



# Establishing Innovation and Entrepreneurship Ecosystem for Promoting Industry-Academia Cooperation at Chung Yuan University

**Reporter : Prof. Shia-Chung Chen**

Vice President of Chung Yuan Christian University



# Profile



**Year of establishment:** 1955

**Educational Philosophy:** Holistic Education

**Faculty:** 1275

Full-time: 506

Chair/Honor: 15

Doctor degree: 451 (89.13%) Professor: 133

Associate Professor: 161

Assistant Professor: 171

Lecturer: 26

Part-time: 769

**Staff:** Full employer 393, Contract 300

**Student body:** 16,165

Undergraduate students: 12,990

Graduate students: Master's 2,814, Doctoral 361

**Alumni:** 106,000+

**Programs:** 7 Colleges / 29 Departments /  
31 Graduate programs / 13 Doctorate programs



# Guiding Principle



Holistic education is carried out based on 7 principles, one of seven principles

**We believe that full development of one's potential signifies success**

→ developing creativity, innovation and Entrepreneurship

**Focus on Society's Concerns**

**Innovate Industrial Research**

Overall Performance around 10 in Taiwan, top few ones in private universities according to CWUR, SJTU and THEM's ranking evaluations

Connect the new world



**CHUNG YUAN**  
CHRISTIAN UNIVERSITY

# University Ranking-Overall Performance



## World University Rankings By Center for World University Ranking(CWUR)

- Ranked **696th** among the Top World 1000
- Ranked **Top 1** among Taiwan private comprehensive universities and **9th** among Taiwan Universities in 2014



## Ranking of Top Universities in The Greater China (ARWU, by Shanghai Jiao Tong University)

- 2013 Ranked **Top 57** Within The Great China Area; **Top 1** among Taiwan private comprehensive universities 2011~2013



## Asia University Rankings by The Times Higher Education Magazine

- Ranked **97th** among the Top Asian 100; **13th** among Taiwan Universities in 2014





# Executive Operation Center for Industry-Academia Cooperation (EOCIAC)



- ✓ Self-sustainable
- ✓ Profit center

**Instruction Committee  
for I-A cooperation  
Convener: President**



**Executive Operation  
Center for Industry-  
Academia Cooperation  
(EOCIAC) / CEO**

Office of Academic Affairs

Office of Research and  
Development

College

Office of Continuing Education

Office of Alumni Services

Office of International and  
Cross-Strait Education

**Germination  
Function Center  
(CYGC)**

**Innovation &  
Entrepreneurship  
Education Center  
(CYCIE)**

**IAC &  
Technology  
Licensing Center  
(CYETLC)**

**Incubation  
Center  
(CYIC)**

**International Incubation Center**

**Campus Entrepreneurship Center**



Holistic Chung Yuan Incubation Investment Ltd.

# Mission



**To** establish the operation mechanism and become an excellent connecting bridge between the industry and the academic field.



