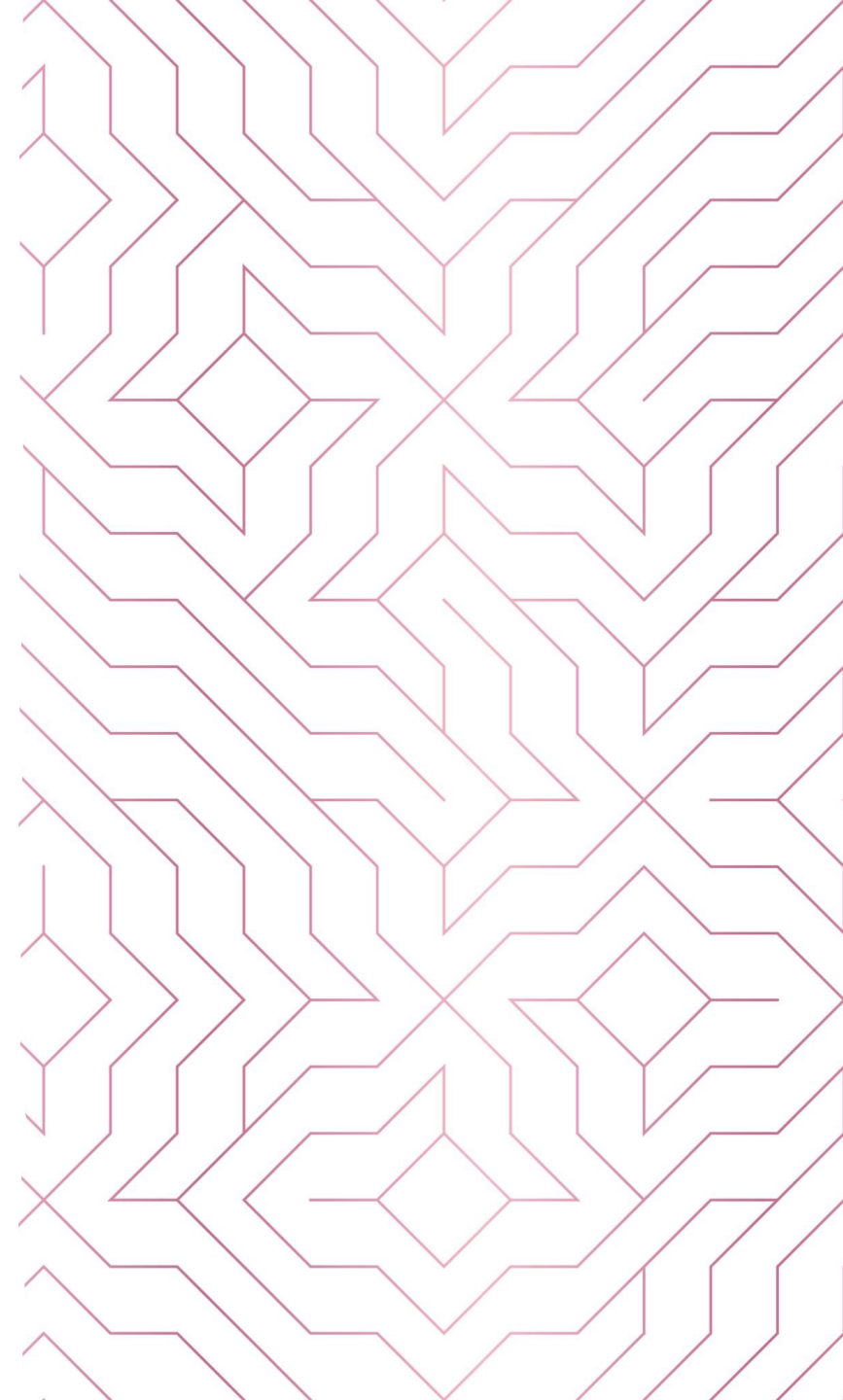


Support for Universities in Commercializing Technologies

The Philippine Experience

By: Atty. Christopher E. Cruz, Ph.D.

