Establishing Industry-Academe Linkages
The STRIDE Experience

CHED National Research, Innovation, and Extension Conference

Richard S. Abendan, PhD
Research and Industry Partnerships Manager
USAID STRIDE Program / RTI International
USAID STRIDE Program

• Science, Technology, Research, and Innovation for Development (STRIDE)
• Funded by the United States Agency for International Development (USAID): US$32 million over 5 years
• Seeking to spur inclusive economic growth by boosting science and technology research in the Philippines
• Project ending July 2018
• Implemented by RTI International
Culture of Innovation: The Research Triangle Park model

- North Carolina in the 1950s = In a similar situation as the Philippines
  - Post WW II – one of the worst economies in the US
  - Heavy reliance upon tobacco, textiles, agriculture, and furniture-making
Academe-Industry-Government Partnerships:
Formed the Research Triangle Park to spur innovation
Now North Carolina has a more diversified economy with strong science, engineering, energy, biotechnology, and finance sectors.

18.5 percent – regional increase in GDP in recent years

44.3 percent – number of adults with at least an associate's degree in the Research Triangle region. ~5% have PhDs
### Exhibit 2. Philippines Innovation Ecosystem Scorecard Results, 2014

<table>
<thead>
<tr>
<th>Factor</th>
<th>Supply</th>
<th>Demand</th>
<th>Enabling Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and Human Capital Development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research and Knowledge Creation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer of Know-How between Universities and Industries (Extension)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellectual Property: Protection, Licensing and Commercialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup and Spinoff Companies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration: Knowledge Sharing, Trust, Social Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key**

- Poor
- Excellent

---

[Logo for William Davidson Institute, Florida State University, Rutgers University, and PBEd]
The process of translating ideas or inventions into useful products and services for customers that perceive value and are willing to pay.
Some Learnings

- Academic proponents had difficulty finding industry partners

- Few *relevant* industry partners that could scale project outcomes

- Industry partners only had minimal contributions for project resources
Mission 1 of STRIDE

Strengthened linkages between industry and academe in high growth sectors

• Lack of trust between industry and academe
• Academe: will steal “secrets” of the industry, works too slow
• Industry: will steal faculty from university, works for $$$ only
• Legal barriers are raised during initial talks: MOUs and NDAs
• IP sharing issues arise even before any work is started
STRIDE had to play matchmaker!

Relationships had to grow naturally to overcome trust issues

It took a lot of time, effort, and some key elements
Dr. Gani Padolina
Pascual Pharma Corp.
Takes on a chemistry faculty (Prof. Junio, UP-D) as an “extern” under the STRIDE faculty immersion program in 2013
Faculty gets to visit field operations of Pascual Pharma Corp, learns industry needs in creating herbal medicines.
Dr. Junio wins STRIDE grant of $100,000 in 2015 to conduct research on standardizing profiles of medicinal compounds from *malunggay* in partnership with Green Earth Heritage Foundation Farm in Bulacan.
Dr. Padolina gives lecture (supported by STRIDE) on drug discovery of herbal medicines in West Visayas State University, Iloilo and meets various faculty researchers in the region.
In the audience was Dr. Mel Ambut, VP for Research at Iloilo Science and Technology University (ISATU). He then embarks on getting more industry partnerships at ISATU.
Dr. Ambut becomes part of STRIDE’s KTTO program which develops universities to have industry facing offices to initiate and manage partnerships with industry.
$334,000,000
TTO income and reimbursements used to support UC San Diego research and innovators
1994 – 2014
Now Dr. Ambut heads the “1,000 Cups” activity in Iloilo which holds regular kapihans or coffee hours between industry and academe. To date ISATU has won P13M worth of STRIDE grants.
Dr. Padolina partners with Ateneo de Manila chemistry Prof. Erwin Enriquez to also win an P8.4M grant from STRIDE.
Saret Organic Farmville added 5 new photos.

July 18 at 9:32am.

Ateneo de Manila University, Pascual Pharma Corp. and Saret Organic Farmville joint science team worked from 4:00am-11:30pm. From harvest of Sambong and process validation of dehydrator thru rapid TLC & water activity analysis.