**To** provide many value-added services to industries and universities.



**To** actively integrate academia/industry/government/VC and human resources.

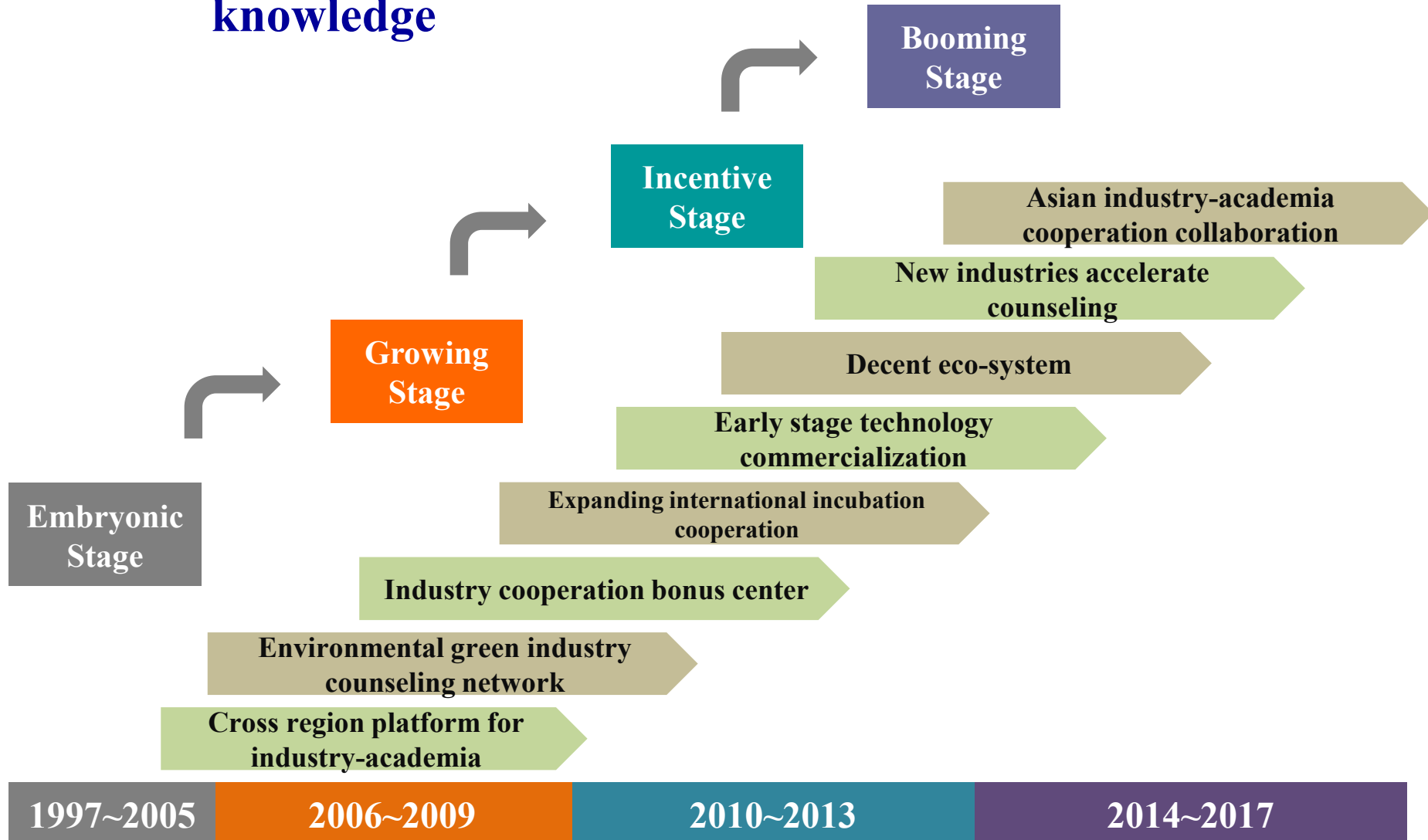


**To** protect, mine and commercialize R&D and professors' IP results.

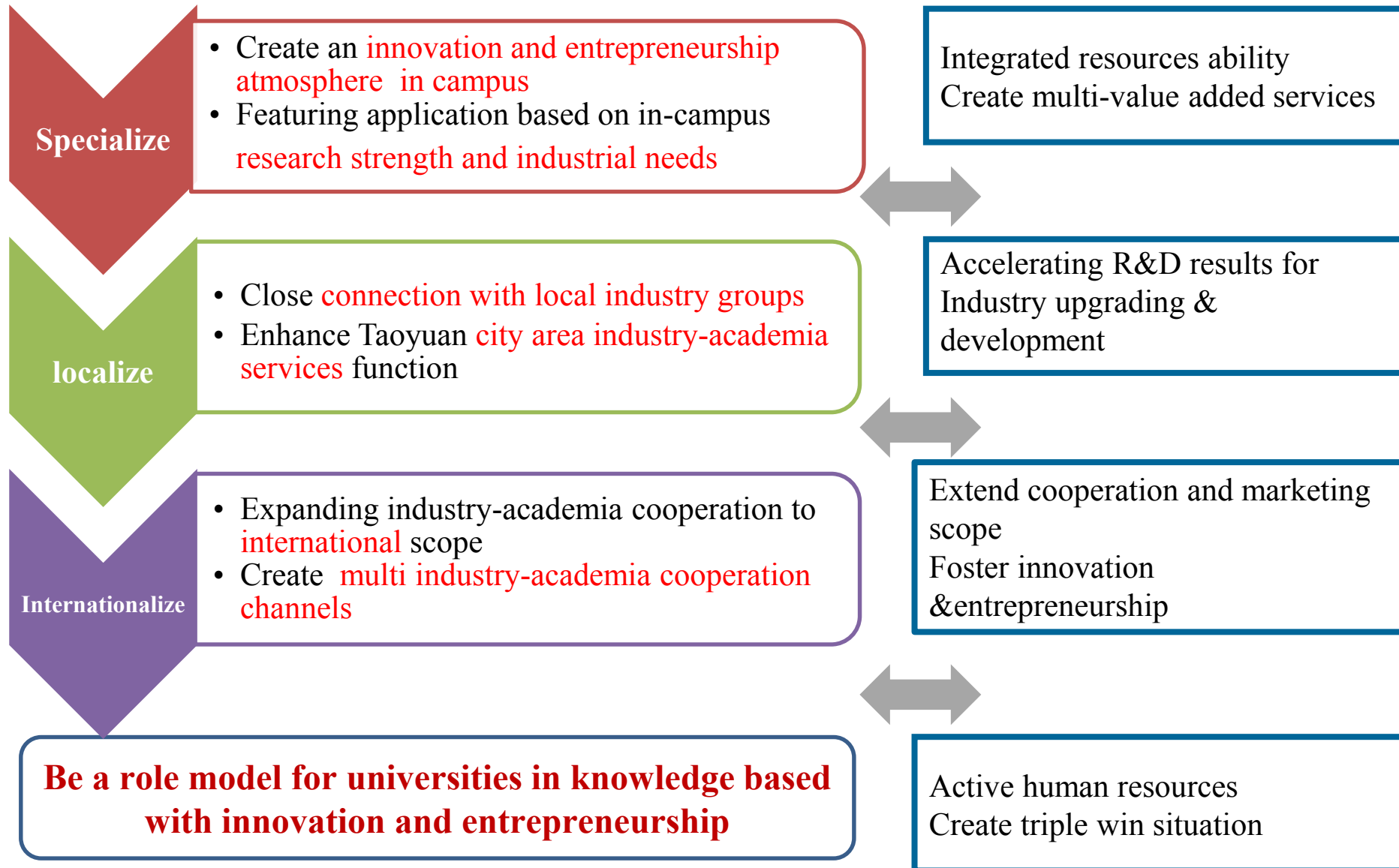
# Industry-Academia Cooperation Development Stages



**Target:** Knowledge based innovation, inspire innovation via knowledge



# Core Strategy for IA corporation





# Industry-Academia Cooperation Focus



## **Special Research Output : Innovative plus Research leading to Excellent Applications**

Strengthen internal Research and Design analysis, value evaluation and bonus combination.

Enhance Research & Innovation management capability, enhance cooperation opportunities.

