Health Research

Are We Ready for the Fourth Industrial Revolution?

ROWENA CRISTINA L. GUEVARA, Ph.D.
Undersecretary for Research and Development
Department of Science and Technology

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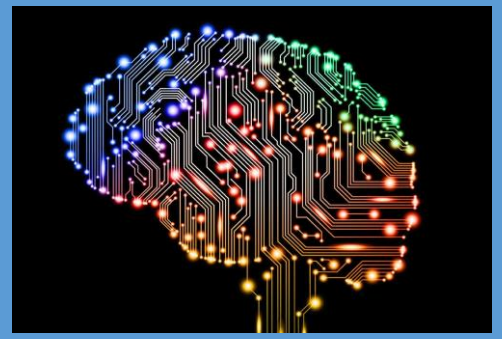
DOST

science for the people

Industry 4.0 disrupting business models at an accelerated pace, **is PH ready?**



- PH: low level of readiness for future production, at risk
- Weak institutional framework, human capital, technology & innovation (WEF 2018)
- Upgrade technology platform, reskill/up- skill workers
- **Innovation: animating force behind the future of production**

Evolution of the Role of R&D

Teaching-centric

-R&D conducted to improve teaching and capacity building

University Ranking

#PhDs/University

PRC passing rate

CHED COE/COD

Peers-centric

-R&D conducted to contribute to the overall scientific knowledge

Publications

Patents

Impact factors

