

DRIVING INNOVATION IN UNIVERSITIES: USC EXPERIENCE

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WHY INNOVATION IN UNIVERSITIES ?

- Research is one of the mandates of universities (e.g. CHED CMO 46)
- Universities breed experts thru faculty development
- Universities attract talents from other institutions
- R&D centers in universities create innovative technologies, products and processes that have societal use
- Thesis and dissertations of students are also sources of inventions and products
- Universities can host innovation hubs and tech hubs



INNOVATION = IP * COMMERCIALIZATION

<https://ocw.mit.edu/courses/sloan-school-of-management/15-390-new-enterprises-spring-2013/video-tutorials/lecture-2/>

<https://www.technologyreview.com/video/605213/innovation-invention-commercialization/>

ENABLING ENVIRONMENT THAT DRIVES INNOVATION IN UNIVERSITIES

- Universities have enabling policies that provide:
 - Dedicated time for faculty to do research (“deloading”)
 - Research publications and funding as merits for ranking and promotion
 - Incentives for research (e.g. publications in refereed journals, awards/certificates of recognition)
 - Intellectual Property policies that govern the creation, protection, ownership, management and commercialization of IP
- Availability of facilities (laboratories, equipment) for research
- Pool of experts (resident professors, visiting scientists)
- Linkages with other institutions, government and industry
- Reputation

ENABLING MECHANISMS THAT PROMOTE INNOVATION AT UNIVERSITY OF SAN CARLOS (USC)

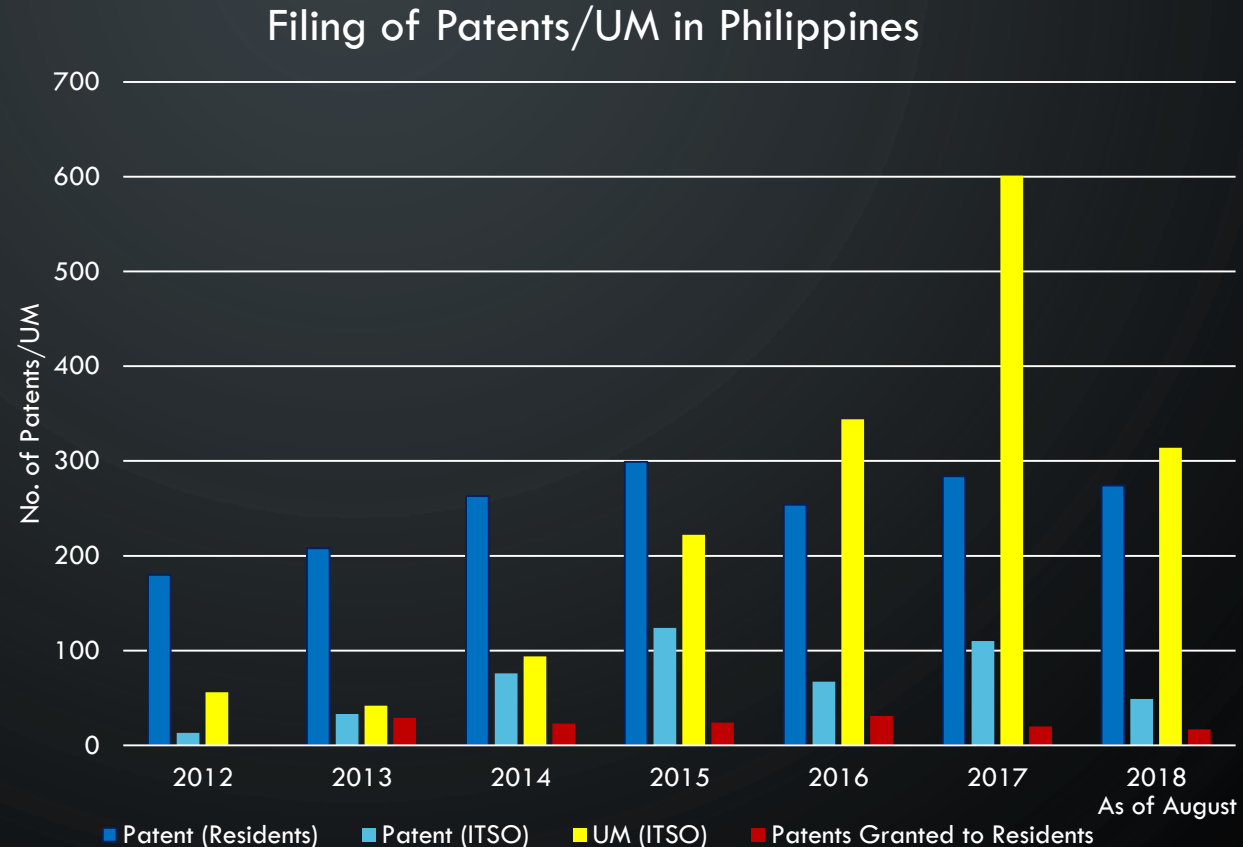
1. Research policy that provides release time to faculty to do research
2. Implementation of an Intellectual Property Policy
3. Hosting an Innovation and Technology Support Office (ITSO)
4. Developing a Technology Transfer Office
5. Supporting the creation of Research Centers and Techno Hubs