**Value-add  
Service**

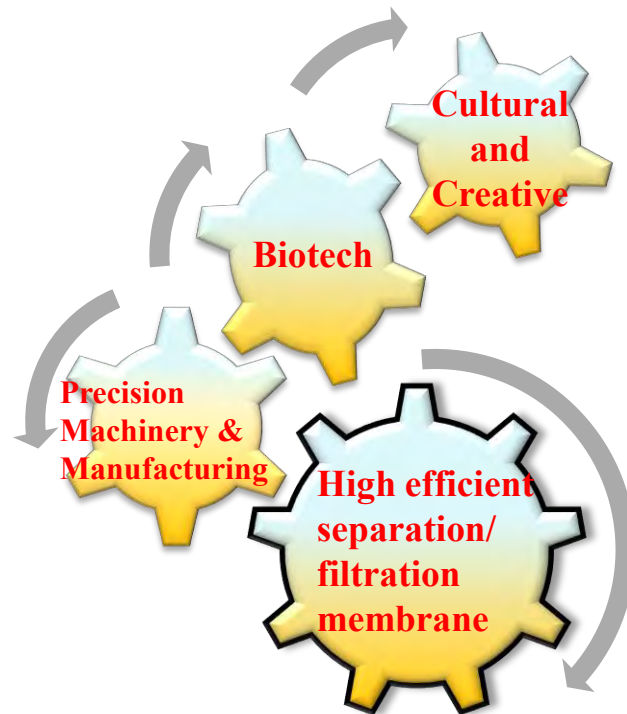
**Innovation  
System**

**Educational  
Training**

**Business  
Model**

**Technical  
Service**

**CYCU specialize in four basic researches  
linking to Industrial technology fields.**



Driving

Developing

**Specialty technology fields**

## **Cultural and Creative Enterprise**



## **Green Industry**



## **Intelligent Manufacturing Industry**



## **Biotech and Medical Device Industry**

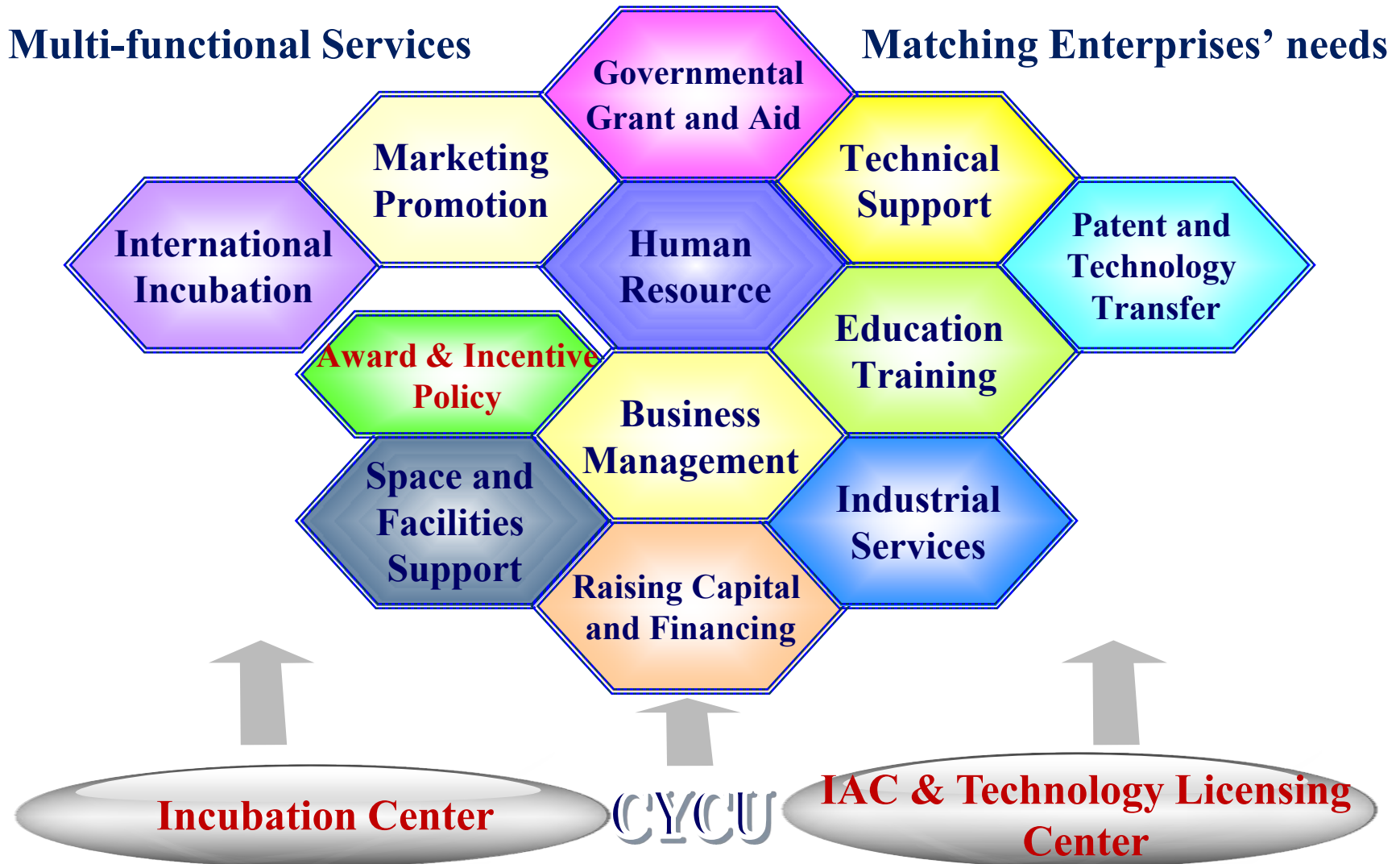


**National Industry Technology**

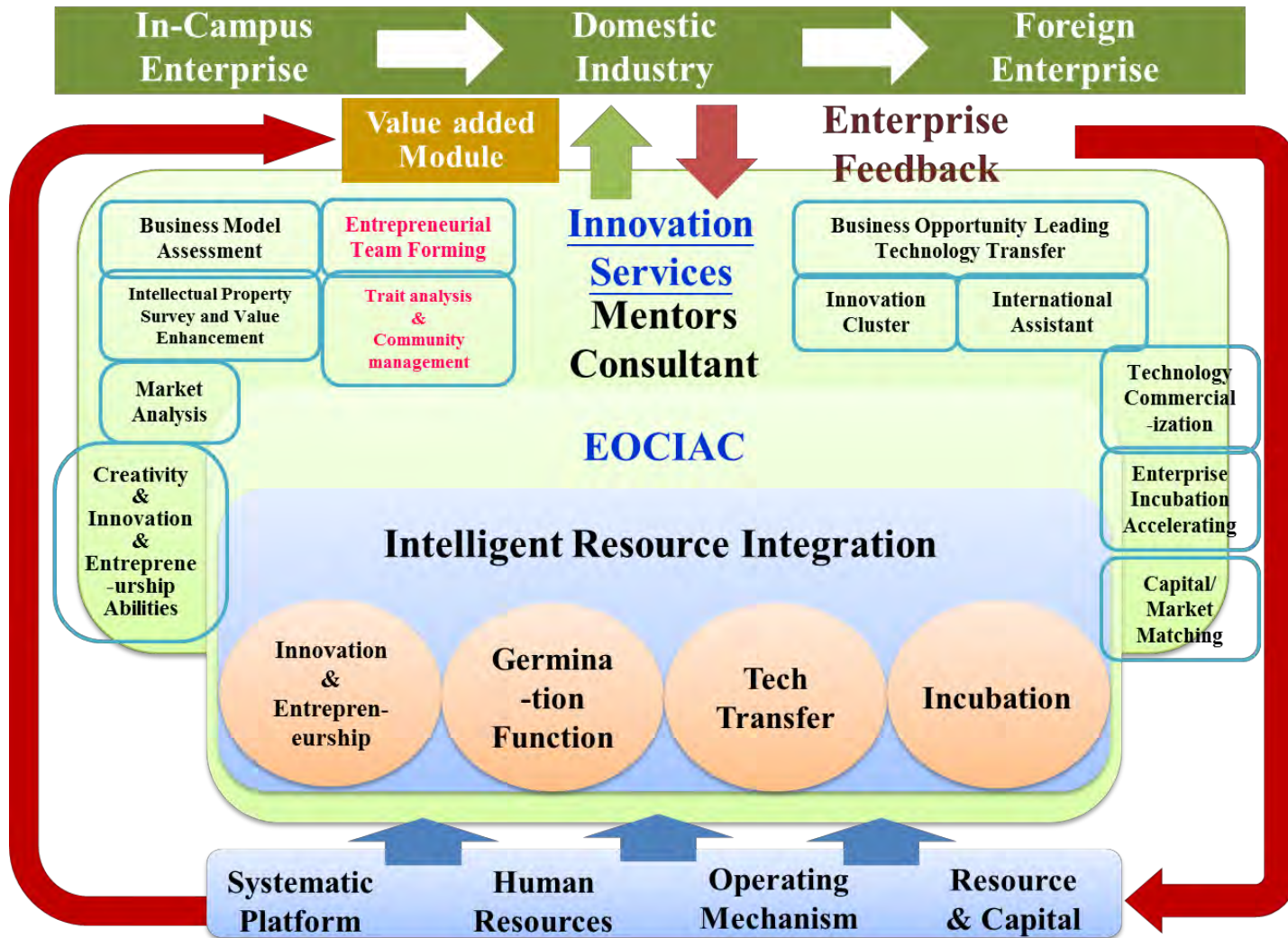
# 12 Major Services for Industry-Academia Cooperation