Citations H-index

SCS

Society-centric

-R&D as a tool for positive societal change

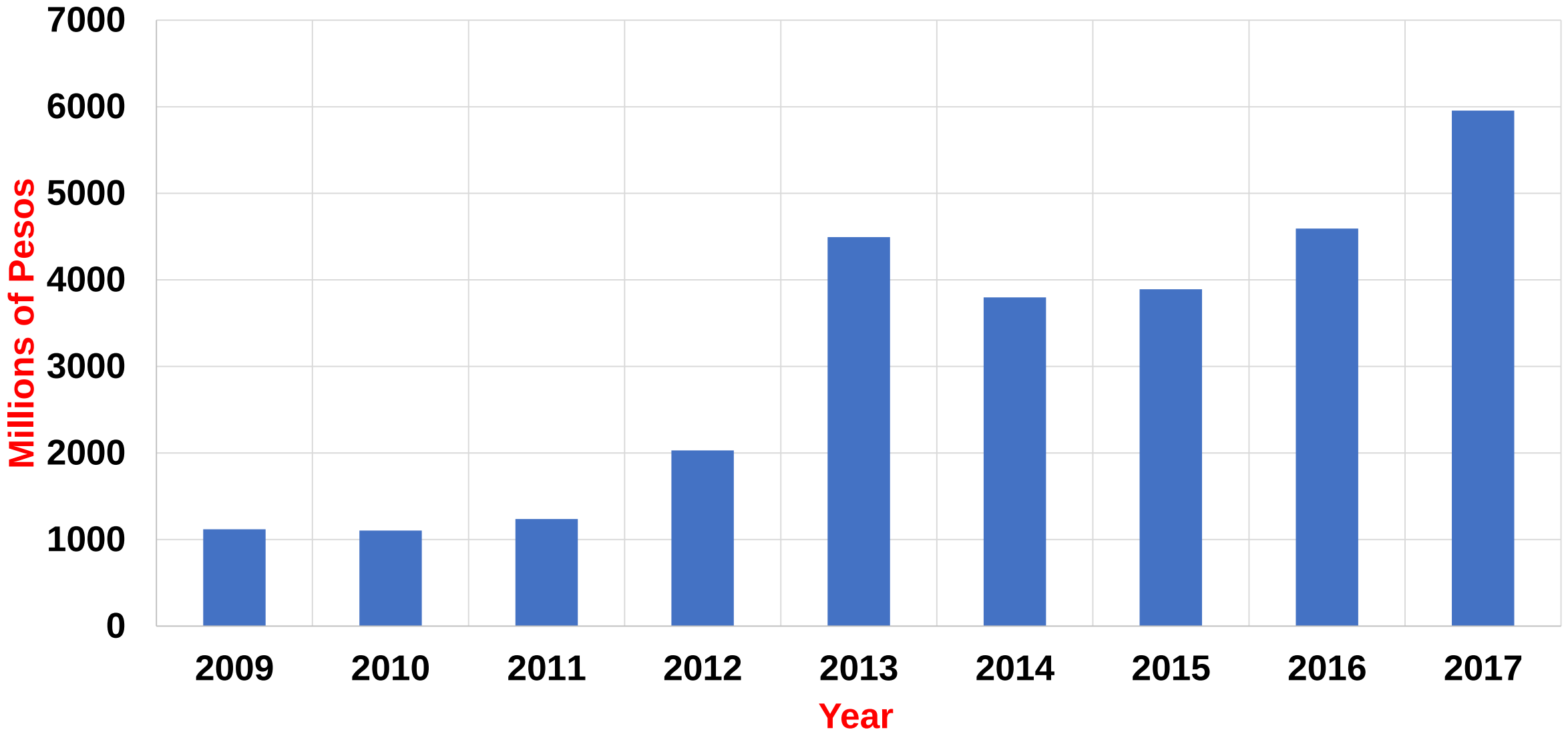
Impact Assessment

Economic gains

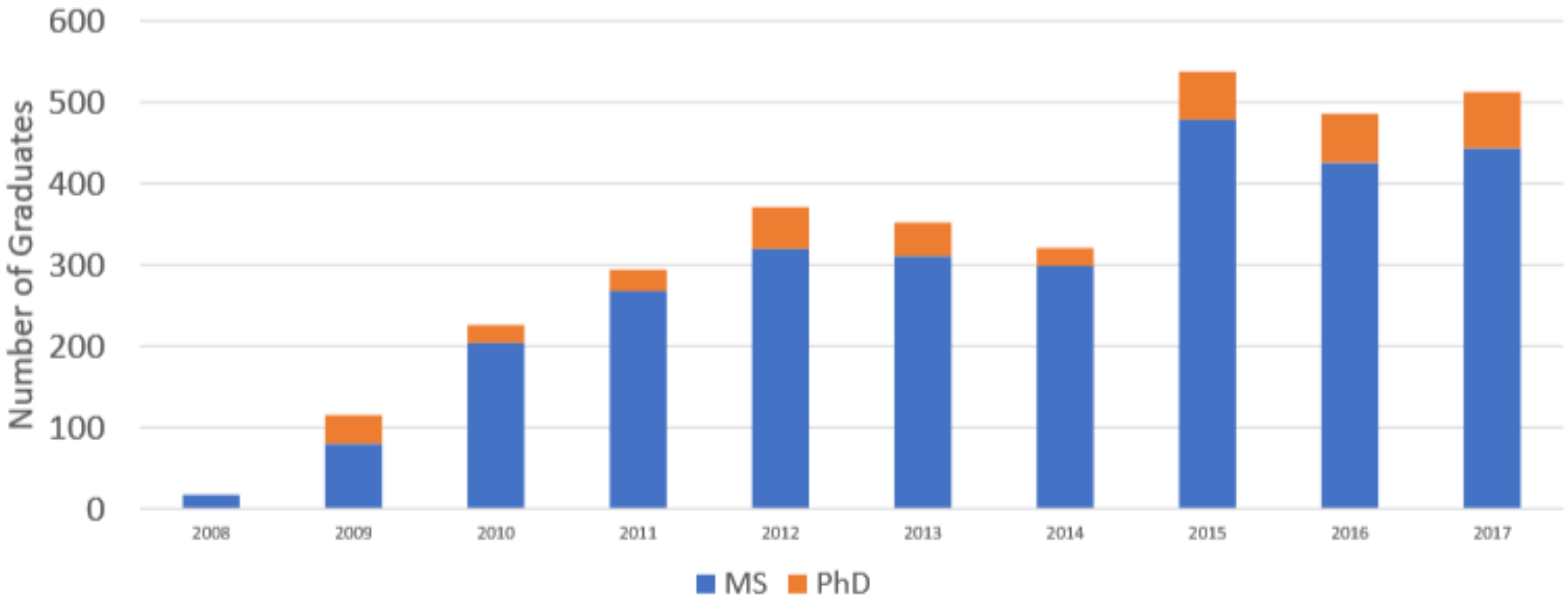
Startups graduated

Source: Dr. Carlos Primo C. David

DOST R&D Grant-in-Aid Funding



ASTHRDP and ERDT 2008-2017



105 Disciplines

- ASTHRDP awarded scholarships for 4,335 MS and 889 PhD
- ASTHRDP graduates: 1,982 MS and 258 PhD

26 Disciplines

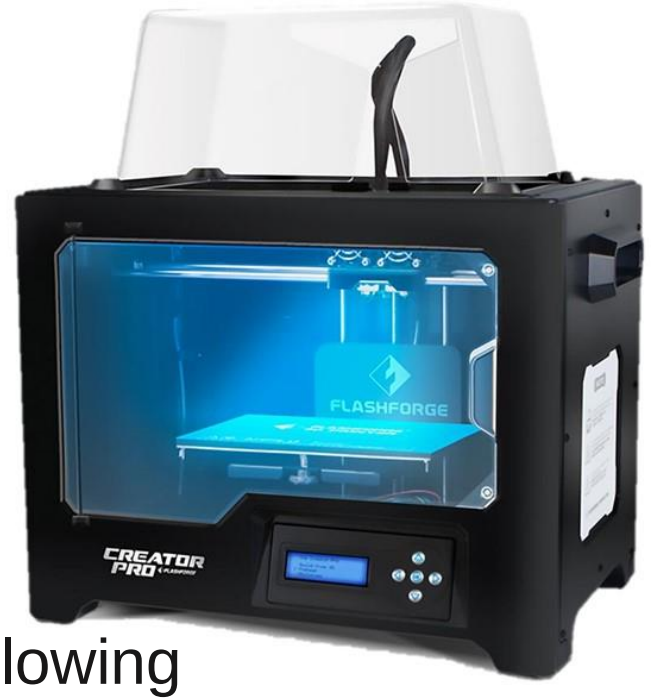
- ERDT awarded scholarships 2,244 MS and 366 PhD
- ERDT graduates 894 MS and 99 PhD

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**

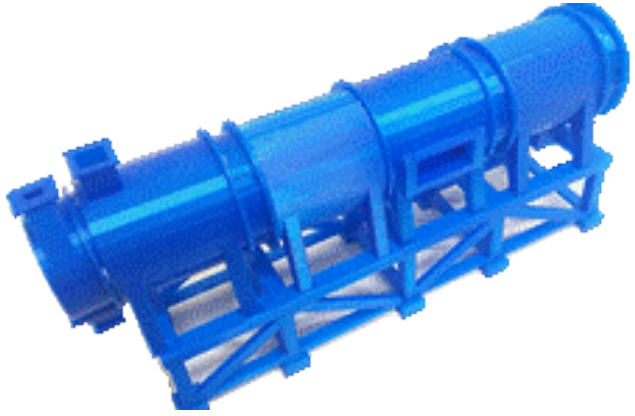
3D - Modelling

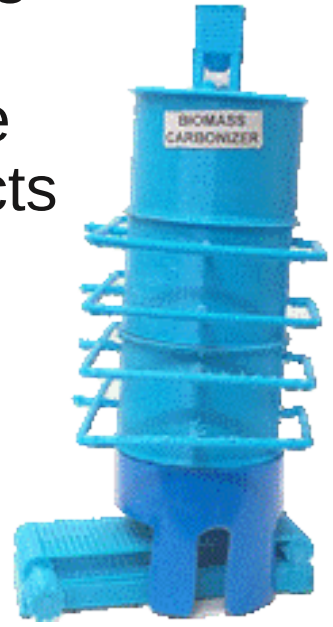
- Concept Design for the following
  - Herbal Processing Equipment
  - Microscale Diagnostics devices for animal testing
  - Testing kits for qualitative analysis for herbal extracts
- Theoretical Simulation testing