Results were excellent.

#levelup #agriexcellence

Their partner is also Saret Organic Farmville which supports marginalized farmers.
Pascual Pharma Corp’s business partner Herbanext Laboratories also finds out about the STRIDE grant program and partners with UP-V Prof. Rose Mueda. Applies and wins P8.7M grant to study plant extracts as a way to create dried fish jerky for export.
“Thank you for this opportunity! I have learned much from Dr. Gani Padolina and the ADP Pharma team.” – STRIDE extern Prof. Arman Guidote

Pascual Pharma keeps taking on faculty externs…who knows where this would lead?
STRIDE Faculty Externship (Immersion) Program

• Minimum of 10 to maximum 30 working days of faculty immersion

• Can be non-consecutive days

• Can be flexible in terms of work arrangements (different sites/university based projects/part of training programs)

• 600 Pesos per day, and 1 roundtrip long distance travel anywhere within the Philippines and reasonable housing
• Legal/documentary requirements of partners are followed

• STRIDE has simplified documentary requirements

  a. Faculty application form signed by dean/dept. chair
  b. Industry host form signifying willingness to host
  c. Scope of work
  d. Attendance sheet signed by both parties
  e. Evaluation forms from both parties

• STRIDE has no stake in any IP or outputs
University Faculty Interest Form
INDUSTRY HOST INTEREST FORM (Appendix A)

The following information will help STRIDE match your needs to the most appropriate university expert.

Date: ____________

Host Industry Name: ____________________________ Telephone: _________________.

Address: ____________________________ Industry sector: ____________________________

Please describe the scope of work for your potential faculty extern: ____________________________

Would you need STRIDE to help identify candidate faculty externs? Yes ___ No ___

If yes, please fill in the box below:

Area of expertise of the desired candidate: ____________________________

Suggested university partner (if any): ____________________________

Suggested university expert/faculty (if any): ____________________________

Name of company representative/contact person: ____________________________

Contact numbers: ____________________________ Email: ____________________________

Ideal Period of Hosting (i.e. Oct 2015, Summer 2016, etc.): ____________________________

Potential Extern Supervisor: ____________________________ Name: ____________________________

Title: ____________________________ Telephone: ____________________________ E-mail: ____________________________

Human Resource Contact: ____________________________ Name: ____________________________

Telephone: ____________________________ E-mail: ____________________________

Signature: ____________________________ Date: ____________________________

Industry Representative Signature: ____________________________

For STRIDE Representative only

Approved by: ____________________________ Date of approval: ____________________________

Number of Days: ____________________________ Notes: ____________________________

Making Science and Technology Innovative in the Developing World
STRIDE Externships by the Numbers

• 104 Faculty Externs

• 19 Universities and Colleges

• 17 Industry Hosts
Faculty Extern Universities
MSU-IIT faculty at HGST (Laguna)

Faculty and industry had already discussions before approaching STRIDE

Involved long distance travel; HGST provided the staff housing
“I am very much satisfied with the externship. I was able to learn the industry standards and operation. I can [now] relate the knowledge and share it to my students.” – Bulacan State U. Faculty
Externship Feedback

• “I learned a lot of things about instrumentation and measurement, flow control, temperature, coriolis, wireless technology, valve manipulation – it is a good method to use” – Ana Antoniette C. Illahi, Asia Pacific College

• “I was able to reinforce my knowledge on measurement of different process variables, observed demonstration of measurement of process variables, learned and appreciated the importance of tank safety and protection” – Kristian July Yap, UP – Diliman

• “There was a discussion on instrumentation and mechatronics however, there is no specific technical assistance provided during the program” – Roel Cabrera, PUP
Texas Instruments (March-June 2016)

MOU needed between STRIDE and Texas Instruments
Externs conducted lecture/review on the following fields of mechanical engineering:

1. Statics
2. Strength of Materials
3. Machine Design
4. Thermodynamics
5. Heat Transfer
6. Fluid Mechanics
7. Vibrations

“I am satisfied with the results of my externship. Besides having the opportunity to share my expertise with other people outside the university, I was able to observe how an industry partner (Texas Instruments) operates. This is a venue where I can relate my theoretical knowledge into reality” – Eugene Caldona, SLU
The immersion provided practical training and hands-on testing at the Nokia Laboratories at UP Technohub. The activity allowed the participants to learn about industry challenges of R&D in the telecommunications sector.