## Total solution & Values



# CYCU - Integration Services of Industry-Academia Cooperation



**Full Services from beginning to the end**

**New Technology Development**

**Prototype/Product Development**

**New Business Development**

**Develop Campus Entrepreneurship(teacher and student)**

# Innovation & Entrepreneurship Ecosystem

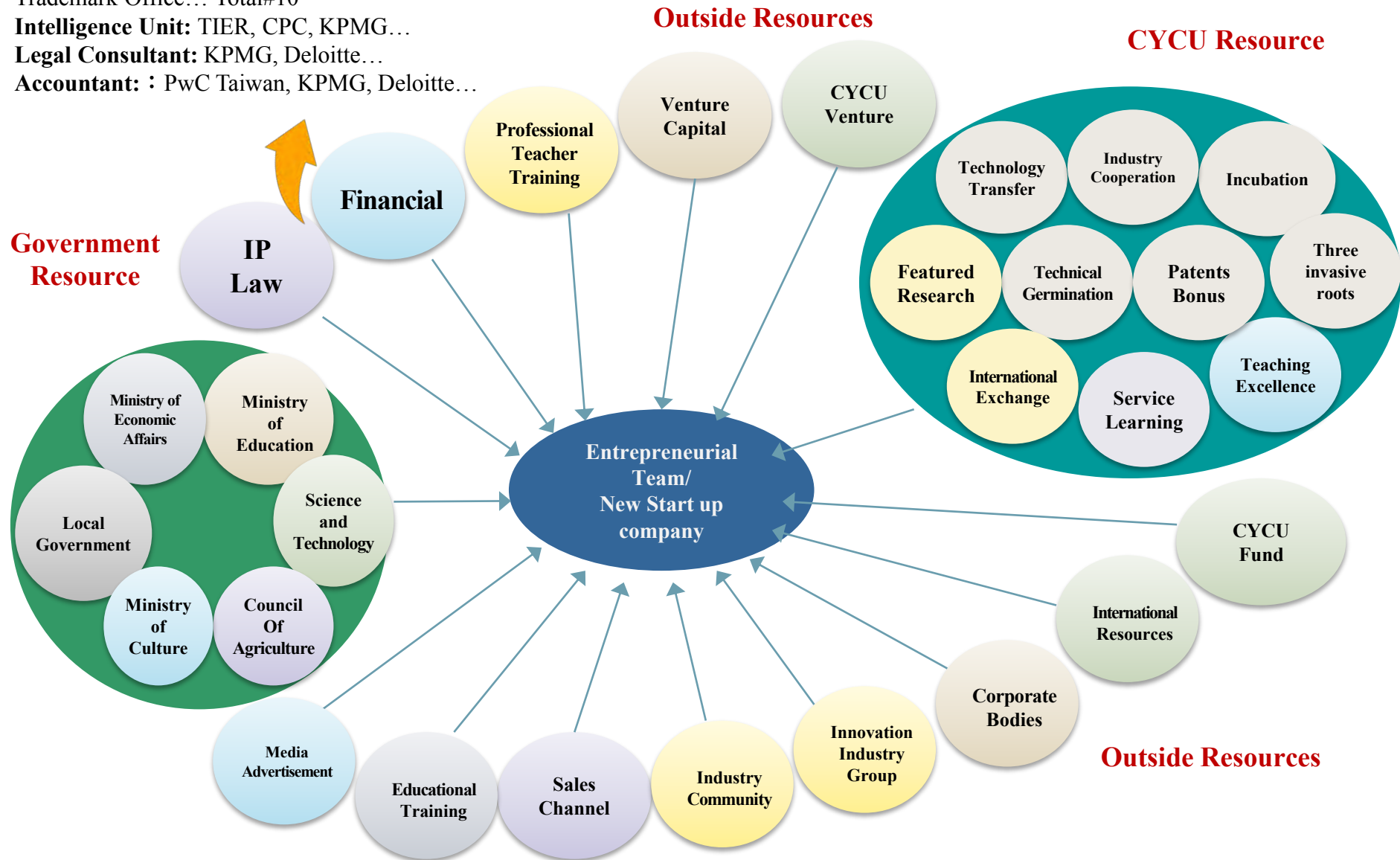


**Patent Office:** Top Team, Hitek International Patent & Trademark Office... Total#10

**Intelligence Unit:** TIER, CPC, KPMG...

**Legal Consultant:** KPMG, Deloitte...

**Accountant:** : PwC Taiwan, KPMG, Deloitte...





# Main Target of the Germination for 2105



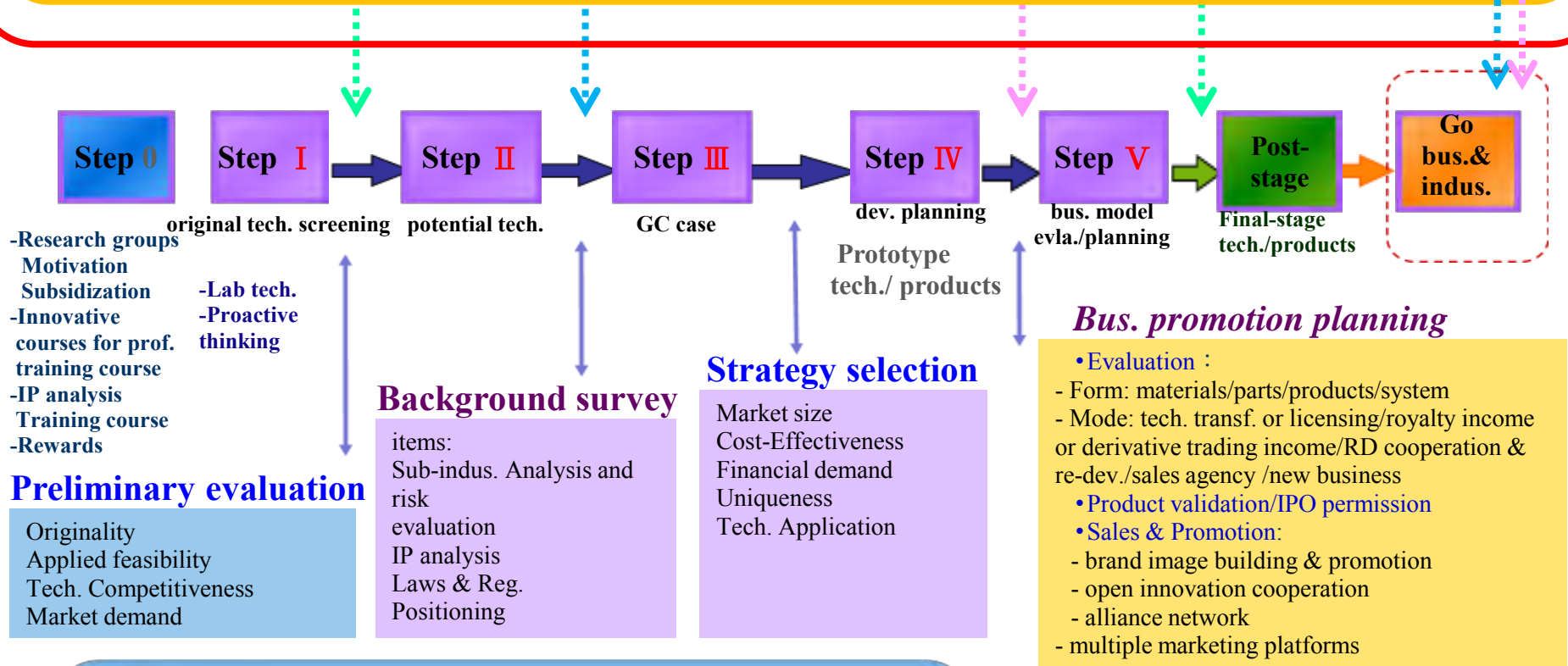
**Main job for the future-**

**Develop new companies**

**Business Planning  
with IP Due-Diligence Service Team**

**Matching and Training for  
Customized Talents People**

**Help Fund Raise and Learning Feedback**



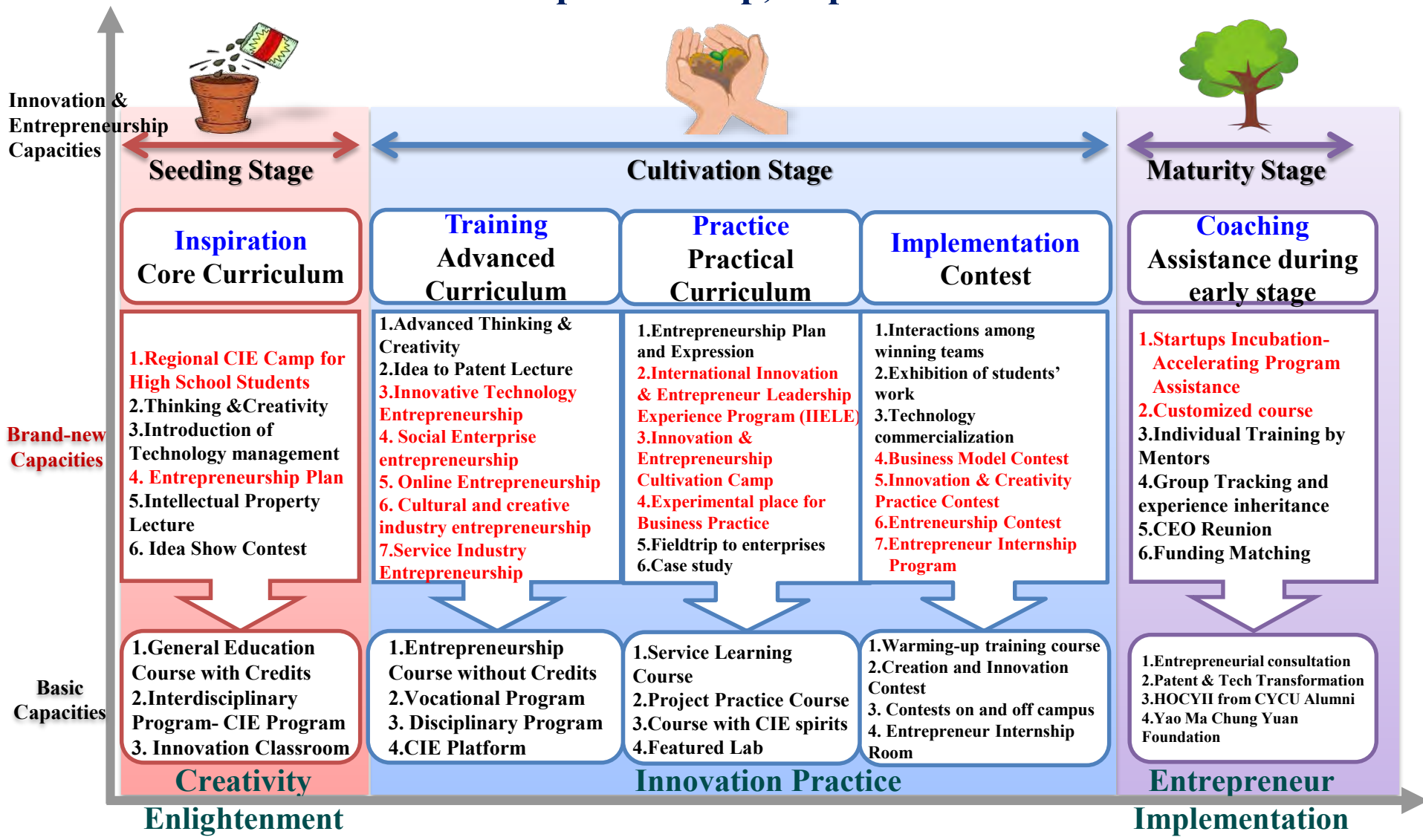
**GC/tech. managers are responsible for step 0-V.**