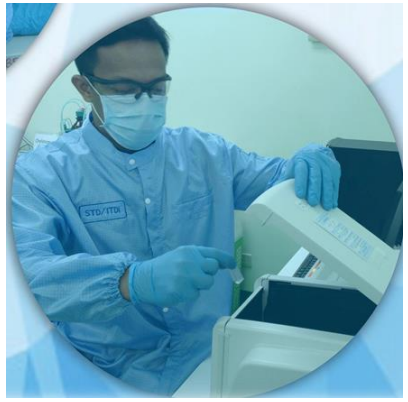
3D - Printing

- Printing of the following
  - Herbal equipment models
  - Herbal plant layout
  - Testing kits for qualitative analysis for herbal extracts

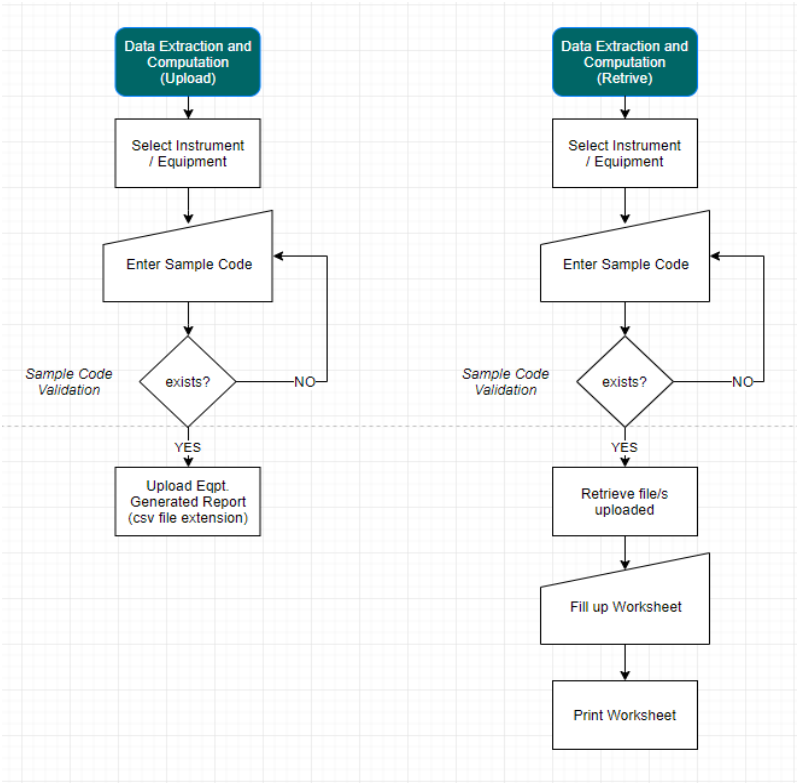


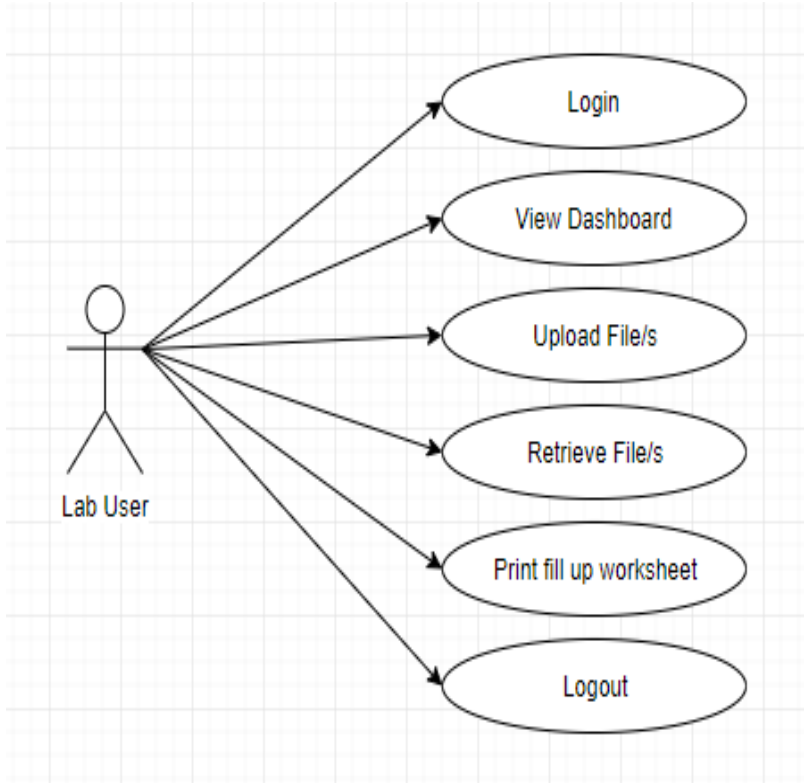


Automating data acquisition of analytical laboratory equipment



Analytical Laboratory Equipment

