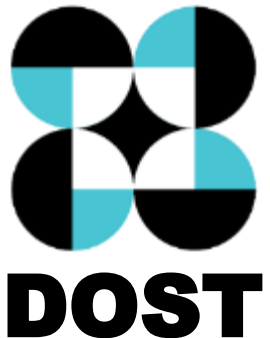


The Philippine Innovation & Entrepreneurship Ecosystem

ROWENA CRISTINA L. GUEVARA, Ph.D.

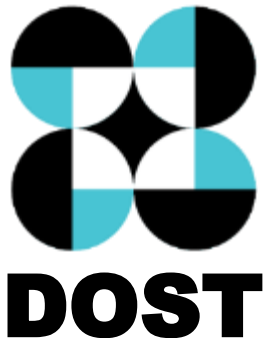
Undersecretary for Research and Development
Department of Science and Technology



NORDIC Innovation Forum
21 March 2019; Fuller Hall, AIM Makati



New Products from Research, Development and Innovation



1. Biofertilizers and Plant Growth Enhancer

Irradiated CARAGEENAN Plant Growth Promoter



RICE YIELD
INCREASE

15-40%

MONGGO YIELD
INCREASE

33%



FERTIGROE slow release
fertilizer for corn and sugarcane



MICROMIX

**Biostimulant for Bell
Pepper and Bitter Gourd**



2. Biopesticide

ACTIcon™ Biopesticide for Cavendish Banana

Lowers deadly Fusarium wilt in banana



A biopesticide that uses the fungi actinomycetes as a biocontrol agent against the devastating Fusarium wilt 4

3. Feeds

Sure Feeds for Goats



Microalgal Paste as Aquafeeds

Protein-enriched Copra Meal (PECM)



4. Agriculture/Aquaculture Productivity Technologies

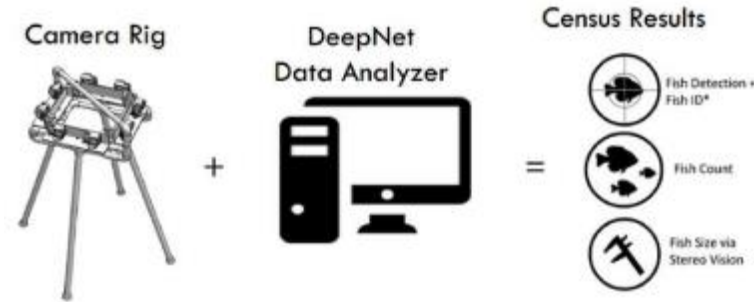


Return on Investments
87%

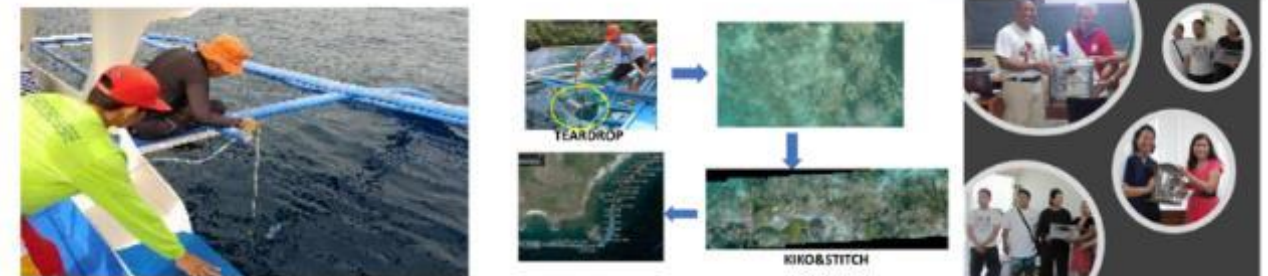
Payback Period
One Year



- Advantages**
- Safer, faster, cheaper
 - High scalability
 - More frequent census, more accurate results
 - Minimal fish avoidance effect



LAMP Kit for Shrimp Pathogens



4. Agriculture/Aquaculture Productivity Technologies

Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines



5. Native Livestock Purelines Technology

Philippine Native Pigs



LAMP Kit for Swine PED Virus

Gene marker technology

Philippine Native Chicken



Breeding technology

ITIK PINAS



Itim ITIK PINAS pureline

X

Khaki ITIK PINAS pureline

=

KAYUMANGGI ITIK PINAS Commercial Hybrid



IP-Kayumanggi is developed for balut and salted egg production.

Benefitted duck breeders by saving time and labor cost of vent-sexing of day-old ducklings.



6. Standardized/Clinically-tested Herbal Medicines

Tuklas Lunas Program

*(Drug Discovery and Development) PROGRAM
based on Philippine Biodiversity*



Lagundi



Anti Dengue Herbal Drugs



LeptoVax



Sambong



<https://images.search.yahoo.com>

7. Medical Implant: **Axis KNEE SYSTEM**

✓ *Very affordable, costs 50% less than other knee implants in the market*



A total knee replacement system that is specifically designed for the Asian population



Editha de Guzman shows her knees a few weeks after her knee replacement surgery. *(Photo by Gerardo Palad, S&T Media Service, DOST-STII)*



Staff of Orthopedic International, Inc conduct hands-on training on surgical technique using various instruments of Axis Knee System. *(Text and Photo by: Allan Mauro V. Marfal, S & T Media Service)*