# Mechanism of Innovation and Entrepreneurship Education



**Features : Ability Cultivation, Friendly Resource, Characteristic Entrepreneurship, Expected Success**



# Multi-Function of Technology Licensing Center and IA Cooperation Services



## Objective

- Advance in Research Planning
- IP Application and Value Added
- Technology Transfer and Industry-Academia Cooperation via Business Orientation basis
- Enterprise Extension/Upgrading

## Functions

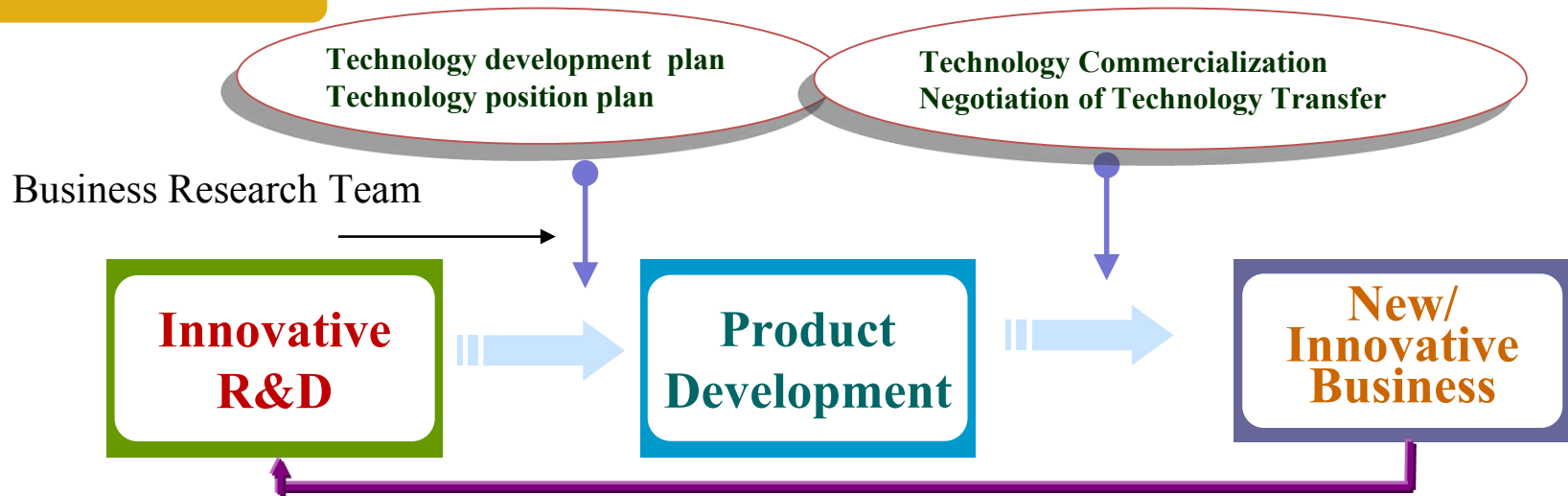
### ►► For CYCU Community

- ✓ Patent apply and maintenance
- ✓ IP value analysis, added & grouping
- ✓ Explore Tech Transf. opportunities
- ✓ Promote CYCU's R&D outcomes

### ►► For Industry

- ✓ Patent apply
- ✓ Technology transfer
- ✓ Joint R&D
- ✓ Acquire Government's R&D fund

## Value Chain



# Industry Chain Complex Collaborative Technology Transfer



Base on **market opportunity**, **user** and **system manufactory demand** to promote industry chain complex collaborative technology transfer