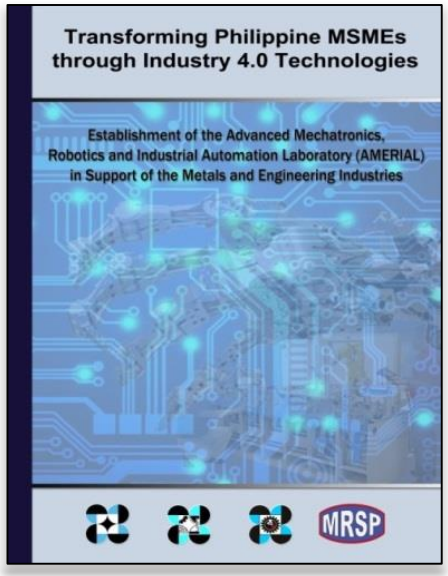




Process Flow

CAPABILITIES

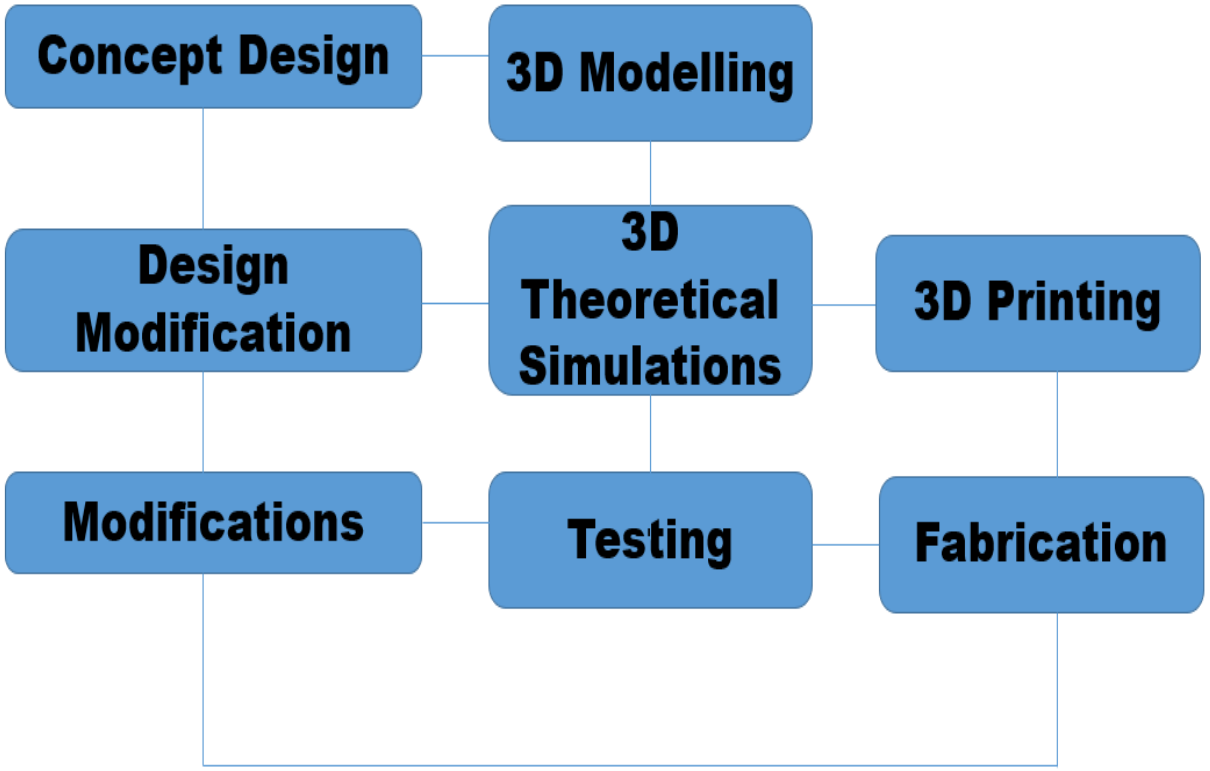
Advanced Mechatronics, Robotics and Industrial Automation Laboratory (AMERIAL) in Support of the Metals and Engineering Industries

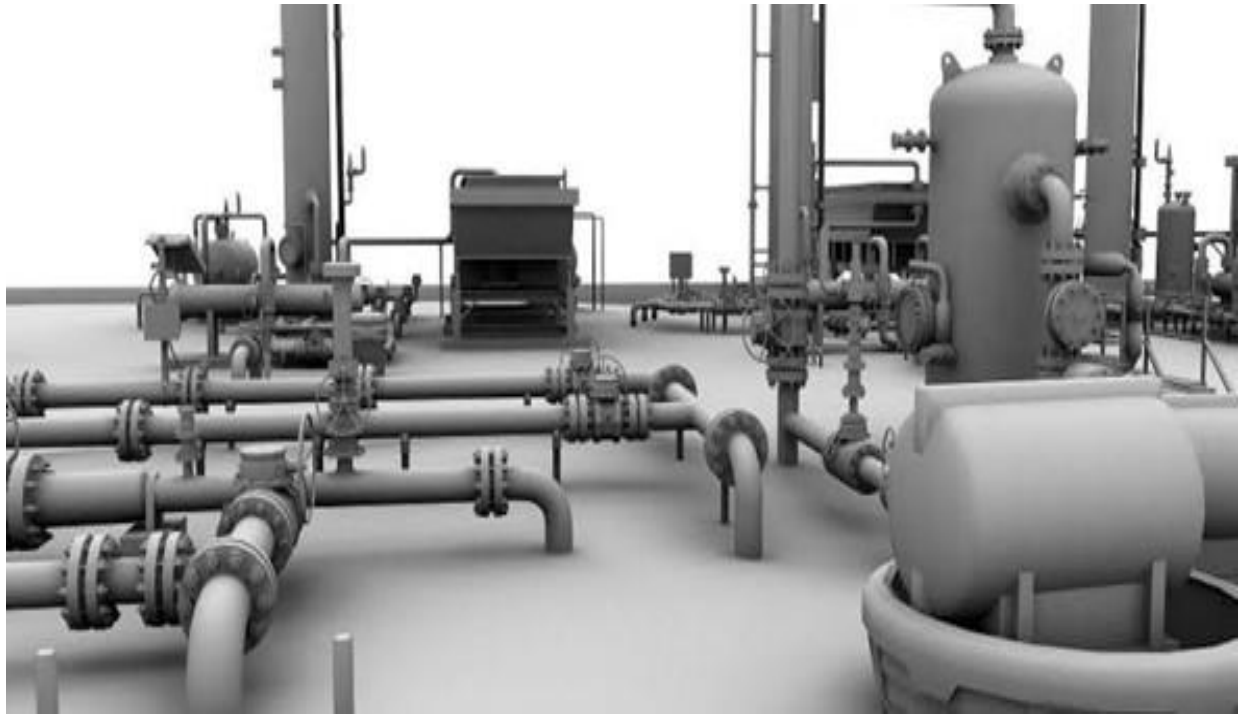


Ongoing Construction of Proposed AMERIAL Wing

PLANS MOVING FORWARD...