March 2, 2023



The Philippine Economic Context

GDP	\$433.2 B (nominal, 2022, IMF.org) 32 nd largest economy by nominal GDP 12 largest economy in Asia 58.6% from Services (2018, DTI)
GDP per capita	\$3,858 (2022, IMF.org)
GDP Growth Rate	7.4% (as of Q2 2022, PSA)
Population	~109 M (as of May 1, 2020, PSA census)
Country Group	Developing / Emerging (2019, IMF.org) Lower-middle income economy (World Bank)
Global Competitiveness	56 out of 148 (2018-2019, WEF)
Global Innovation Index	51 out of 132 (2021; one place drop from last year)

Innovation Ecosystems

- In the Research Economy, investment into R&D leads to fundamental **technology breakthroughs**.
- Breakthroughs proceed into the Commercial Economy and lead to **new products, features, or processes** that increase sales and profits.
- The increased sales and profits in the Commercial Economy are **channeled back into the Research Economy** (e.g. through direct investments or taxation) to continue the virtuous cycle of innovation and lead to the overall growth of the ecosystem.



Image from the USAID STRIDE Philippines Innovation Ecosystem Assessment 2019 Update

The Role of Universities in the Philippine Innovation Ecosystem

- The image on the right shows a framework used by the USAID STRIDE project to assess the Philippine innovation ecosystem.
- Universities play a central role in the ecosystem, which places “**Education and Human Capital**” (the traditional purview of universities) at its core.
- “**Research and Knowledge Creation**” – the 2nd innermost layer in the model – is also done by universities.
- Universities also play a role in the 3rd layer in the model: **knowledge transfer** to industry (e.g. through consulting work, student internships, and employment of university graduates); licensing & commercialization of university intellectual property; formation of spinoffs (e.g. formed by university employees) or startups (e.g. formed by student entrepreneurs).
- **Triple-Helix Model of Innovation**

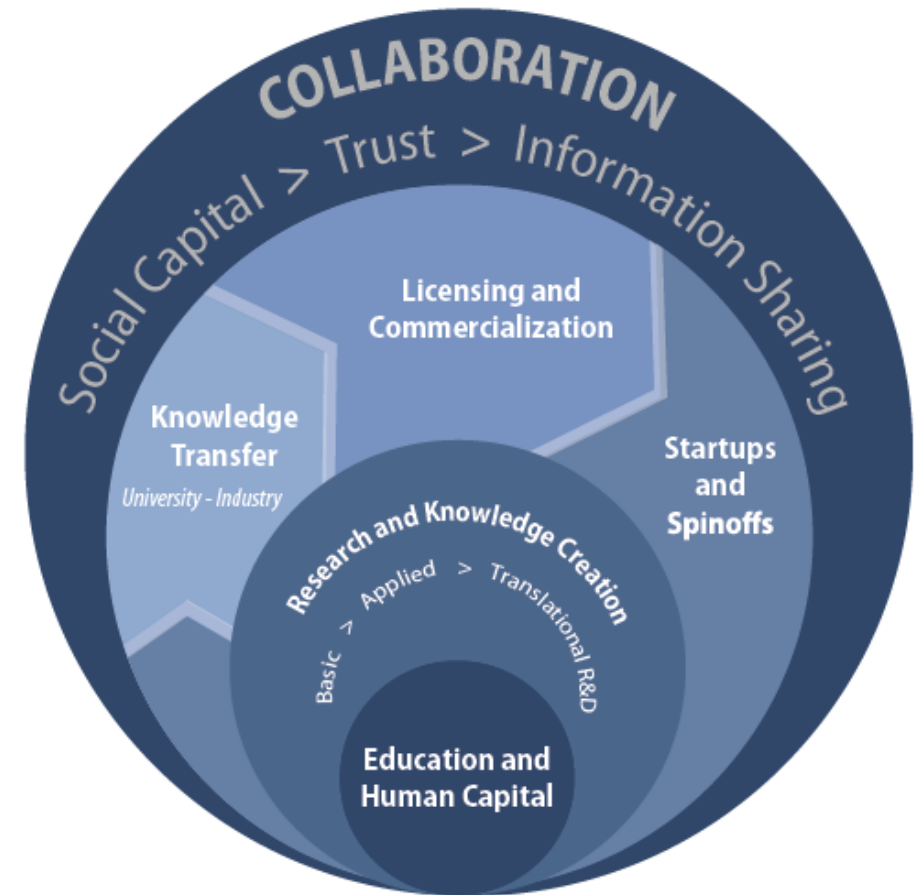


Image from the USAID STRIDE Philippines Innovation Ecosystem Assessment 2019 Update