Mining analysis



IP Combination



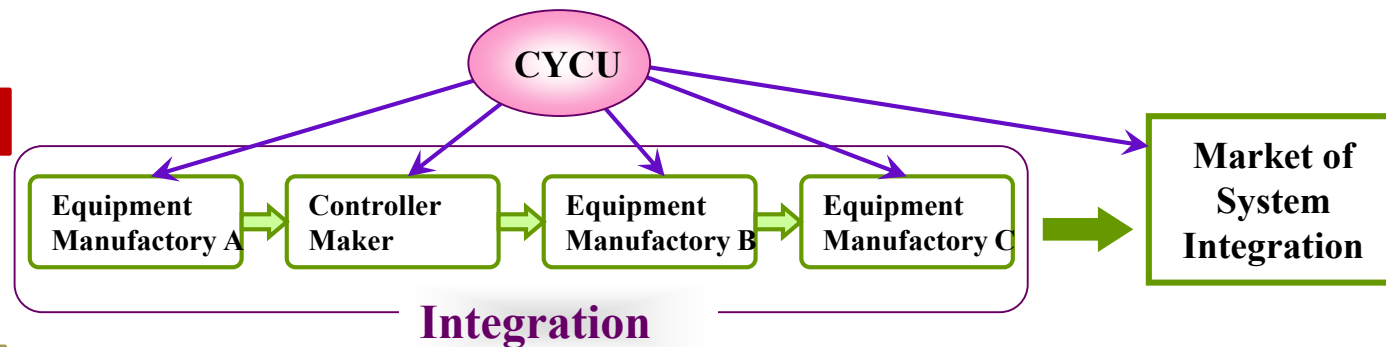
Marketing Model



Social Network

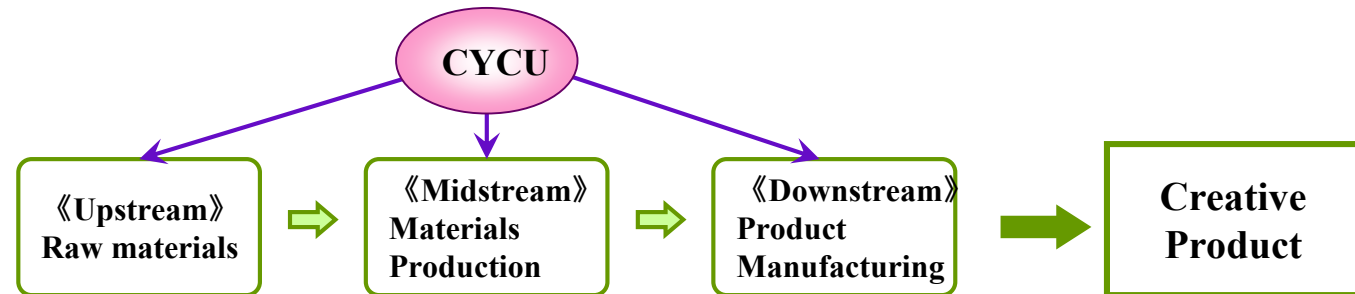
## Horizontal Integration

EX : 「Intelligent molding and Green Forming Technology」



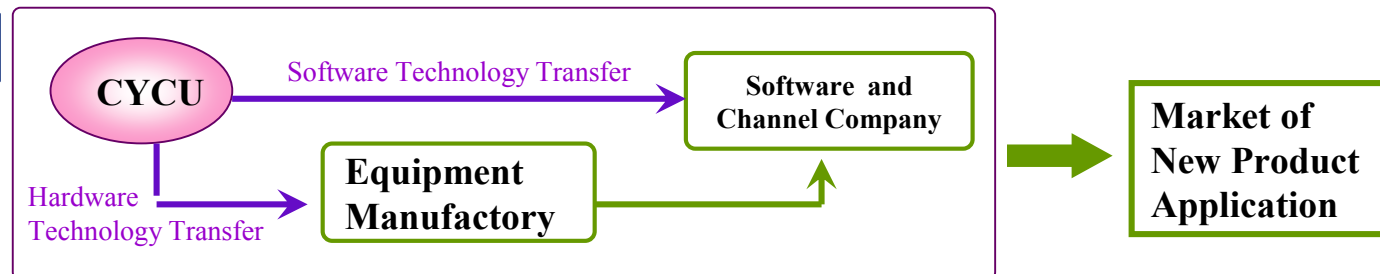
## Vertical Integration

EX : 「Nano Complex Material」



## Active Division Integration

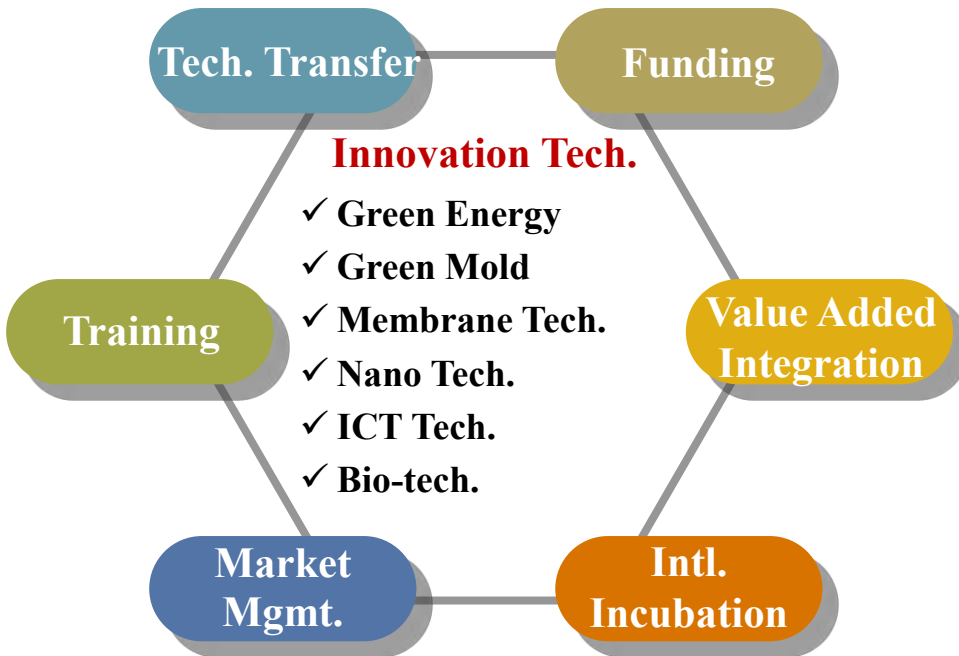
EX : 「Induction heating molding Technology」



# Total Incubation Services



**New Tech + Incubation → Success**



**Total Incubation Mechanism**



**Pre-incubation**

**Incubation**

**Post-incubation**

**Counsel & Evaluation**

Development Training  
Tech. Transfer  
Business Support  
Gov. Resources

Commercialization  
Industry-Academia  
Cooperation  
IP Application  
Mgmt. Advice

Stationed at  
Science Park /  
Trade Center

Business  
Globalization  
Intl. Venture capital  
Natural Resource

# Strategy of International Industry - Academia Cooperation and Incubation



## Objectives

**Extend service territories**  
**Needs of incubates**

Markets

Resources

Investment

Cooperation  
partners



## Strategies

**Region Orientated** : ASEAN → Emerging Regions → Global Nations

**Industry Demand Orientated** : Mold & Manufacturing Industry → Green Industry  
→ Machinery Industry

**Function Orientated** : Cluster, Co-incubation, Global Venture Capital, Value  
Added Supply Chain...

## Benefit



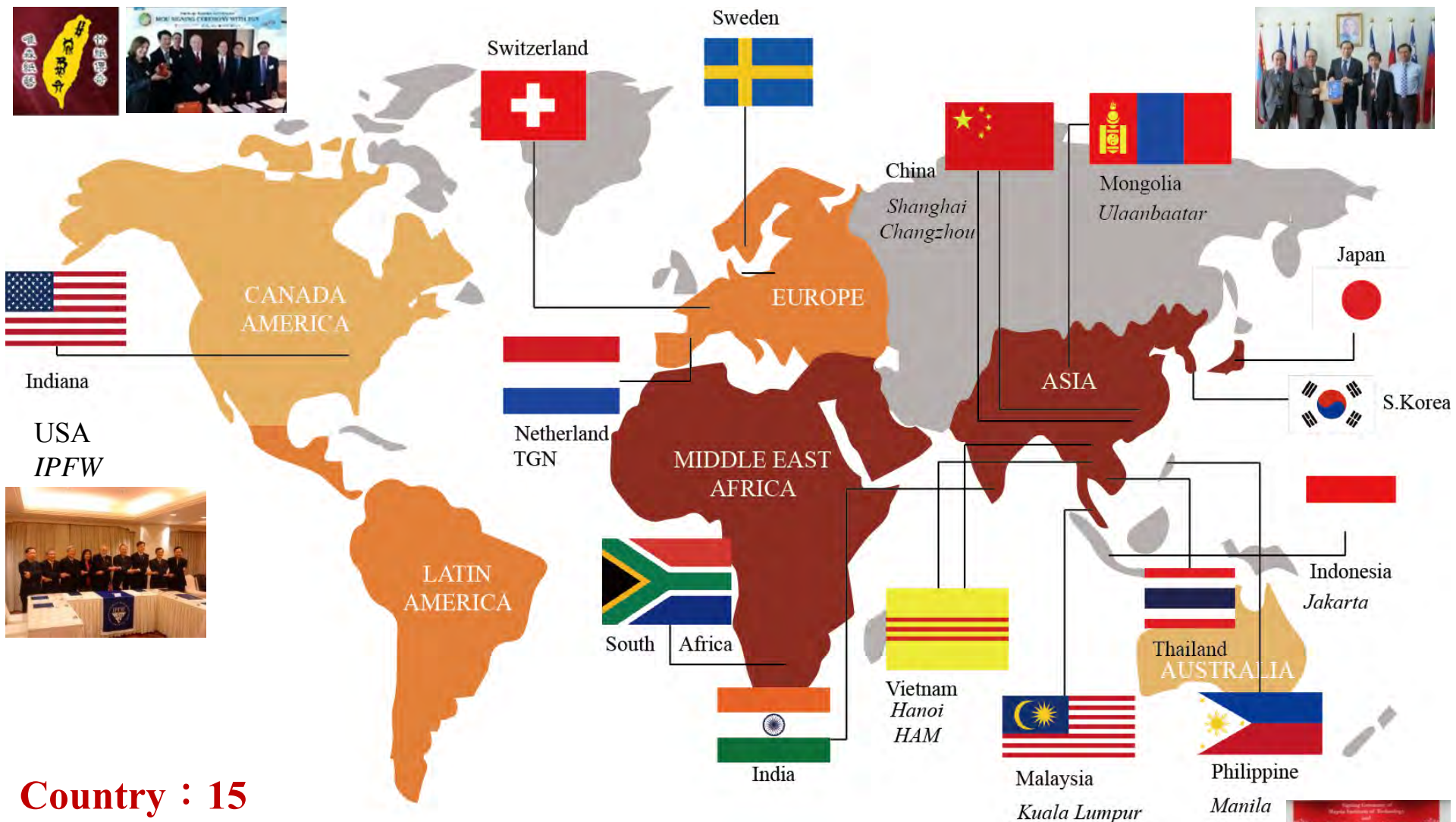
- Extend research activities abroad to **enhance research resource**
- Help developing country to **upgrade technology** and provide various service meanwhile **helping domestic enterprises business opportunity**
- Link to **alumni** abroad to **help** their **business** and **provide well-trained employees**