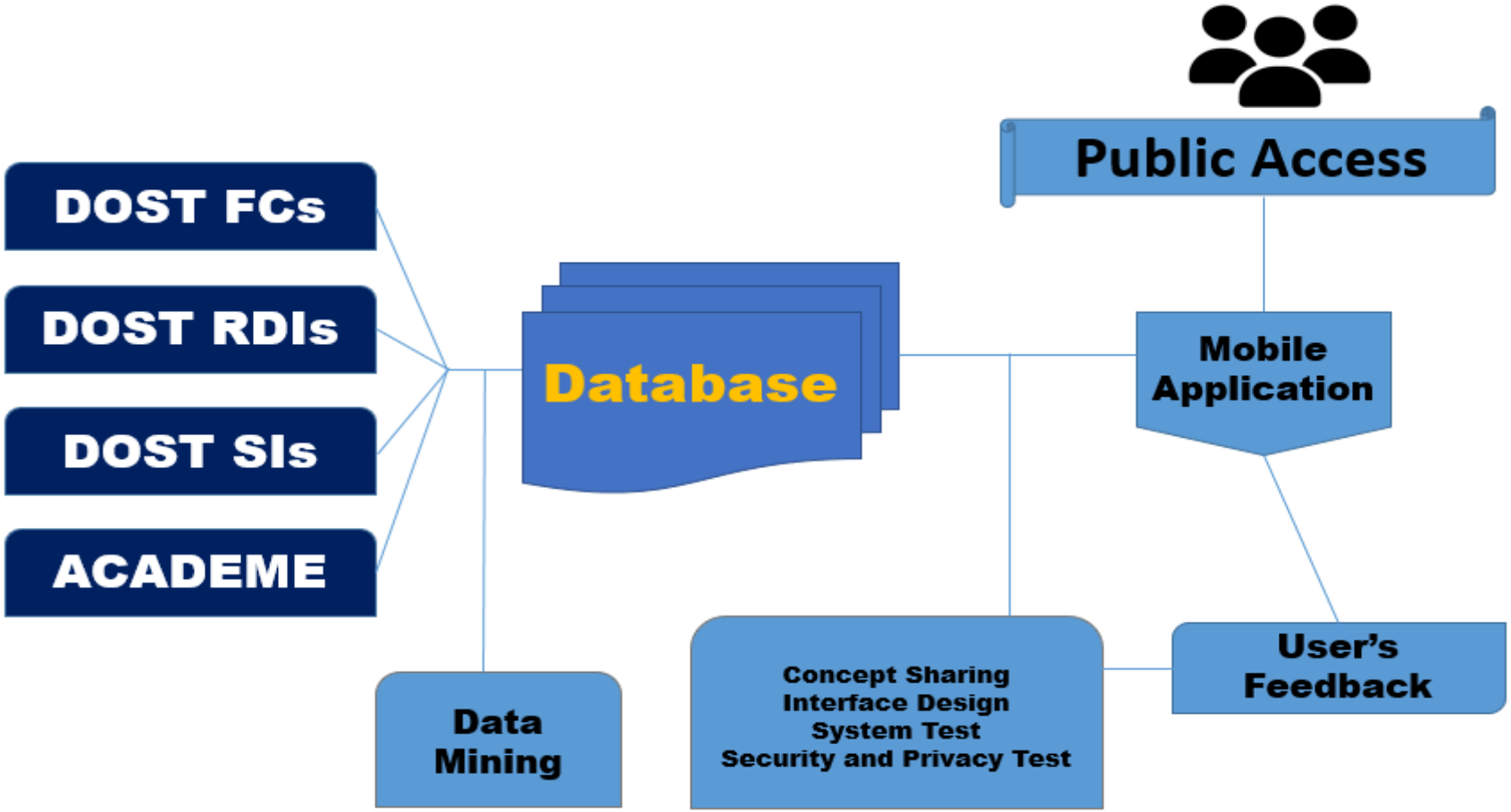
Utilization of 3D Printing Technology for Herbal Plant Design