8. Biomedical devices

AGAPAY Exoskeleton



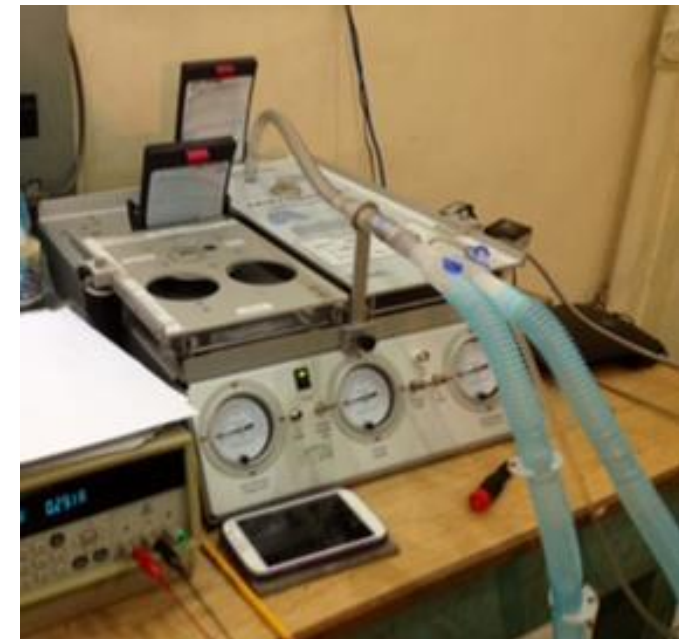
<https://www.facebook.com/AgapayPH>



https://news.mb.com.ph/2018/01/13/4-filipino-scholars-to-pursue-doctorate-studies-in-uk/?fbclid=IwAR1VLb5e4DnJUslLu0eZyYrCv-cB_5m3SU4jxhdFjYX6rAdceGL4ih5s1CU



compact, affordable, safe, and effective ICU Ventilator



9. Diagnostic Kit: BIOTEK-M Aqua Kit



100% Filipino designed and locally-developed technology



<http://tapitechnicom.dost.gov.ph/portfolio/biotek-m-dengue-aqua-kit-2/>



- ✓ Affordable rapid test kit for accurate detection of dengue infection within an hour
- ✓ Has high sensitivity, high specificity, robust, and is less expensive than current diagnostic tests in the market



Gold Awardee during the 46th International Exhibition of Inventions Geneva held on 11-15 April 2018 at Palexpo, Geneva

<http://www.pchrd.dost.gov.ph/index.php/news/6354-biotek-m-wins-gold-medal-at-salon-international-des-inventions-de-geneve>

10. For Proper Nutrition



Pancit Canton with Squash



Bakery Products with Squash

TUBIG TALINO™

Iodine-rich Drinking Water



Rice-Mongo Blend



Rice-Mongo Curls



Rice-Mongo Sesame Blend



RICE MEALS

- 260 calories per 200g pouch
- Second stage emergency food
 - can be consumed when water and utilities are already restored

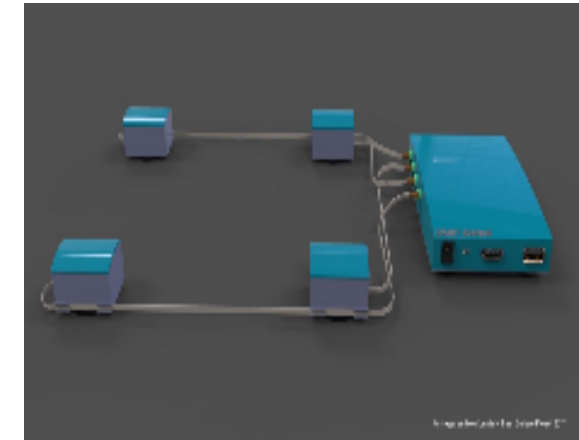
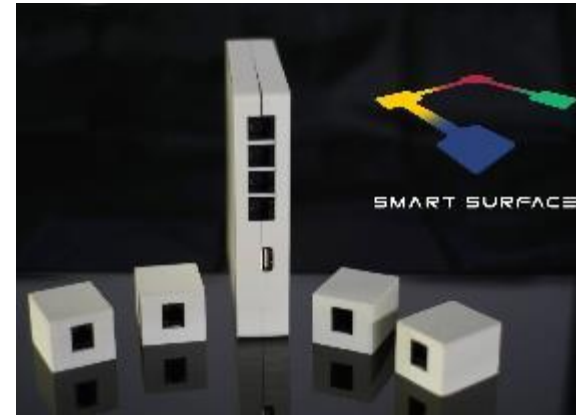


11. Educational Tools

Versatile Instrumentation
System for Science
Education and Research



Smart Surface Technology



Learning English Application for Pinoys



12. Water Treatment Materials

**BEFORE
VIGORMIN**



**AFTER
VIGORMIN**



MIRACLE POWDER:
TREATMENT OF SEPTIC/WASTE WATER



13. Solid Waste-to-energy technologies

Biogas Digester



BIOGAS

Heat output delivered is about 78.4-89.6 Kcal/liter

Pyrolyzer



GAS AND OIL

- with feed rate of about 6 kg/hr of shredded laminates
- Heating value of oil is 17,460 BTU/lb.

Carbonizer and Briquetting Machine



CHARCOAL BRIQUETTE

14. Sustainable Transportation

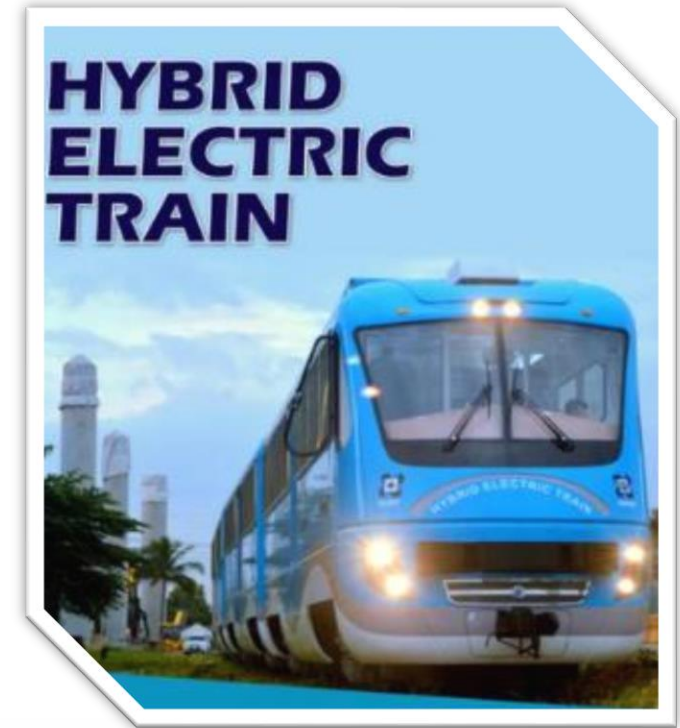
Automated Guideway Transport (AGT)