The Triple Helix Model of Innovation (Etzkowitz and Leydesdorff)

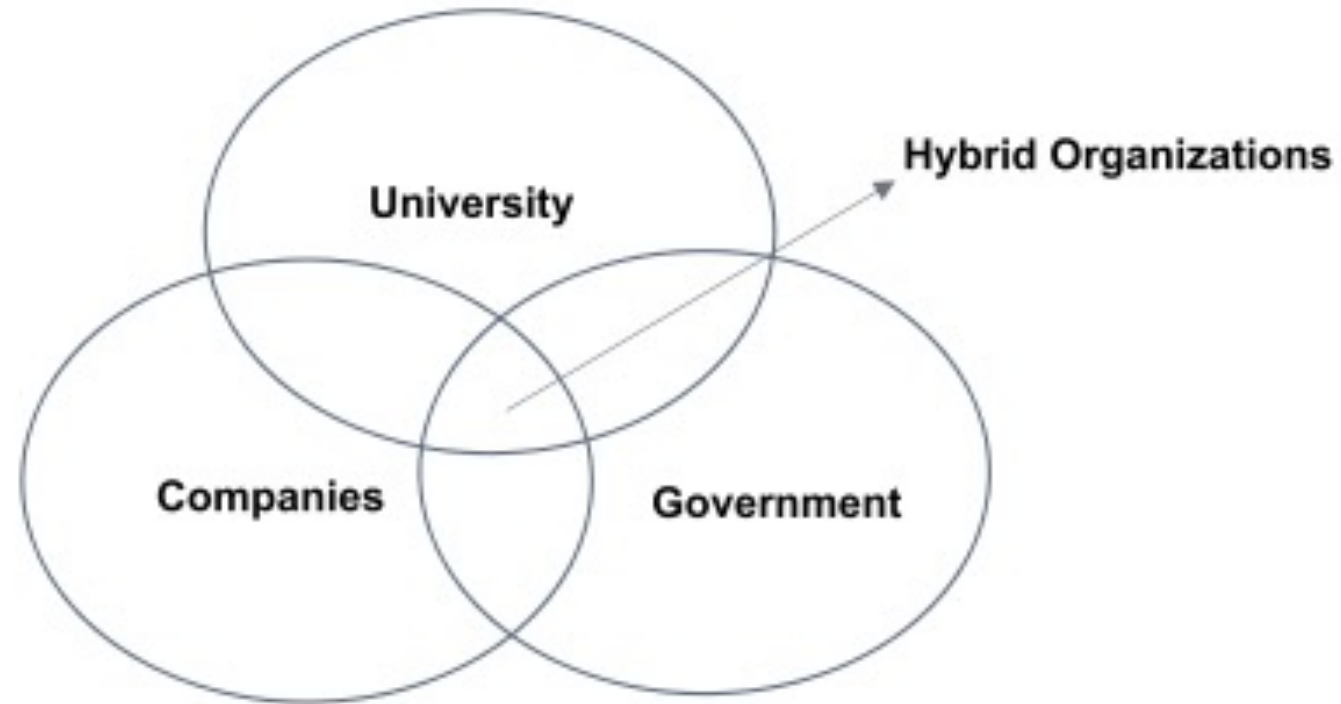


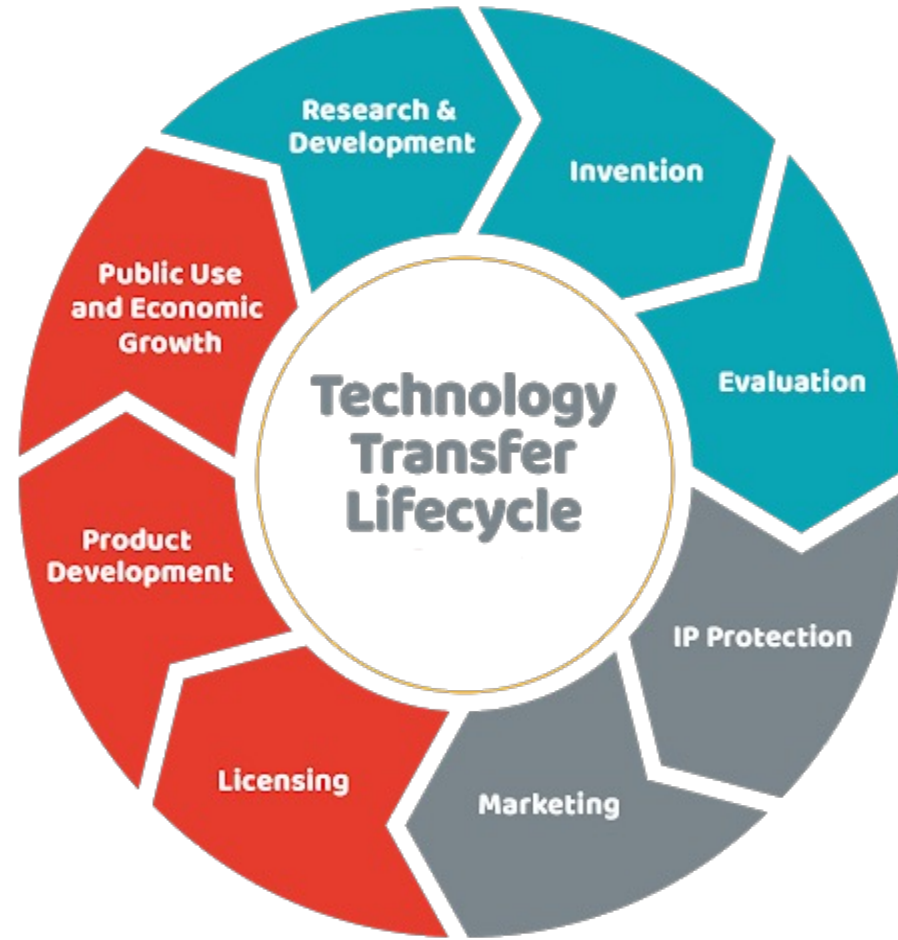
Fig. 4. Triple helix model.
Source: Etzkowitz and Zhou - Adapted (2017).



Triple Helix Model (2)

- Emergence of Hybrid Institutions:
 - Technology Transfer Offices
 - Science Parks
 - Business Incubators and FabLabs
 - “Entrepreneurial University” (MIT)
 - Quadruple Helix: Society
 - Quintuple Helix: Environment