“The externship was designed specifically to train us faculty members on how to handle the elective courses on cellular networks as well as manage the donated equipment to support the class” – Jhoanna Rhodette Pedrasa, UP - Diliman
Externship Accomplishments

• Enhanced capability to conduct and teach the ECE 197 – Introduction to Cellular Networks elective course at UP EEEI

• Gained knowledge on the set-up, configuration and maintenance of the telecommunications equipment donated by Nokia at EEEI

• Increase collaboration between UP-EEEI and Nokia Manila TC which would hopefully lead to a collaborative research
Foremost Milling (December, 2016)

CLSU faculty tapped alumni employees at industry host

With their externship learnings, externs are now part of the CLSU master’s program on food production
Permex Producer and Exporter Corporation
(March, 2017)

WMSU faculty immersion to support master’s program in food processing and management
Cagayan Electric Power and Light Company (CEPALCO)
May, 2017

Part of a development of a new professional master’s program in Power Systems Engineering and Management at University of Science and Technology of Southern Philippines

“Through this externship program, I was able to appreciate the connection of theory and actual practice in the field of electrical engineering.” – USEP Faculty Extern
Externship Activities

• 1\textsuperscript{st} week was an actual exposure on CEPALCO’s Smart Grid System
• 2\textsuperscript{nd} week enabled the externs to gain information on CEPALCO’s way of preparing its DIS
• During the 3\textsuperscript{rd} week, they were able to know the relevant regulatory standards that a distribution utility needs to comply as well as how they prepare for the implementation of the WESM
• The 4\textsuperscript{th} week was an experience on CEPALCO’s customer service
• They were able to know the process on how CEPALCO respond to its customer needs.

“We realized that academicians are so idealistic, due to theories that we have gained, but industries are more focused on the practical side. Industries are more on the practical application of ideas as well as the importance of skills like communication, which a university should be able to develop for their graduates” – CEPALCO Externs
Faculty externs working under the SMART Wireless Engineering Education Program (SWEEP)
NDA, endorsement, and waiver documents
Externship Activities

- First 2 days enabled them to learn the different principles about 2G, 3G, HSDPA, LTE, and SMARTBro.
- 3rd day had them familiarized on the different test equipment like the Bit-error-rate (BER) tester, optical domain reflectometer (OTDR) and the data tester.
- On day 4, they learned about the Facility Management System (FMS).
- They experienced on day 5 how to use an actual OTDR in order to determine the location of the fiber breakage.
- Day 6-10 included site visit on South Luzon areas, witnessing engineers complete activities tasked to them.

“The externship experience was a resounding success in that it allowed college professors, specifically ECE instructors, to have first-hand look at the current and future communication technologies being offered by SMART Communications Inc.” – Gil Barte, Batangas State University.
“We were able to learn new technologies during our immersion, absorbing actual knowledge we can teach to our students such as an AutoCAD command’s actual use we have been teaching for over 10 years.”

– WPU Faculty Extern
Learnings in Faculty Immersion

- Brochures/posters had minimal effect
- Symposiums/forums just for immersions were hard to organize and gather audience
- Personal meetings to broker agreements were needed
- Short time frame of STRIDE immersions was beneficial
- Immersion mechanisms or training programs at industries are a limiting factor; lack of industry person to manage faculty externs (find industry incentives)
• MOUs once in place facilitate many immersions, but are hard to set up

• Constant engagement with industry is needed to maintain programs even with MOUs in place

• Tying up immersion programs to existing industry training or outreach programs are beneficial

• Tying up immersion programs to existing academic collaborations with industry (academic programs or course content run with industry, alumni networks)

• Less formal immersions are possible, find the least path of resistance
Learnings in Partnership Building

• ”Collaboration Champions” from both industry and academe are a requirement, more so with industry.

• Mechanisms (legal, IP, MOUs) that enables collaborations without adding more barriers are helpful but are still lacking in the Philippines.