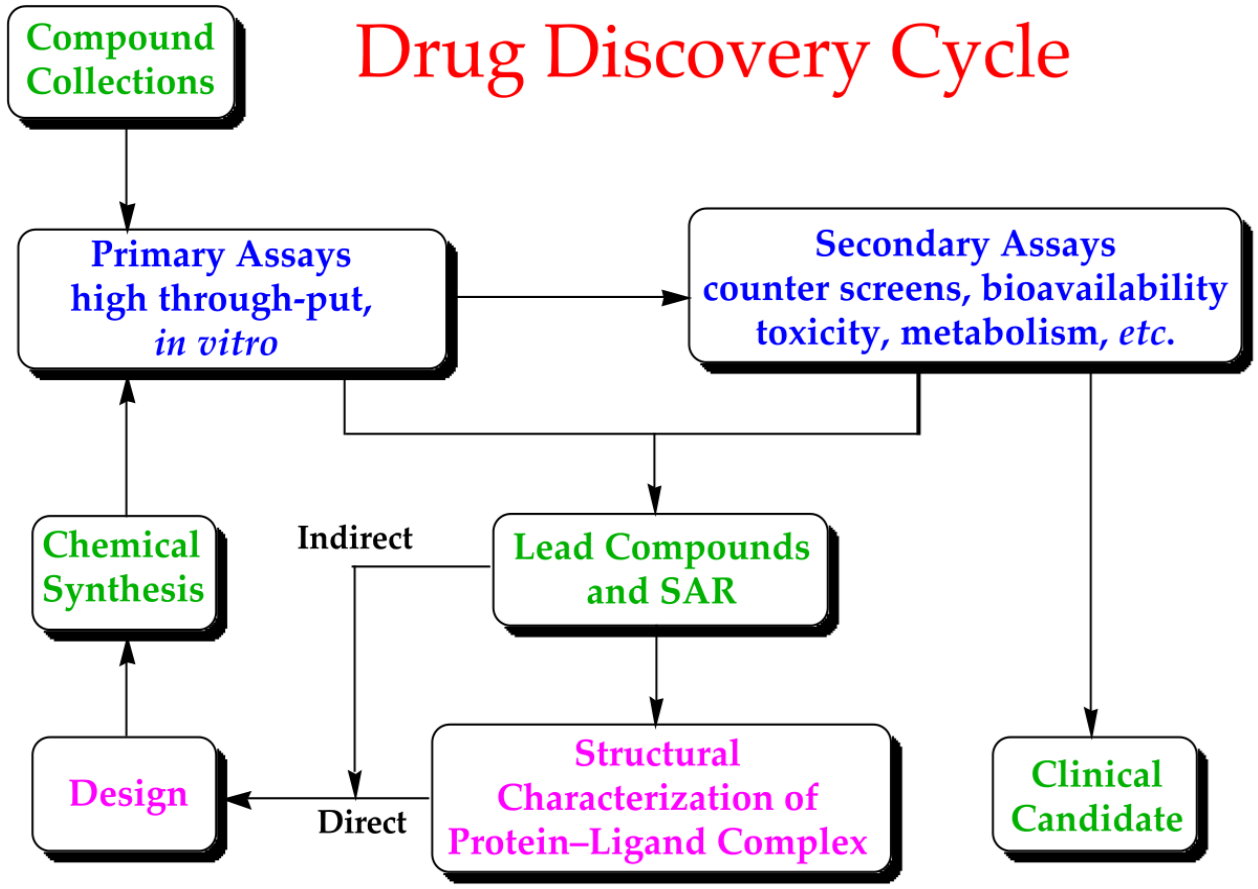


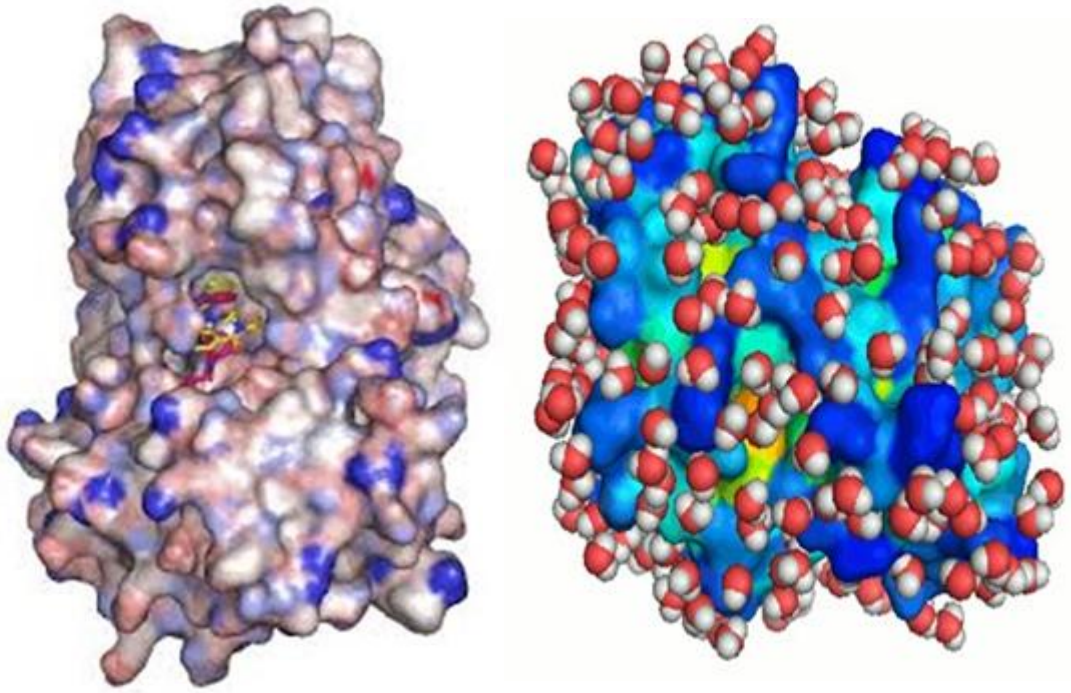
Internet of Things – Database Mobile App

Ethnobotanical and Phytochemical Database *of Philippine Terrestrial Flora with Public Access Mobile Application*



3D Modelling for Molecular Docking Technologies





PLANS MOVING FORWARD...