DOST's 60-passenger AGT
Test track in UP Diliman



DOST's 120-passenger AGT
Test track in Bicutan



Hybrid Electric RoadTrain



modern exterior design

elegant interior design



14. Sustainable Transportation

Hybrid Trimaran



Rapid Charging E-Vehicle Station

Charging in Minutes (CharM)



<https://www.eee.upd.edu.ph/news/charm-project>

15. Artificial Intelligence (AI)



Capability Building in Artificial Intelligence through Training and Acquisition of High Performance Computing Device

Duration: November 10, 2017 - May 09, 2018 (6 months)

1st Extension: May 10, 2018 - November 09, 2018 (6 months)

Data Science Specialization Massive Open Online Course (MOOCS)

750 participants

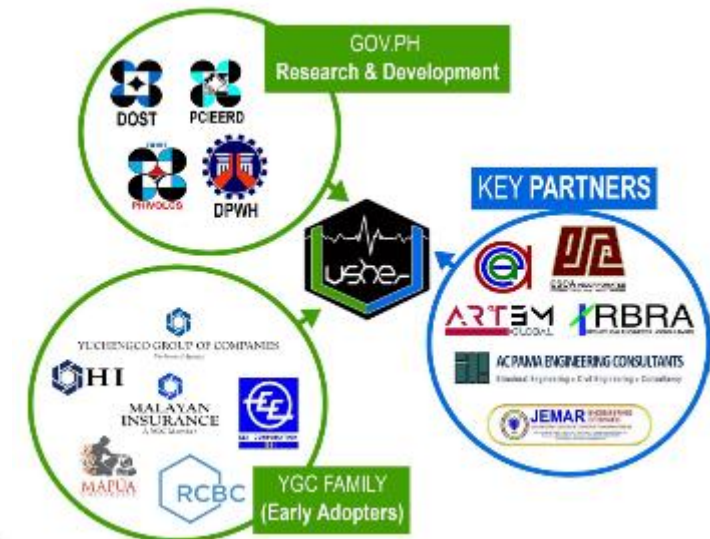
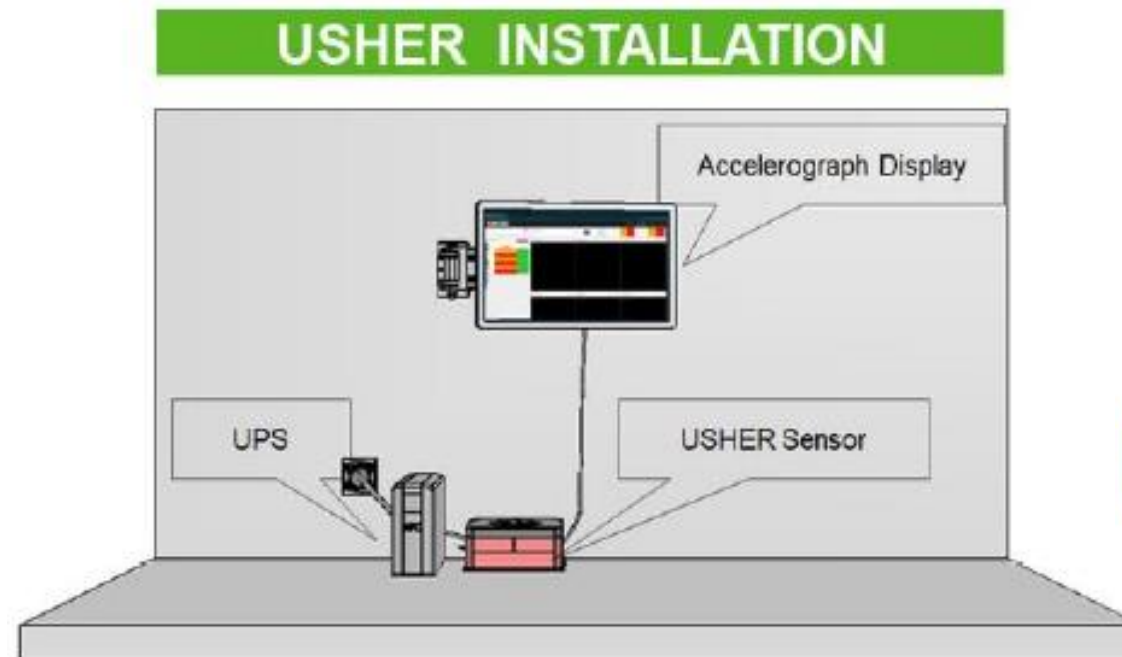
Duration: January – December 2018

16. For Assessing structural health of buildings & bridges

Universal
Structural Health
Evaluation and
Recording System



- ✓ Streamlined and tailored for the local market
- ✓ Remarkably lower in cost



17. Monitoring water availability

Automated Real-time Monitoring System (ARMS)

Transmit real-time data to the office of NWRB for monitoring

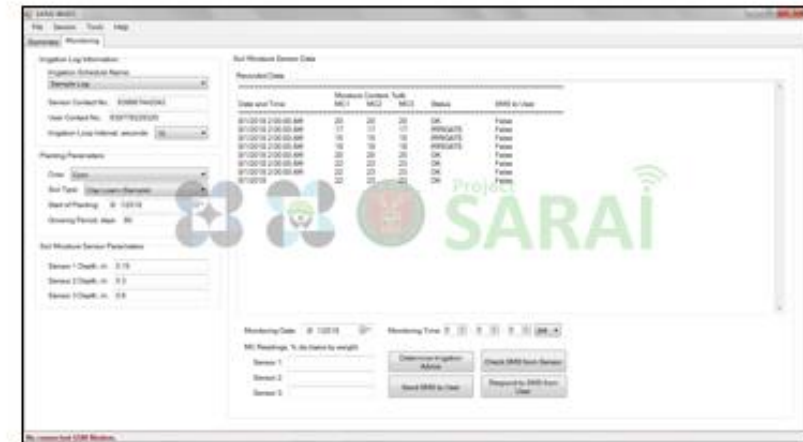


NATIONAL WATER RESOURCES BOARD



rainfall, temperature, atmospheric pressure, soil moisture, wind speed and evaporation