Source: AUTM



What is Technology Transfer?

What is Technology Transfer?

Technology transfer “encompasses a variety of activities that move academic discoveries into the public sector” (Van Norman, *et. al.*, 2017)

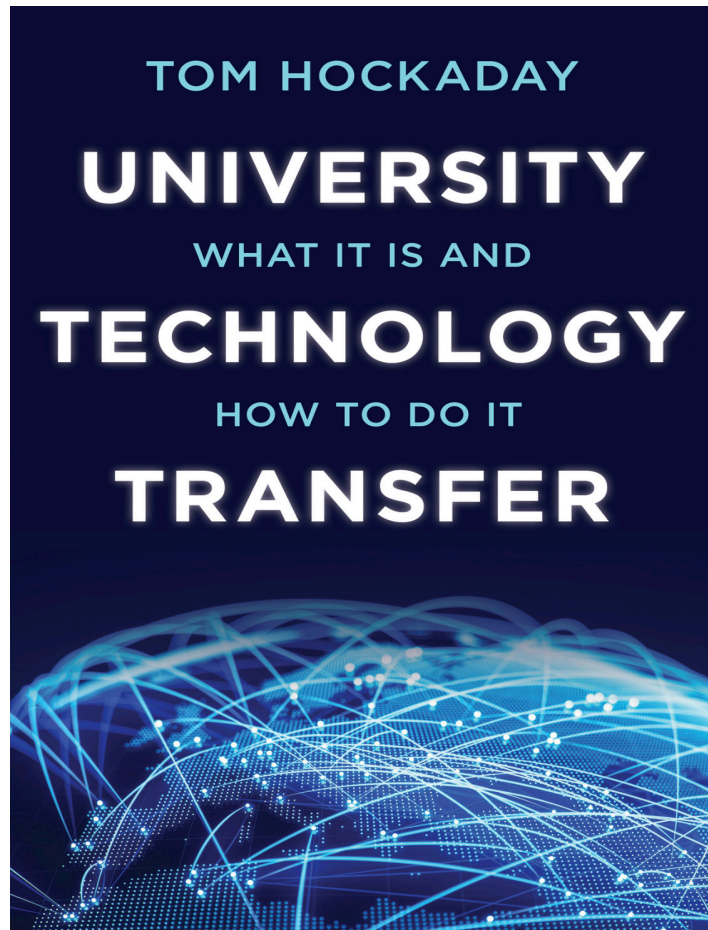
Technology transfer is the “process of transferring scientific findings from one organization to another for the purpose of further development and commercialization” (Association of University Technology Managers)