THE ITSO PROJECT

- ITSO was launched by IPOPHL in late 2010, where only 20 institutions initially signed-in. There are now 85 ITSO-hosting institutions.
- ITSO made a positive turnaround of patent filings by local applicants and, as well, changed the mindset of the academe recognizing IP as an important asset that universities can benefit from.

MAINLY BECAUSE OF ITSOS, THE PATENT LANDSCAPE OF THE PHILIPPINES HAS GRADUALLY IMPROVED

From zero in 2005-2007, patent filings by residents through the ITSO rose to 145 in 2016.



Source: IPOPHL

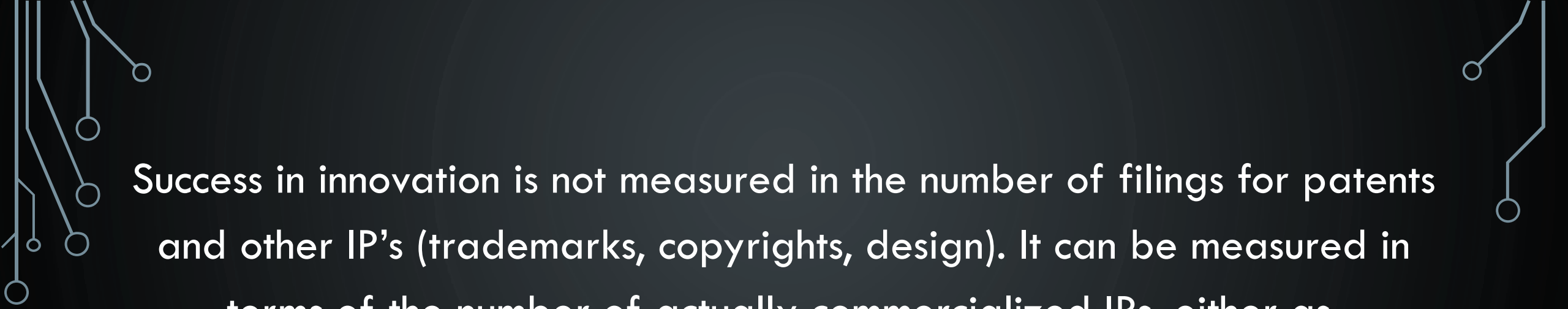
RESEARCH CENTERS AND RESEARCH GROUPS AT USC

1. Marine Biology Section (MBS)
2. Natural Products Research Center (a.k.a. Tuklas Lunas Center)
3. Chemistry Analytical and Environmental Section (ChAnELS)
4. Water Laboratory
5. Water Resource Center Foundation, Inc. (WRCFI)
6. Medical Biophysics Group (MBG)
7. Center for Geoinformatics and Environmental Solutions (CenGES) (a.k.a. LIDAR Research Center)
8. Theoretical and Computational Sciences and Engineering Center (TCSE Center)
9. Condensed-Matter and Optical Physics Group
10. Center for Research in Energy Systems and Technologies (CREST)
11. BioProcess Engineering Research Center (BioPERC)
12. Center for Academic and Professional Engineering Services (CAPES)
13. Center for Governance, Leadership and Development (C-GoD Lead)
14. Center for Entrepreneurship and Lifelong Learning (CELL)
15. Cebuano Studies Center (CSC)
16. Economics Research Group (ERG)
17. Conservation and Heritage Research Institute and Workshop (CHERISH)
18. Center for Social Research and Education (CSRE)
19. Office of Population Studies Foundation, Inc. (OPSFI)
20. Kabilin Heritage Studies Center