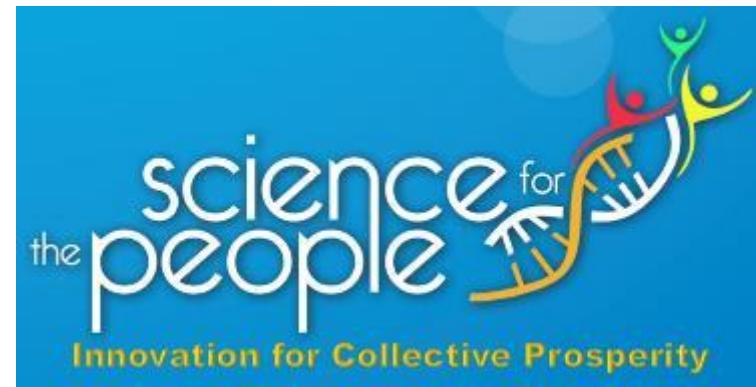
Water Advisory for Irrigation Scheduling System (WAISS)



Innovation Drivers in the Investment Priority Plan 2017-2019

- Research and development activities
- Clinical trials (including drug trials)
- Centers of Excellence (e.g., academic and medical facilities)
- Innovation centers
- Business incubation hubs
- Fablabs/co-working spaces
- Shared Service Facility for MSMEs
- ***Commercialization of new and emerging technologies and products of DOST or government-funded R&D***

New S&T Facilities



1. Space S&T Applications and Services for Environmental Monitoring and Natural Resources Management



Data and Asset Management



Science Data Infrastructure



Data Processing and Analytics



2. For developing Medicines



- 10 Tuklas Lunas Centers
for screening plants and marine samples or endemic natural products for therapeutic properties



- Bioactivity and Toxicity Facility
for Inflammation, Diabetes,
Hypertension, Pain, Gout, Cancer,
Cholesterol-lowering,
Immunomodulation



3. For developing and Testing New Products

MIRDC Die and Mold Solution Center

Sample Product



Food Innovation Center (FIC)



3. For developing and Testing New Products

ADVANCED DEVICE AND MATERIALS TESTING LABORATORY (ADMATEL)



A national testing facility equipped with advanced analytical instruments for failure analysis and materials characterization

To reinforce/upgrade the Failure Analysis (FA) and materials testing facilities of our local industry, provide shorter turn-around time and less expensive analysis

3. For developing and Testing New Products



ELECTRONICS PRODUCT DEVELOPMENT CENTER (EPDC)



PCB
Prototyping
and
Fabrication
Facility



EMC and
Other Test
Facility



Product
Prototyping
Laboratory



3. For developing and Testing New Products



4. Support to Technology Transfer



Funding Assistance for Spin-off and Translation of Research in Advancing Commercialization Program