Why do universities engage in technology transfer?

- A university's "Third Mission"
Knowledge transfer, commercialization, and innovation (Lambert, 2003; Laredo, 2007; Zomer & Benneworth, 2011)
Complementary to the "First" and "Second Mission" (Secundo, *et. al.*, 2017)
- The "Entrepreneurial University"
Universities that have effectively transcended their traditional missions by advancing innovation and transferring technologies (Clark, 1998; Etzkowitz, *et. al.*, 2000; Gibb & Hannon, 2006)





2020 Johns Hopkins
University Press

Book is about his journey in the university technology transfer and how to develop and operate university technology transfer officers.

“Sometimes the commercial route is the best way to deliver benefits from university research results” (Tom Hockaday).

“University technology transfer is a commercial activity with benefits that go well beyond the opportunity to make money” (Tom Hockaday)

The Philippine Technology Transfer Act (Republic Act 10055)

- Declaration of National Policies and Principles
 - “The State shall facilitate the **transfer and promote the utilization of intellectual property** for the national benefit and shall **call upon all research and development institutes and/or institutions (RDIs)** that **perform government-funded research and development (R&D)** to take on technology transfer as their strategic mission and to effectively **translate results of government-funded R&D into useful products and services that will redound to the benefit of Filipinos**, notwithstanding the income generated from intellectual property rights (IPRs) and technology transfer activities.”

The Philippine Technology Transfer Act (Republic Act 10055)

- Key Provisions
 - Ownership of IP generated from projects funded by a Government Funding Agency shall be vested in the Research and Development Institution (RDI) that actually performed the research.
 - RDIs are responsible for identifying, protecting, and managing IP generated from projects funded by a Government Funding Agency
 - Commercialization of IP by researchers is encouraged – spinoff formation; commercialization leaves; management of conflicts of interest
 - A Revolving fund for R&D and technology transfer is created
 - Use of TK, GR, TCE, indigenous knowledge is required

Innovative Startup Act (Republic Act 11337)

- Philippine Startup Development Program, which has several objectives including:
 - Section 5e. “Support the collaboration of startups, startup enablers, national government agencies, local government units, **public and private academic institutions**, and industry partners to develop innovative products, processes or business models which may be **utilized** in the delivery of public services, programs, or projects of host agencies;”

Philippine Innovation Act (Republic Act 11293)

- Section 13. *Innovation Centers and Business Incubators*
 - The government, through the [National Innovation Council], shall encourage and support the establishment of innovation centers and business incubators, in partnership with the private sector, the **academe**, and research and development institutions towards fostering skills and **technology transfer**, collaboration on innovation initiatives between small and big businesses, supplier development, access to finance, and creating marketing opportunities.
- Section 15. *Strategic Research, Development and Extension (RD&E) Programs*
 - As part of the strategies to address the multi-dimensional nature of certain research requirements, the [National Innovation Council] shall: (b) Establish centers of collaborative research activity **between academic and business**;
 - **Joint NEDA-DOST-DTI Adm Order**: Creation of Innovation Council (2020)

Other Laws and Issuances (1)

- Republic Act 10372 (IP Code amendment)
 - “Sec. 230. Schools and universities shall adopt intellectual property policies that would govern the use and creation of intellectual property with the purpose of safeguarding the intellectual creations of the learning institution and its employees...”
- IPOPHL-CHED Joint Memorandum 23 April 2008
 - Encourage establishment of Technology Transfer Offices
 - Require State Universities and Colleges (SUC) and Higher Education Institutions (HEI) to adopt IP policies
- Magna Carta for Scientists (Republic Act 8493)
 - Share in royalty payments from IP commercialization for Science and Technology Personnel.