# International Incubation Network

## Since 2006



**Country : 15**  
**Partner : 10**  
**Incubation Center : 6**



# INDUK KUD-CYCU

## Co-Incubation Center in 2009



Sign MOU and set up of **INDUK KUD**-CYCU Co-Incubation Center in Jakarta, Indonesia. An important **Corporative Association of Fishery and Agriculture** with 60 Million population and 9000 branched office



## International Cooperation

- ✓ Joint open professional courses for students in both countries
- ✓ Joint **national projects** and industry-academia cooperative activities (such as **biofuel and national fishery**)
- ✓ Assistance on industry investment development in Indonesia
- ✓ Business development in Indonesia

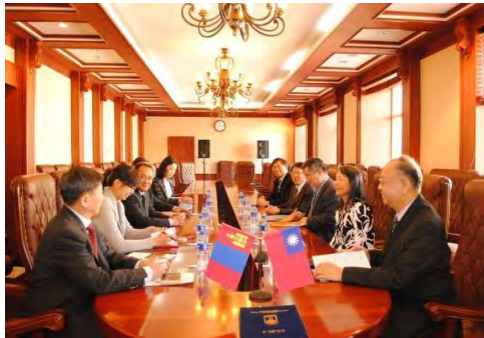


# MUST – CYCU Sign the MOU in 2012



## International Industry-Academia Cooperation

- ✓ Joint open professional courses for students in both countries
- ✓ Joint national science park project and business innovation program (from metal mines to value-add products)
- ✓ Assistance on industry investment development in Mongolia
- ✓ Business development in Mongolia



# Sharing Incubation Experience & Knowledge



**2013/04** Signed MOU with King Mongkut's University of Technology Thonburi (KMUTT)



**2014/01** Signed MOU with KMUTNB



**2014/07** CYCU held an **intl. mold workshop** at Bangkok with KMUTNB & NSTDA



**2014/07** Signed MOU with NSTDA

## International Industry-Academia Cooperation

- ✓ Joint research project, summer camp, DIGS program, and industry-academia cooperation activities
- ✓ Upgrade the **automobile part manufacturing technology** in Thailand



# Co-incubation Centers in Asia Area



Setup Co-Incubation Center in **Hanoi & HCM, Vietnam, Penang, Malaysia, Xiamen & Changzhou, China, Jakarta, Indonesia**



Co-incubation center in the near future: **Bangkok, India and Mongolia**



## International Industry-Academia Cooperation

- ✓ Joint open professional courses for students in IT, distance learning, IP patent and entrepreneurial training area
- ✓ Raising the level of high education on business and engineering area
- ✓ Business development in both countries



# Sharing Incubation Experience & Knowledge



2013 & 2014 **OHEC** initiated a fellowship program and sent **three groups of delegations** (10 / 16 / 16 trainees each) to Taiwan. CYCU incubation center designed **curriculum and on-site training program**.



2014/07 CYCU held an **intl. mold workshop** at Bangkok and sign MOU with **NSTDA**



**OVEC** intends to seed trainees to CYCU for the practical incubation training (meeting hold in March 11)

## **International Industry-Academia Cooperation**

- ✓ Joint open professional courses, research and industry-academia cooperative activities for students in cultural creative & precision machinery area

# Case1: Foxsign Tech Co., Ltd (1/2)



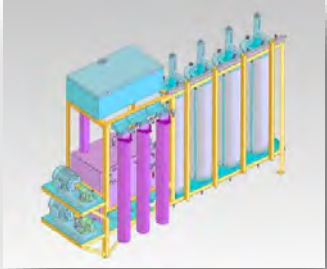
FOXSIGN International Co., Ltd.  
in CYCU and INDUK-KUD Co-incubation Center at Jakarta

Development of the Membrane Oil Refinery System with CYCU

Subcontract Project to Bogor Agricultural University from CYCU

Exchange students and faculties between two universities

FOXSIGN Int'l Co., Ltd. Bio-oil Press and Refinery Factory  
Sumatra, Indonesia





### Overseas industry-academia project (International Co-Incubation Center)

#### Tech Transfer

3 Biomass technologies from  
Department of Chemical Engineering/  
Develop the first small and automatic  
**biomass machine**

#### International Cooperation

Join the National Jatropha Biofuel  
Project (**seeding cultivation**)

#### International Incubation

Apply to INDUK KUD-CYCU Co-  
Incubation Center and establish a  
**factory** and find **farm** in Indonesia

#### New Business

From semiconductor industry to  
green energy industry

#### Investment

Setup Foxsign International Co. Ltd in  
Indonesia feedback company stocks to  
CYCU

#### Perspective Revenue Increase

more than NTD\$ 40 Million



Foxsign Tech Visited INDUK KUID



Small / Automatic Bio-Energy Machine



*Jatropha*



Commercialization

# Case2 : Manufacturing Food Oil (1/5)



**Membrane Supplier: CYBR**



- ◆ Traditional oil degumming process has some drawbacks, such as high energy cost, chemicals demand and the loss of neutral oil.
- ◆ The newly developed two-step membrane degumming process can be effectively applied for the preliminary degumming of crude plant oils used for manufacturing the biofuels or edible oils.
- ◆ In the case of peanut oil press, the protein can be extracted from the waste of press cake and the extraction solution will be purified by membrane filtration process to have proteins in different molecular weight distributions for making cosmetics and edible proteins.



# Oil Degumming by Membrane (3/5)



## Crude Plant Oil

### Pretreatment

1 Oil dewaxing & degumming

### Purification

2 Oil de-phospholipid & other impurities

Degummed oil

**Degumming** is the first stage in the refining process. It is used to **separate** the **gums, phospholipids, proteins etc...** that are insoluble in oil when hydrated.

Overcome membrane fouling,  
solve oil flux decline problem.

Phosphorous content and other impurities should be low not only for edible oil but biofuel applications.