IP Management Program for Academic Institutions Commercializing Technologies

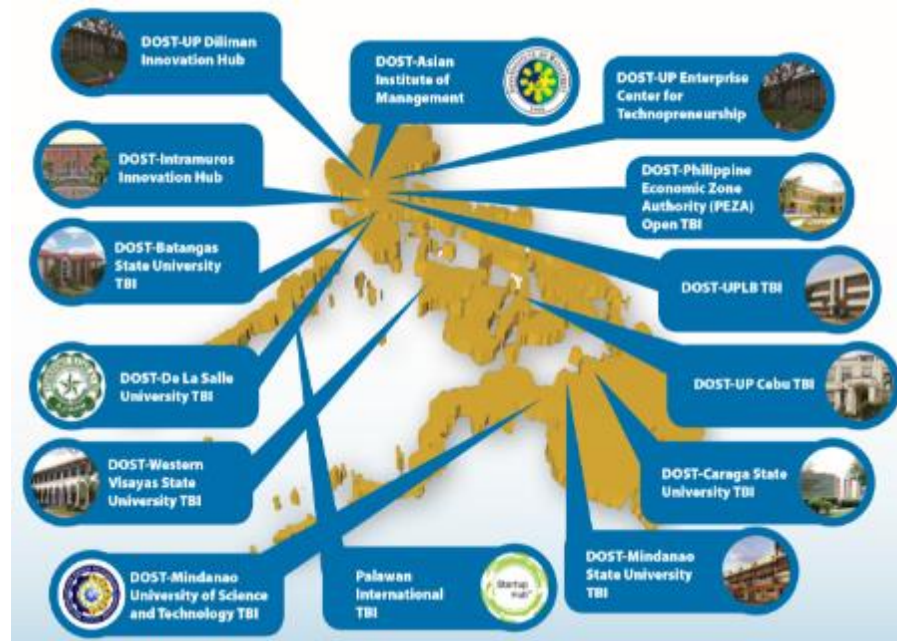


Elevating the DOST TBI Network Services and Programs

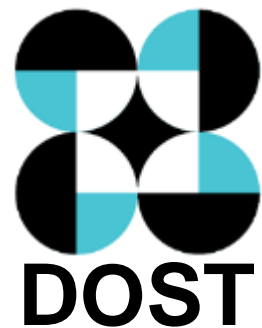


5. For Incubating Startups

20 Technology Business Incubators and **2 Innovation Hubs** Startups



New S&T Services Systems

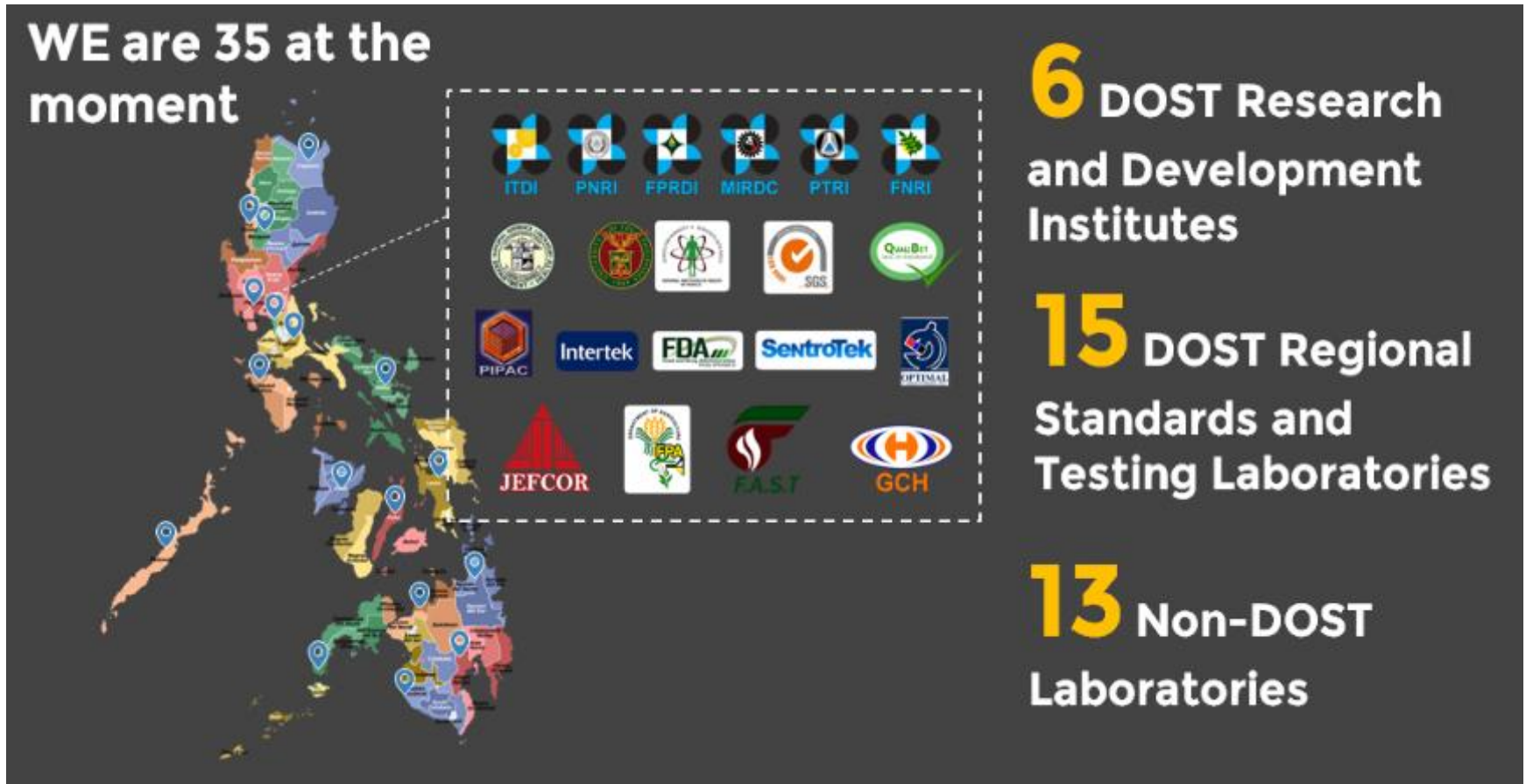


For ease of doing business

<https://web.onelab.ph/>

A network of laboratories anchored on an IT platform which broadens public access to testing and calibration services at a single touch point