Other Laws and Issuances (2)

- Magna Carta for MSMEs (R.A. 9501, 2008)
 - Govt assistance
 - MSMED Council
- Promotion for MSMEs (R.A. 10644) “Go Negosyo Act” (2013)
 - Startup fund fo MSMEs
 - Tech transfer and Marketing Assistance
 - MSMED Council
- Data Privacy Act (R.A. 10173) (2012)
 - Ensuring free flow of information for innovation and growth (Sec. 2)
- Philippine Development Plan 2023-2028
 - Advance Research and Development Technology and Innovation (Chapter 8)
 - Market-driven and customer-centered research and development advanced; (outcome 2)
 - Technology Extension, adoption, utilization and commercialization scaled up (Outomce 3)
 - Innovation and Entrepreneurship Accelerated (Outcome 4)

Other Laws and Issuances (3)

- Industry Roadmaps (manufacturing industry, construction industry, Filipininnovation and Entrepreneurship)
- Balik-Scientist Program (DOST)
 - Aims to tap Filipinos abroad to strengthen S&T capabilities of local researchers in academe and industry.
- Investment Priorities Plan 2022 (Omnibus Investments Code)
 - Tax incentives for SIPP (tax holidays, 5% CIT)
- National Intellectual Property Strategy (IPOPIL) (2022)
 - To harness intellectual property for innovation, creativity and knowledge generation for entrepreneurship and competitiveness

The ITSO Network of the IPOPHL

- A network of 100 **universities, higher education institutions, RDIs**
- Initially conceived to be “patent libraries”
- Now also assist in IP management and **commercialization**

A photograph showing several individuals in a laboratory or cleanroom setting, wearing full-body protective suits and face shields. They appear to be working on or inspecting equipment. The image has a blue tint and is overlaid with orange text boxes.

Various ITSOs created face masks/shields and PPEs using recyclable materials and 3D printers for our frontliners and their community

      IPOPHL | www.ipophil.gov.ph

A photograph of a laboratory or industrial setting where several people in white lab coats are working at a workstation. There are various pieces of equipment, including what looks like a 3D printer or a specialized manufacturing machine. The image has a blue tint and is overlaid with orange text boxes.

ITSolutions
Local Versions of Ethyl Alcohol and Sanitizers

      IPOPHL | www.ipophil.gov.ph

A photograph of a workshop or training session. A man is standing at the front of a room, presenting to a group of people seated at desks with laptops. A large screen at the back of the room displays text about multiple dependent claims. A '25 YEARS' logo is visible in the top left corner of the image.

IPOPHL's patent workshops help two unis realize IP goals

      IPOPHL | www.ipophil.gov.ph

Multiple dependent claims

- series of dependent claims written using the alternative, "or" that refer back to more than one preceding independent or dependent claim. Multiple dependent claims may never be written using the cumulative term "and".
- Any dependent claim which refers to more than one other claim (multiple dependent claim) shall refer to such other claims in the alternative only. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. IPC Rule 415c.

 INTELLECTUAL PROPERTY OFFICE OF THE PHILIPPINES

The ITSO Network of the IPOPHL

- Eligible for certain assistance programs. For example, [IPOPHL MC No. 2023-005](#): PCT Filing Assistance Program extension; waives certain PCT fees for ITSOs
- Recognized as “Innovation Centers” in the 2020 Investment Priorities Plan of the Board of Investments. ([link to story](#))
- Receive training / capacity building opportunities
 - DL-101 (General Course on IP)
 - DL-301 (Advanced Course on Patent)
 - DL-318 (Advanced Course on Patent Information Search)
 - DL-320 (Advanced Course on the Basics of Patent Drafting)
 - DL-450 (Advanced Course on IP Management)
 - WIPO Enabling Innovation Environment (EIE)
 - JPO IP Rights Training Courses