Development of New/Advanced Materials

Design concepts

Training

Prototyping Services

Testing/characterization Services

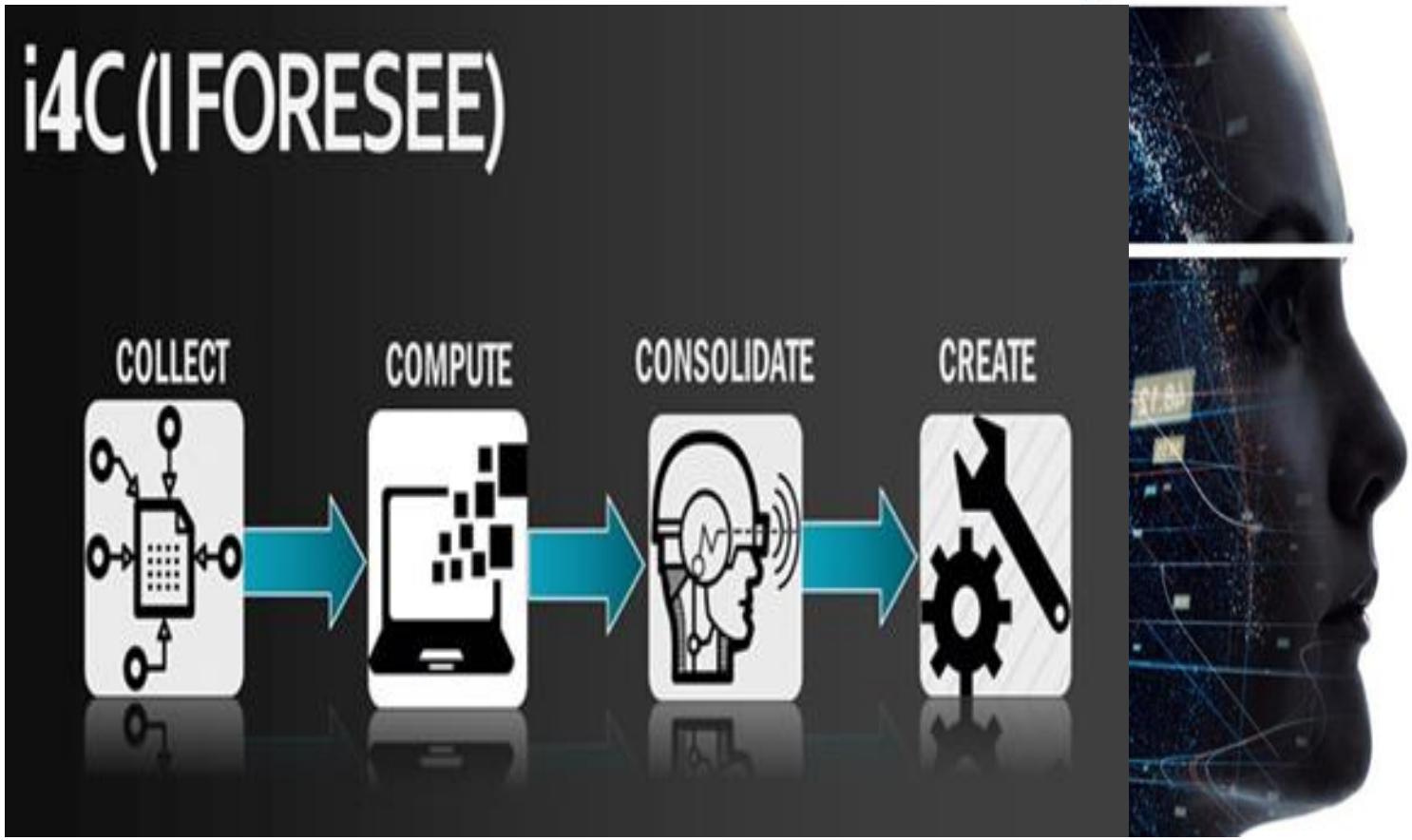
Contract Research

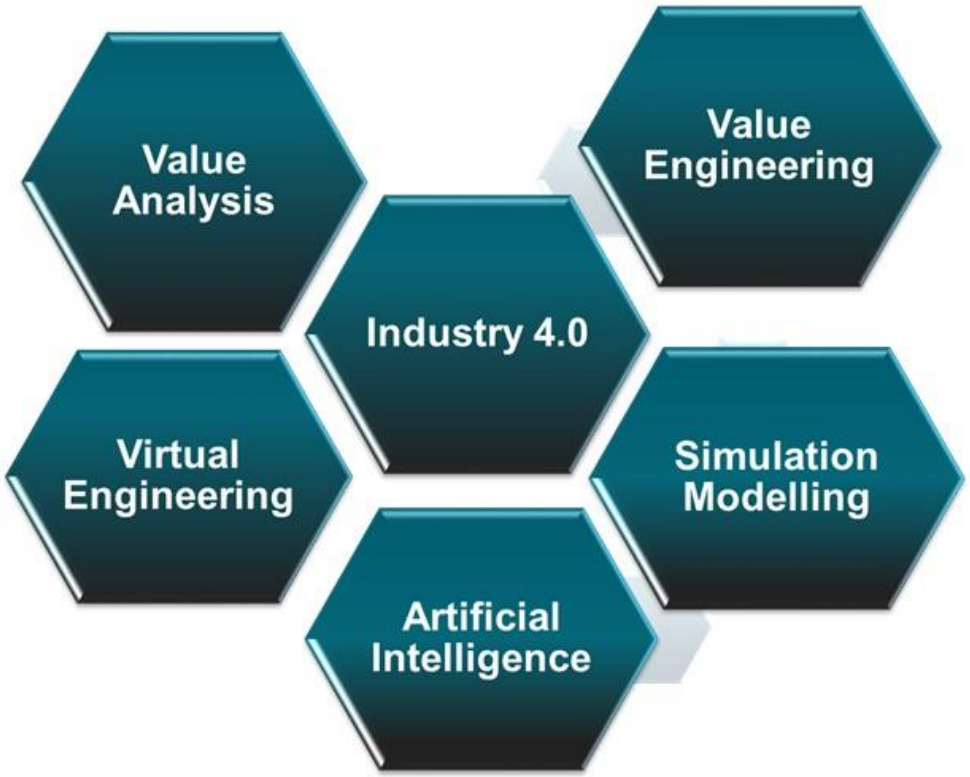
R & D

Education formation

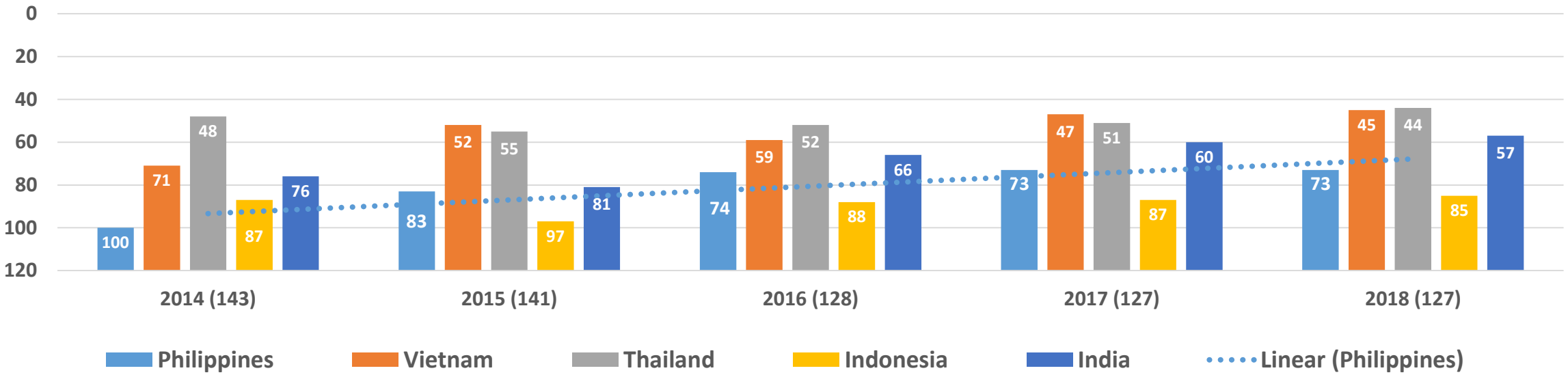
Key Research Areas

New Digital Industrial Technologies