• Trust / relationship building is critical, but cannot be rushed or forced. Especially in the Philippines.

• Need for more networking and confidence-building activities to get a larger pipeline of willing partners.
The USAID STRIDE Guest Industry Lectures Program emphasizes the importance of learning and sharing between Academe and Industry.
Innovation Workshops

from industry challenges
to collaboration & research innovations
Knowledge and Technology Transfer Offices (KTTOs) in Universities

• KTTOs: A university office for exploiting research and linking academic expertise to industry
CHED K TO 12 TRANSITION PROGRAM

Investing in the Future of Philippine Higher Education

SECTORAL ENGAGEMENT
GRANTS

FOR SECOND SEMESTER OF A.Y. 2016-2017, THE GRANT AMOUNTS ARE AS FOLLOWS.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>For Grantees with a doctorate degree, Php 40,000 / month</td>
</tr>
<tr>
<td></td>
<td>For Grantees with a master’s degree, Php 30,000 / month</td>
</tr>
<tr>
<td></td>
<td>For Grantees with a bachelor’s degree, Php 22,000 / month</td>
</tr>
<tr>
<td>Part-time</td>
<td>For Grantees with a doctorate degree, Php 20,000 / month</td>
</tr>
<tr>
<td></td>
<td>For Grantees with a master’s degree, Php 15,000 / month</td>
</tr>
<tr>
<td></td>
<td>For Grantees with a bachelor’s degree, Php 11,000 / month</td>
</tr>
</tbody>
</table>
DOST CRADLE and BIST

a) Niche Centers in the Regions for R&D (NICER) Program. The program will capacitate HEIs in the Regions, through an institutional grant for R&D activities that will make significant improvement in regional research and S&T infrastructure. Through NICER, HEIs will be able to integrate regional development needs with R&D and local resources.

c) Collaborative Research and Development to Leverage Philippine Economy (CRADLE) Program. The program will help create a synergistic relationship between the academe as producer of knowledge and manpower, and the industry as the entity which translates technologies to real world applications to generate new opportunities for Filipinos in the form of new industries, enterprises, jobs and solutions to pressing community and national problems. Under the CRADLE Program, the private sector industry will identify the problem; and the HEI or RDI will undertake the research and development, with funding from DOST.

d) Business Innovation through S&T (BIST) for Industry Program. The program facilitates the acquisition of foreign technologies by Filipino companies for immediate incorporation into their R&D activities. The BIST program will provide partial funding to private sectors to enhance their technological capacity to undertake R&D through purchase of high-tech equipment, technology licensing, and acquisition of patent rights.
STRIDE Academic Grants for Industry-Led Applications (AGILA)

- Research challenges given by industry to the academe for proposals.
- STRIDE and industry partner provide matching (50/50) contributions towards the selected projects, as cash and/or in kind.
- Projects will involve significant technical contributions from industry partners.
- A total of 12 million Pesos in contributions have been awarded to three projects (2 DLSU, 1 UPLB).
Call for Proposals to AGILA on one specific research challenge to academe:

- Propose a study to establish the characteristics and health benefits of proteins found in various parts of the pineapple plant
• Ranked 18th in the latest list of top 50 Electronic Manufacturing Services providers in the world

• In diversified markets such as automotive, industrial, medical, solar energy, telecommunications infrastructure, storage device, and consumer electronics industries

Call for Proposals to AGILA on three challenge topics to academe:

• Driverless navigation systems
• Low-cost medical devices
• Internet of Things
Industry-Academe workshop with IMI as host, Manila 2016
Industry Participated Screening Process
Grant Negotiations – creating industry based timelines and deliverables
Thank You!

helpdesk@stride.rti.org
rabendan@stride.rti.org
/.usaidstride
@STRIDE_Program
stride.org.ph
CHED FETES “NATIONAL RESEARCH, INNOVATION AND EXTENSION CONFERENCE;” UNDERSCORES ROLE OF ACADEME-INDUSTRY PARTNERSHIP ON NATIONAL TRANSFORMATION
Pascual Pharma Corp
(June 2016)

NDA needed and department approval for faculty