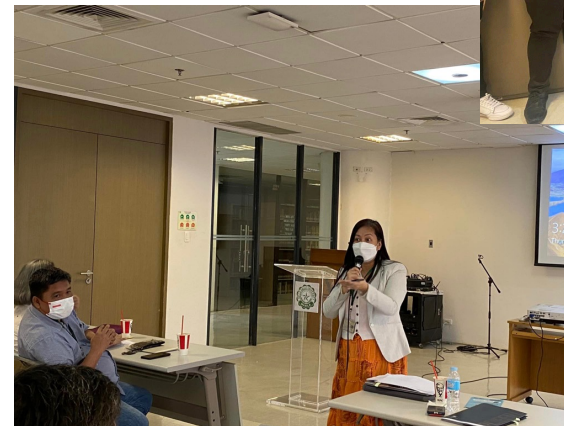
DOST RITTD Support for Spinoff Policy Development



- RA 10055 encourages spinoff formation by university researchers. However, universities often require guidance on managing spinoff issues (e.g. managing revenue; managing conflicts of interest; how to support the spinoff)

The IMPACT Program

- **IP Management Program for Academic Institutions Commercializing Technologies.**
Funding for universities and RDIs to:
 - Establish processes and policies on technology commercialization
 - Jumpstart commercialization of university-owned technologies through protection, assessment, and audit
 - Conduct full market assessments of technologies
 - Promote university-owned technologies
 - Generate licensing agreements



Technology Business Incubators

- TBIs are facilities where startups are hosted and business development services are provided.
- Many TBIs are located in universities; such TBIs naturally focus on commercializing innovations from their own institution. Universities seeking to establish TBIs are supported through the PCIEERD's Higher Education Institution Readiness for Innovation and Technopreneurship (**HEIRIT**) Program.





*PCAARRD chief,
keen on tech
transfer through
IP-TBM*



The SUSTAIN IP-TBM of DOST-PCAARRD

- Philippine Council for Agriculture, Aquatic and Natural Resources R&D (PCAARRD) has a program specific to the commercialization of innovations it funded.
- Many beneficiaries of the SUSTAIN IP-TBM program are State Universities and Colleges (SUCs).
- SUSTAIN IP-TBM is a mentorship program wherein mentees are aided by mentors in IP management and technology commercialization especially of agricultural innovations.

Knowledge and Technology Transfer Offices (KTTO)

- The establishment of KTTOs was a key initiative of the recently-completed USAID-STRIDE project.
- Many universities in the Philippines now have KTTOs – some are ITSOs with expanded functions; others are offices separate from the ITSO.
- The USAID-STRIDE method of establishing KTTOs is used by the newly-established **Alliance of TechTransfer Professionals of the Philippines, Inc. (AToP)** in assisting new KTTOs.
- DOST continues to support KTTOs.





Collaborative R&D to Leverage the Economy (CRADLE)

- Through CRADLE, a company identifies a problem and collaborates with an HEI or RDI to find solutions.
- The solutions are sometimes new products or services that are then commercialized by the company.



Programs of the DOST-TAPI

- The Technology Application and Promotion Institute has various programs that support the commercialization of university innovation, including:
 - [IP Rights Assistance Program](#) – funding for securing IP rights
 - [TECHNICOM](#) – support for prototyping, pilot-testing, technology validation, field testing, feasibility studies, valuation, technology licensing
 - [Concept prototyping program](#) –
 - [Venture Financing Programs](#) for companies that adopt technologies developed in universities (especially if DOST-funded)

Capacity Building Programs for Developing Commercialization Skills

- Many institutions have their own programs for building capacity in commercialization skills for various members of their communities – from researchers to the IP management and commercialization personnel.
- Examples at DLSU:
 - CAPACITA
 - MIPMI (upcoming)
 - SMIP



IPOPHL, DLSU and WIPO to develop Asia's first Masters Program on IP Management and Innovation

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Conclusion:

Research transforms money into knowledge ... technology transfer transforms knowledge into money.”

Dr. Geoffrey Nicholson, father of the “Post-It”