WE are 35 at the moment



6 DOST Research and Development Institutes

15 DOST Regional Standards and Testing Laboratories

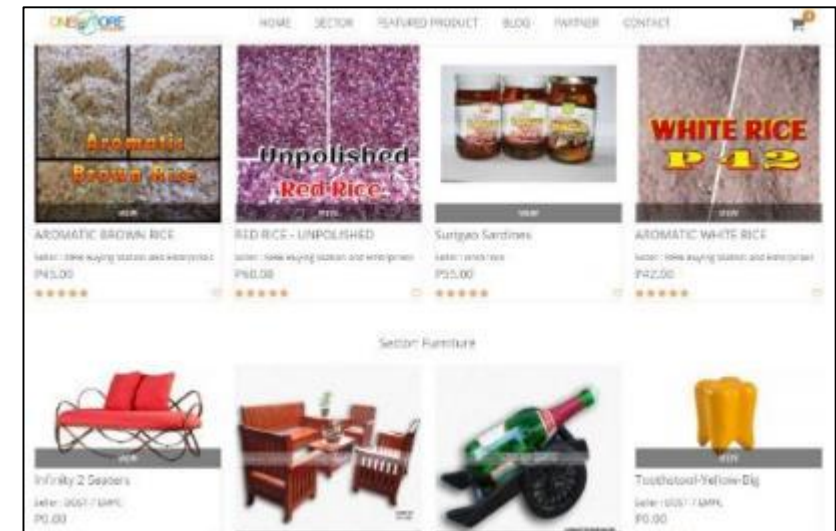
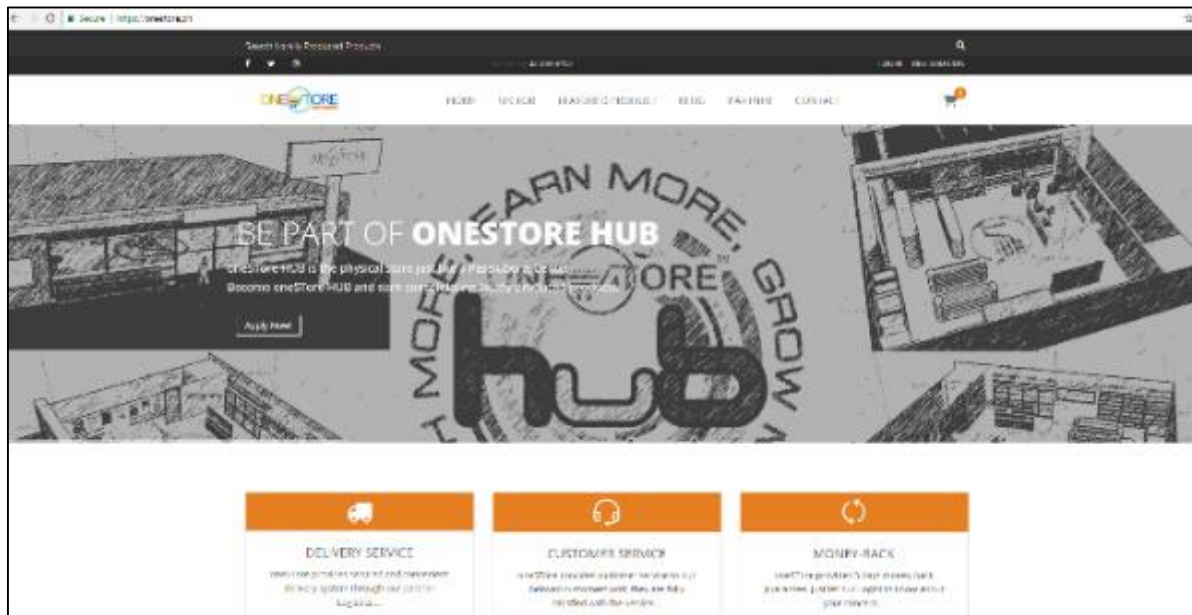
13 Non-DOST Laboratories



For MSMEs to access local and global markets

<http://onestore.ph/>

- ✓ OneStore provides customers with an effortless shopping experience and retailers with simple and direct access to one of the largest customer base system in the Philippines