Food oil process

Biofuel process

Other Purification process

# Commodity: Purified Food Oil (4/5)



Membrane Ultrafiltration  
100% Peanut Oil

Without Membrane  
Filtration



Membrane  
Ultrafiltration  
Camellia Oil



Membrane Ultrafiltration  
100% Peanut Oil

## From Laboratory to Market Cultivation-Various Business Model



- ◆ CYCU
- ◆ Induk-KUD
- ◆ Lee Yanping Foundation

- [illegible]





# Case3(1/2): Innovation Business model -Fantasy Story Inc.



## Culture & Creative Cluster Operator

Good example-Fantasy Story Inc.

Remodel old houses

Culture & Creative Cluster Business

Services for Accelerating

**Strategic partner** for capital raise & business development

**Duplicate Business model** to other locations (China & South of Taiwan)

**Private Culture & Creative Incubator** for One-stop value-added service



**Old house remodeling**  
**Culture & Creative Incubator**



5F  
Classroom

3,4F  
Co-working  
Space

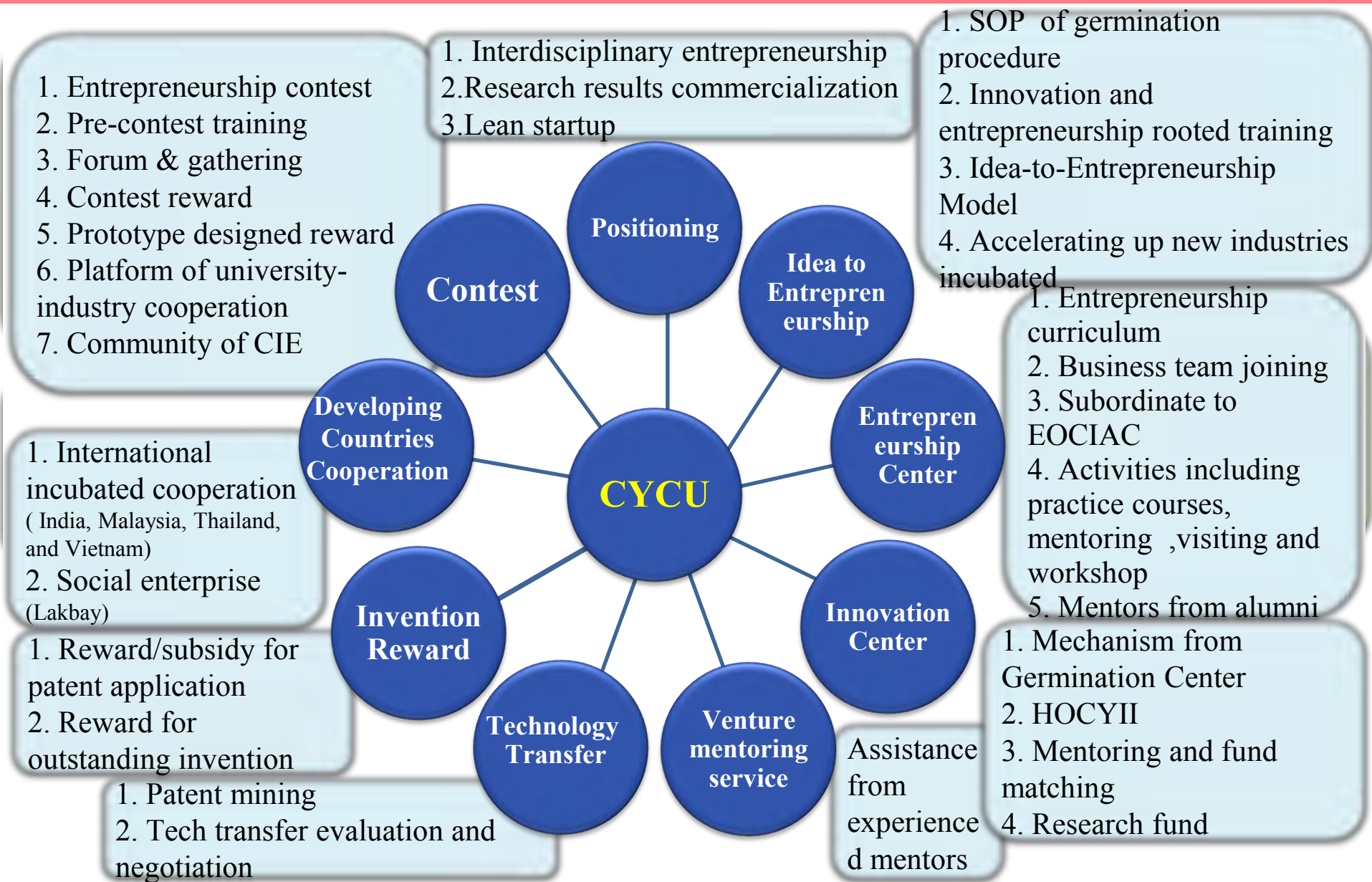
1,2F  
Exhibition  
Space

# Case3(2/2) : Innovation Business model -Fantasy Story Inc.





# Ecosystem & Instruction for Entrepreneurship (similar to MIT)



# Achievements & Honors

## In Industry-Academia Cooperation

- 2009~2014- **The best incubator award**
- 2008~2012- **Best TLO Award from NSC**
- 2008~2011- **University-Industry Economic Contribution Awards** from Ministry of Economic Affairs
- 2007~2012- **Excellent Performance of industry-academia cooperation** evaluated by Ministry of Education
- 2009- R&D Center for Mold & Molding Technology received **University Contribution to Industry Economic Award**
- 2011- R&D Center for Membrane Technology received **National Industrial Innovation Award**
- 2012- R&D Center for Mold and Molding Technology received **National Industrial Innovation Award**

**Social Concern Focus**  
**Industry Innovation Research**

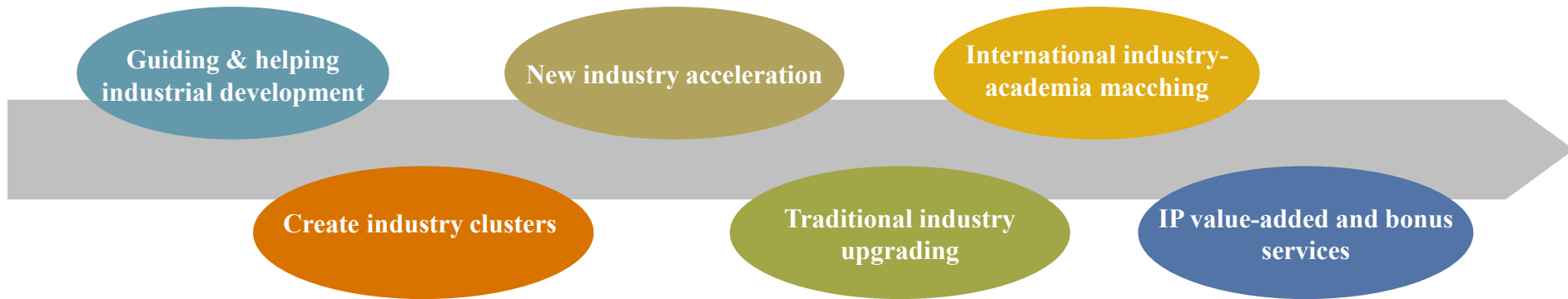


# Conclusions and Perspectives



**Establish** Innovation & Entrepreneurship Ecosystem to provide integrated resources/services and promote & connect business opportunity including possible cooperation overseas to create industry-academic blue sea.

**Our** concept of service is : “**Do more than we can do**”, we provided comprehensive support to the domestic industry.



**Will** enhance entrepreneurial atmosphere and to establish high quality enterprise on campus; **Will** extend international IA cooperation area

**To** be the model of knowledge-based innovation & entrepreneurship university in Asia





**Confidence**



# Thank You for Attention !

**Innovation**



**Improvement**



全人教育 • 學用合一 • 國際視野