LIST OF PATENT APPLICATIONS FILED BY USC SINCE 2012

	Filing Date	Invention	Applicant and Inventor(s)	Application Number
1	July 8, 2011	Preparation of Fatty Acid Alkyl Esters from Moringa oleifera Seed Oil	Dr. Evelyn B. Taboada	1-2011-000244
2	September 16, 2011	Apparatus and Methods for the Recovery of Super Absorbent Polymers and Plastics from Waste Absorbent Hygiene Products	Dr. Evelyn B. Taboada	1-2011-000311
3	March 22, 2012	Integrated Processes for the Treatment of Mango Wastes of Fruit Processing and the Preparation of Compositions Derived Thereof	Dr. Evelyn B. Taboada and Engr. Francis Dave C. Siacor	1-2012-000061
4	March 22, 2012	Preparation of Pectin and Polyphenolic Compositions from Mango Peels	Dr. Evelyn B. Taboada and Engr. Francis Dave C. Siacor	1-2012-000062
5	June 9, 2014	Method of preparation of immobilized enzyme using the sol-gel method	Dr. Evelyn B. Taboada, Ms. Lorraine I. Ybañez, Dr. Camila Flor J. Yagonia and Mr. Young Je Yoo	1-2014-000167
6	June 9, 2014	Method of preparation of enzyme immobilized in carbon nanoparticles (CNP)	Dr. Evelyn B. Taboada, Ms. Lorraine I. Ybañez, Dr. Camila Flor J. Yagonia and Mr. Young Je Yoo	1-2014-000168
7	June 9, 2014	Preparation of fatty acid alkyl esters from Moringa oleifera seed oil using Candida antarctica lipase	Dr. Evelyn B. Taboada, Ms. Lorraine I. Ybañez, Dr. Camila Flor J. Yagonia and Mr. Young Je Yoo	1-2014-000169
8	December 5, 2016	Integrated processes for the treatment of mango wastes of fruit processing and the preparation of mango oil compositions from mango peels	Dr. Evelyn B. Taboada and Engr. Francis Dave Siacor	1/2016/000456
9	December 5, 2016	Integrated processes for the treatment of mango wastes of fruit processing and the preparation of mango oil compositions from mango seed husks	Dr. Evelyn B. Taboada and Engr. Francis Dave Siacor	1/2016/000457
10	December 5, 2016	Integrated processes for the treatment of mango wastes of fruit processing and the preparation of mango oil compositions from mango seed kernels	Dr. Evelyn B. Taboada and Engr. Francis Dave Siacor	1/2016/000458
11	July 1, 2017	Preparation of Pectin from Mango Peels	Dr. Evelyn B. Taboada and Engr. Francis Dave Siacor	1/2017/000213
12	July 1, 2017	Process for the Manufacture of Spent Mango Peel Powder	Dr. Evelyn B. Taboada and Engr. Francis Dave Siacor	1/2017/000214

The first two patents to be filed under the 'Juan Thousand' Patents program of IPOPHL.



Success in innovation is not measured in the number of filings for patents and other IP's (trademarks, copyrights, design). It can be measured in terms of the number of actually commercialized IPs, either as:

- **Startups/spinoffs**
 - **Licensing agreements**
 - **Business licenses on products brought to the market**
and the Revenues generated
- 

USC has so far made some headway in creating a startup from IP

GEMS, Inc. is a company that exclusively licensed the process technology developed by BioPERC – a research unit of the Chemical Engg Dept at USC.

IP Asset: the inventive process technologies, which convert mango wastes into high value products, have pending patent applications.

*Turning waste
into Gold!*



INNOVATION AND KTTO

USC is setting up its **Knowledge & Technology Transfer Office (KTTO)** which serves as a conduit between the research and creative communities and industry to bring their inventions/products/works from the university to the market.

Getting innovation from the lab to the market - avoiding the so-called “Valley of Death” - is a long way to go.



UNIVERSITY'S DIRECTION IN INNOVATION IS TO DEVELOP:

- ❑ a strong research culture
- ❑ more enabling policies that encourage innovation
- ❑ an entrepreneurial mindset
- ❑ a strong relationship with industry



THE GOAL OF USC IS TO BE A TEACHING, RESEARCH AND ENTREPRENEURIAL UNIVERSITY BY 2030.



Thank you for listening.