DEPARTMENT OF SCIENCE AND TECHNOLOGY

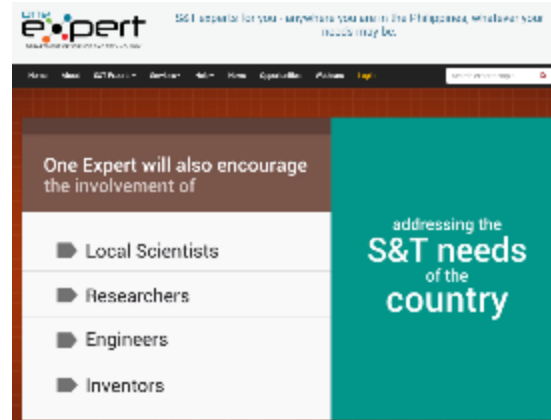
<https://oneexpert.gov.ph/>

For access to S&T experts

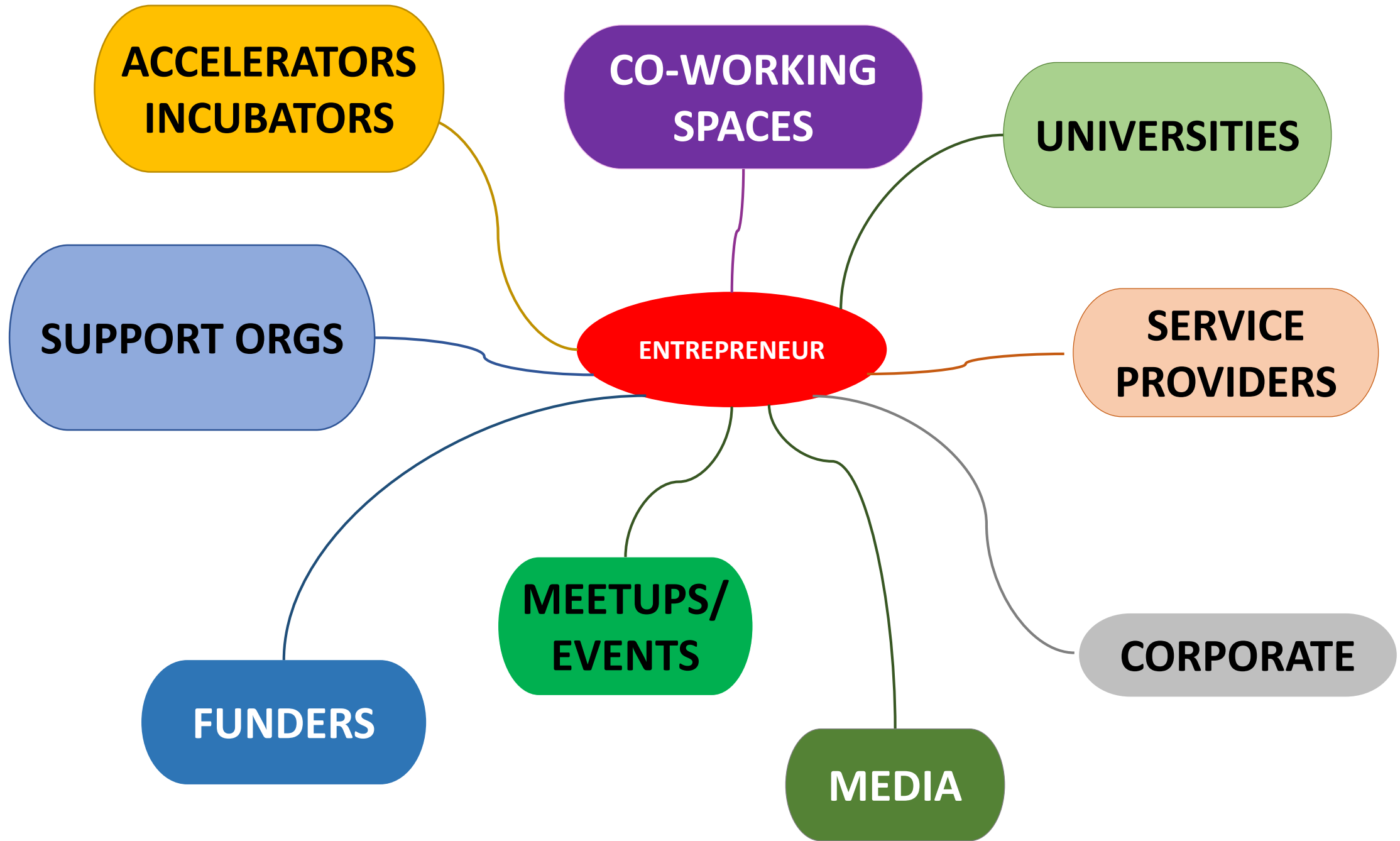


Features:

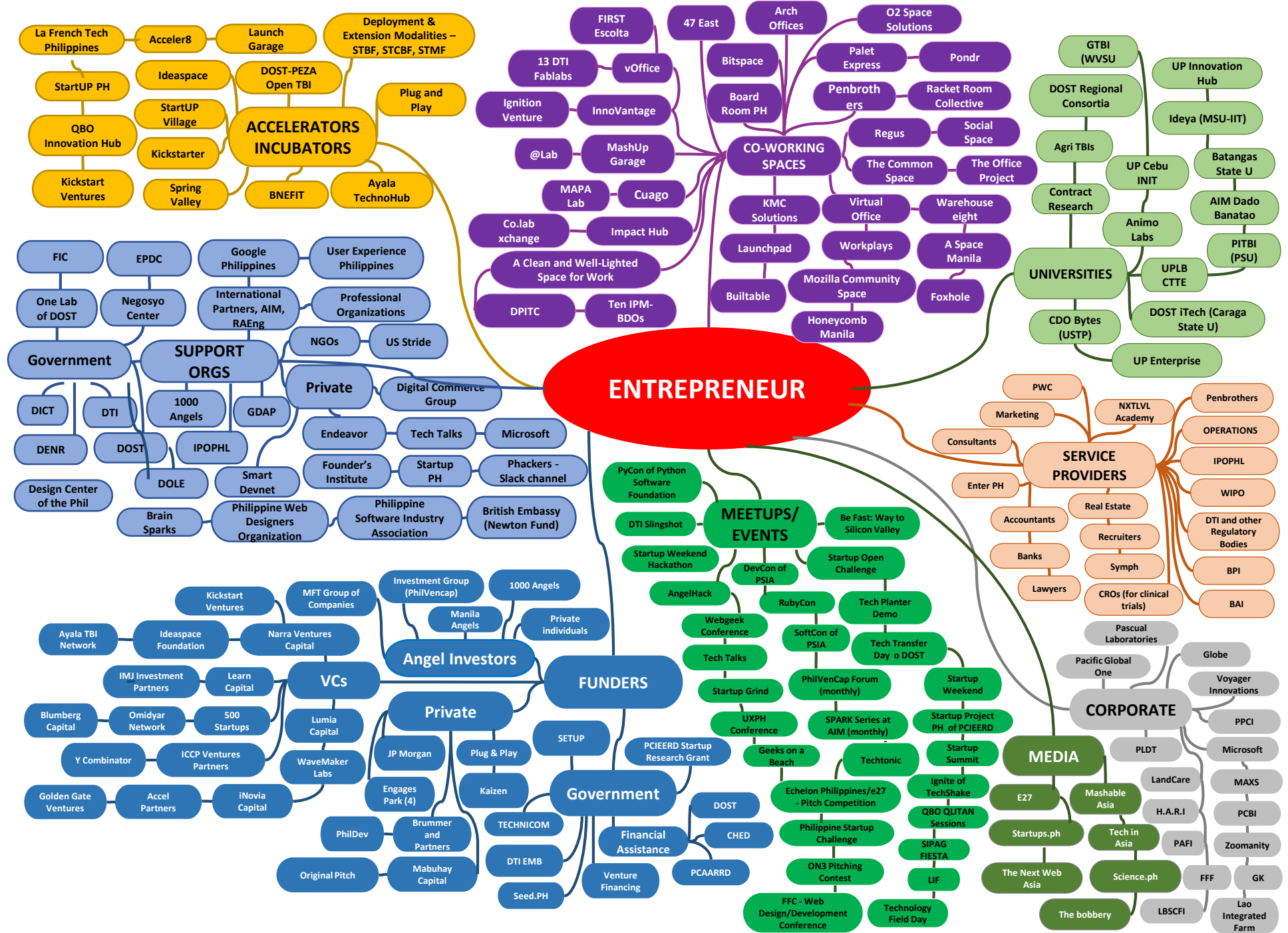
- ✓ Database of experts
- ✓ Interaction with S&T experts
- ✓ Link to a searchable technology database
- ✓ Information about various DOST Consultancy Programs
- ✓ Forum where users can post questions and/or answers to existing threads



