td>
<td>30</td>
<td>77</td>
<td>67</td>
<td>65</td>
<td>101</td>
<td>134</td>
<td>163</td>
<td>143</td>
</tr>
</tbody>
</table>

#### Amount of Technology Transfer

![Graph showing the amount of technology transfer from 2006 to 2014](image-url)
Achievements

- The nation-wide most famous TT case – Ductile steel column-beam connection, generating 10M NT$ income/year.

- Steel beam-to-column connection

- International Technology Transfer – Draft Chamber technology
  Fume hood to a Japanese company.

No. 1 in Taiwan Seismic connection patent for steel structures
Achievements

- Ranking of STRIKE, MoST (Ministry of Science and Technology)

<table>
<thead>
<tr>
<th>IP/Technology Transfer</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors’ cases</td>
<td>1</td>
</tr>
<tr>
<td>University’s cases</td>
<td>5</td>
</tr>
<tr>
<td>Income</td>
<td>8</td>
</tr>
</tbody>
</table>

- Best Performance IP/Technology Transfer Center (award NT 2,000,000) and the only university with vocational system background

- 2011 Industrial-University Cooperation Evaluation: Best performance university of R&D funding from industry

- 2012 Intellectual Property Best Management Award, Ministry of Economic Affairs

- 2013 Transparent Evaluation on Valuation Creation from Intellectual Property: A++
Achievements

- National Academy of Inventors (NAI):
  Top 100 Worldwide University in U.S. Patents Granted in 2013: 48th.

- 2013 Certificate of Registration as a Technological Service Organization
  Intellectual Property Valuation Services:
  1. IP Analysis and Mapping
  2. IP Strategic Planning
  3. IP Patentability Identification and Prosecution
  4. IP Management/Utilization System Establishment
Taiwan Tech

Agenda

Introduction

Office of Research and Development (Bridge/Connector)

Intellectual property

Incubator

Northern Technological and Vocational Major League
Incubation Center

1. Combined with research and development
   Interdisciplinary Industry Focus
   - Information Services
   - Intelligent life style
   - Sustainable green energy
   - Lean systematic counseling management
   - Incubate innovative start-up enterprises

2. Connect international incubation platforms

3. Integration of diverse resources
   Develop core competitiveness
   - Venture capital angel program
   - Gre Tai Securities Market (GTSM)

4. Leverage key enterprises
   Link specific industry value chain

5. Taiwan Tech
   National Taiwan University of Science and Technology
Achievements

- Incubated 128 companies with 70% startups ratio
- Total investment capital over NT$52 billions.
- 6 out of 75 IPO companies (among 130 incubators) in Taiwan.
- Awards
  - National Award of Small and Medium Enterprises
  - National Quality Award
  - Business Startup Award
  - Taiwan SMEs Innovation Award
  - Rising Star Award
Achievements

Awarded with

2011-2013
The Best Incubator Center
Dare to think outside the box

Micro Garage
Business Innovation Competition

Demo/Pitch Day

TAIWAN TECH
National Taiwan University of Science and Technology
The team - DailyView 網路溫度計
won the prize and NT$2000,000.

2013
The team - 人生創意引導有限公司
participated U-start program and won NT$600,000.

2013
The team - 台科超音波
was the champion of FITI program and won NT$2000,000.

【DailyView 網路溫度計】
dailyview.tw
Strategic Key Account Management

- Top player globally
- Longer term minded
- Consistent R/D investment
- Good cooperative relationship
The Role of the Connector

University

Industry

Government

Market Insight

Talent

Research Achievement

Research Funding

Funding

Economic Growth
Strategize Long-term Platform with Industries
Periodic Meetings and Regular Visits
Agenda

Taiwan Tech

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TVE Institutions

National Taiwan University of Science and Technology
National Taipei College of Business
Hwa Hsia Institute of Technology
Ming Chi University of Technology
Chihlee Institute of Technology
Jinwen University of Science and Technology
Chang Gung University of Science and Technology
Chien Hsin University of Science and Technology
Taoyuan Innovation Institute of Technology
Minghsin University of Science and Technology
Hsin Sheng College of Medical Care and Management
St. John's University
Mackay Medicine, Nursing and Management College
Taipei Chengshih University of Science and Technology
National Taiwan Junior College of Performing Arts
Ching Kuo Institute of Management and Health
Kang-Ning Junior College of Medical Care and Management
Lan Yang Institute of Technology
China University of Technology
Tzu Chi college of Technology
Taiwan Hospitality & Tourism University

Ten (10) science majors are:

- Electronics
- Precision Machinery
- Mechatronics Engineering
- Architecture
- Eco-Friendly & New Energy
- Business & Marketing
- Bio-tech & Medicare
- Hospitality & Tourism
- Art & Culture

TAIWAN TECH
National Taiwan University of Science and Technology
Mission

Promote Industry-University Cooperation.

Encourage and support entrepreneurship.

Build up a forum for interaction with industry.

Execute Phase 2 of the Technological and Vocational Education Reform Plan.

Perform universities’ distinguished features; establish the Regional Industry-University linkages.
Operation Mechanism

Ministry of Education

Northern Technological and Vocational Major League

Industry

21 TVE Universities
Operation Mechanism

Entrepreneur submit requests

Searching and matching

Sign a contract

Entrepreneur submit requests
Manpower Demand Symposium

Design Industry

Information Industry

Service Industry

Tourism Industry
Enterprise leaders and professors work together to ensure that curriculums are designed to meet the needs of industry.
Continuous Improvement

Kai = Change
Zen = For the Better