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),

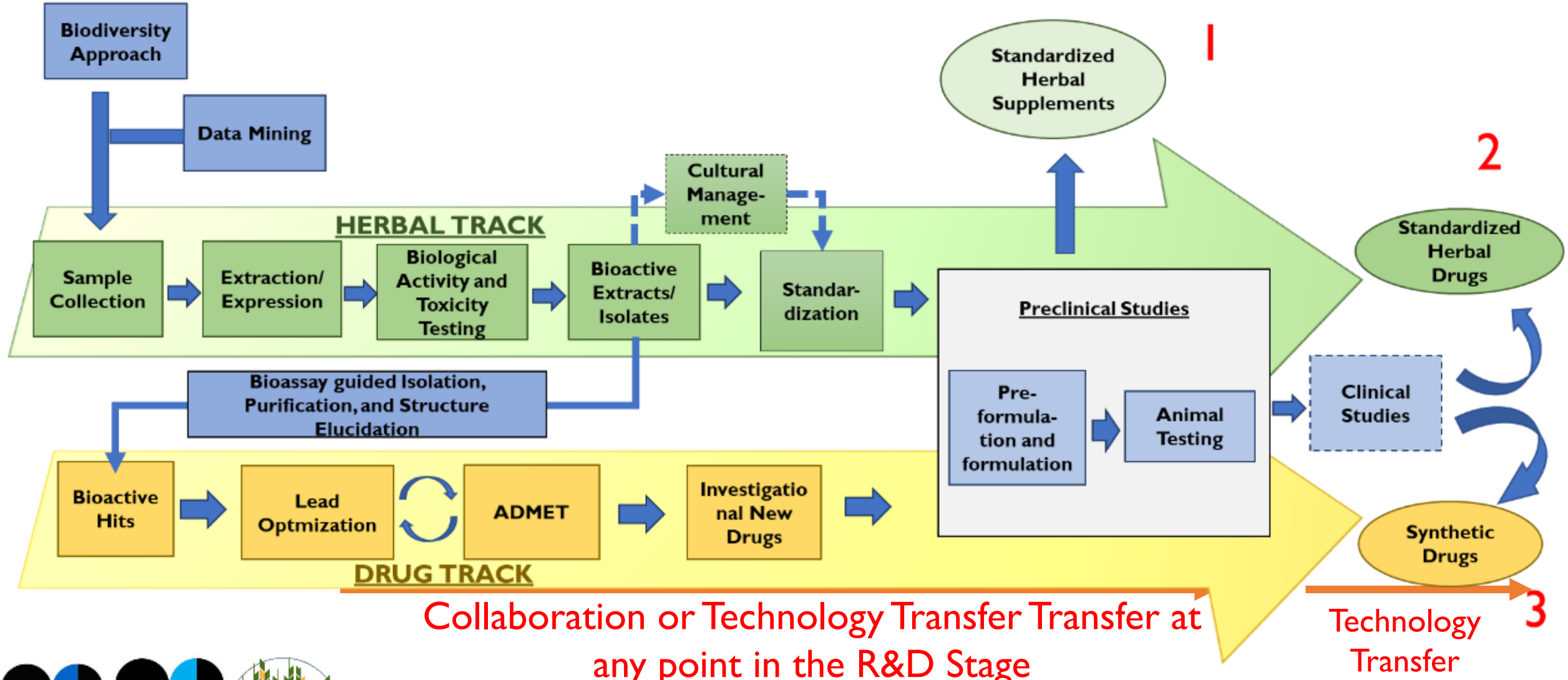
online creativity (85)

TUKLAS LUNAS PROGRAM: the Drug Discovery and Development Program of DOST

Vision

"To produce world-class medicines derived from the Philippine biodiversity, leveraging on local expertise"

Partnership Points with Industry



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