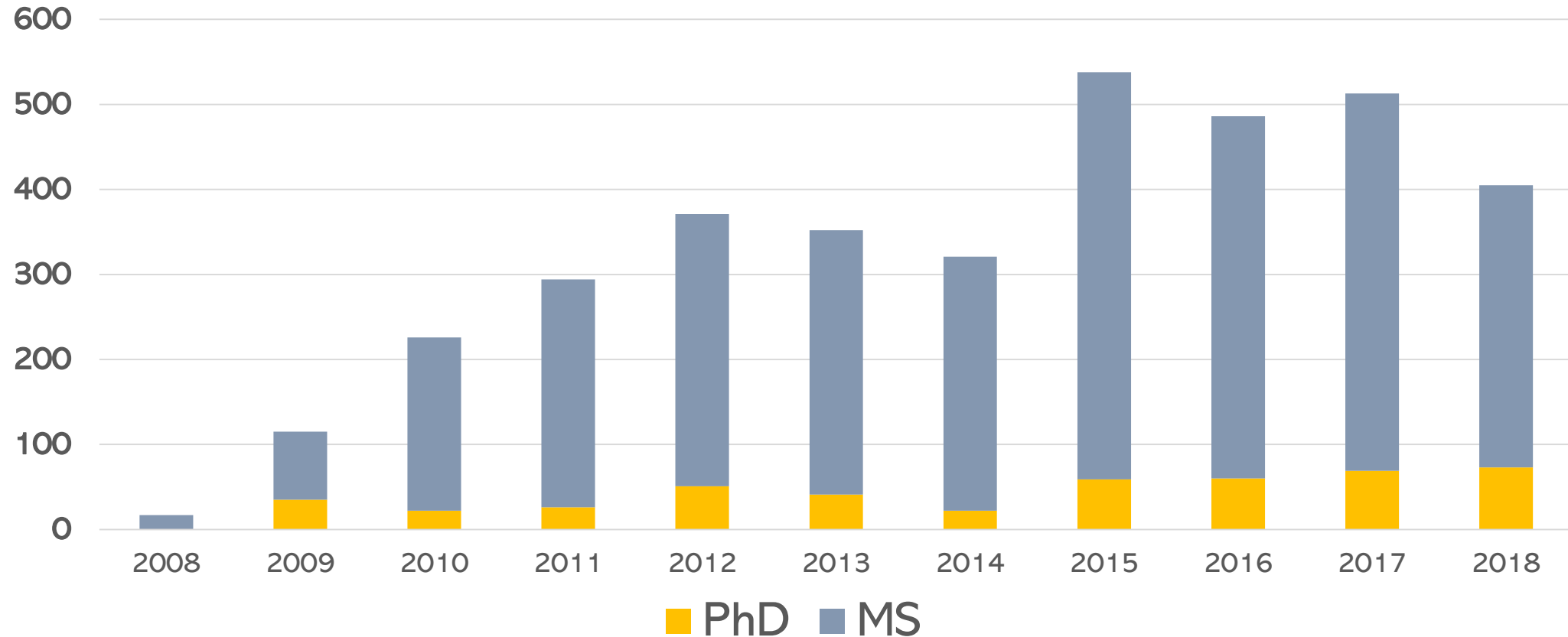
The Philippine Innovation Ecosystem



The Philippine Innovation Ecosystem



ASTHRDP & ERDT Graduates 2008-2018



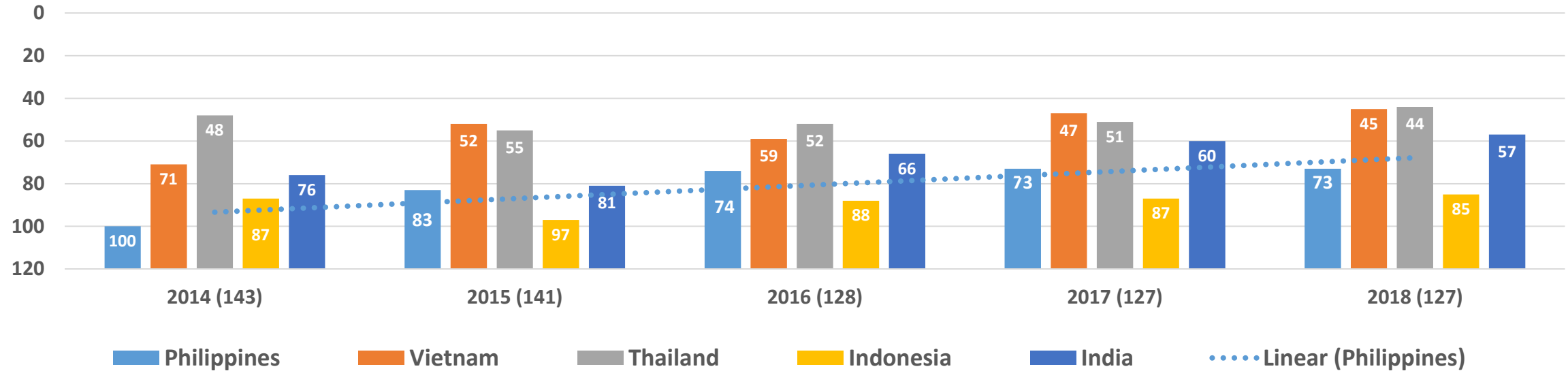
105 Disciplines

- ASTHRDP awarded scholarships for **5,009 MS** and **1,069 PhD**
- ASTHRDP graduates: **2,111 MS** and **304 PhD**

26 Disciplines

- ERDT awarded scholarships **2,520 MS** and **389 PhD**
- ERDT graduates **1,009 Ms** and **119 PhD**

Global Innovation Index 2018



STRENGTHS:

graduates in science & engineering (#17);

trade, competition & market scale (30);

firms offering formal training (9);

research talent (7);

high & medium high-tech manufactures (27);

ICT services exports (8)

WEAKNESSES:

ease of starting a business (#121);

education (#105);

expenditure on education (#109);

gross expenditure on R&D (#97);

pupil-teacher ratio (#95);

tertiary inbound mobility (#104)

global R&D Companies (#40)

scientific & technical articles (#120);

new businesses/th population (#91);

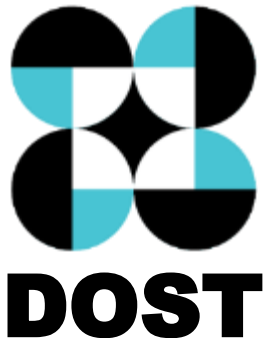
creative goods & services (#104),

online creativity (85)

The Philippine Innovation & Entrepreneurship Ecosystem

ROWENA CRISTINA L. GUEVARA, Ph.D.

Undersecretary for Research and Development
Department of Science and Technology



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