



4th

Moving into the

**Industrial Revolution
& Circular Economy**

迈向

工业革命&循环经济

Innovation and Entrepreneurship Towards Circular Economy 循环经济的创新与创业



**KNOWLEDGE
CONVERGENCE**
知识整合

MINDSET & SKILLS
思维与技能

**ENTREPRENEURSHIP
FOR SDGs 2030**
面向2030年可持续发展
目标的创业

Lerwen Liu (PhD in Physics)

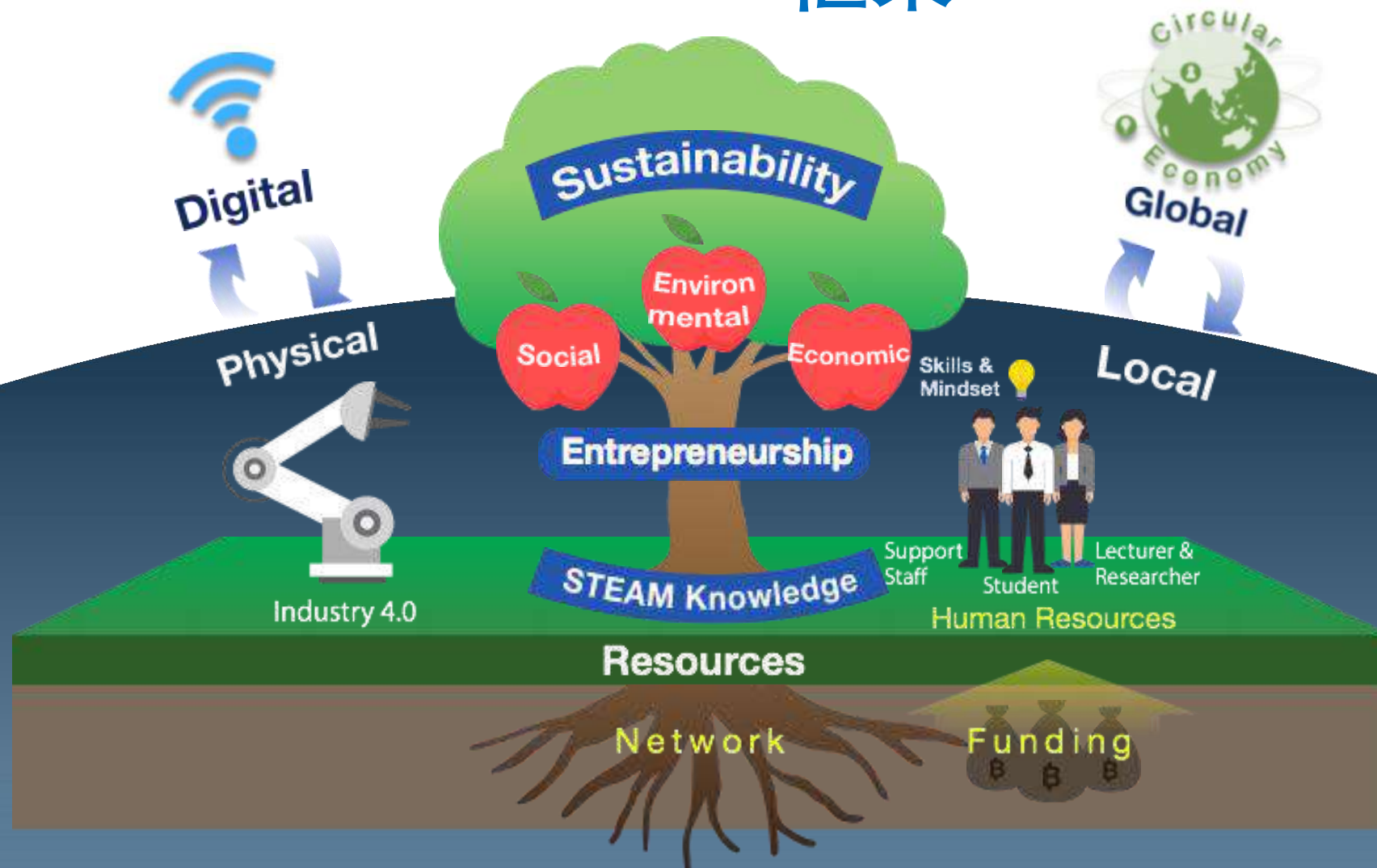
STEAM

Platform of Transformation 转型平台

Dynamically Evolving and Global 动态发展及全球化

STEAM Framework

STEAM 框架



KMUTT R&D FOR CIRCULAR ECONOMY

Entrepreneurship EDUCATION

University

School

SOCIAL ENGAGEMENT

Green Materials & synthesis

Programmable Biomaterials

Green / Sustainable / Universal Design

Eco/ waste management & E-waste Disassembly

Life Cycle Assessment

BioEconomy

Sustainable Energy

Sustainable Supply Chain

3EforA
3EforA Engineering Energy and Environment for Agriculture to support Royal Project Foundation

PFI for Development
Public-Private Partnership (PPP) for Development (PFI-DEP)
Thailand Training Mission for Rural Development (TRM-DEP)
Science in Rural School Offices supports Children and Youth Development in rural areas under the patronage of Her Royal Highness Princess Maha Chulabhorn

Learning Community Center
Community Based Enterprise Innovation and Technology for the Royal Project, Sukhothai

Managing people in forest
Machete, Gun, Knife, Bow

Community Enterprise track
Land, Tree, and Living forest Business

Prachinburi region Secondary School and Teacher's Collaboration with 1 school-based Community Network

Collaboration with Young Miss, Bang Non Thien, Ratchaburi and with Young Lady the members of women's group in the and sustainable development

Education Education Service Center University for Western Region Development

Science and Technology Learning Integration for Rural School in Phang Nga
Local Energy for Thai Mass, No. 1000, Phang Nga

Green and quality of life development
Bioscience center
Wang District, Nakhon Phanom

A circular diagram illustrating the BioEconomy cycle. The cycle consists of four main stages represented by colored arrows forming a circle:

- Green Materials & Synthesis** (top-left, green arrow)
- programmable biomanufacturing** (top-right, yellow arrow)
- Green / Sustainable / Universal design** (bottom-right, blue arrow)
- EcoWaste management & ReWaste Assembly** (bottom-left, dark grey arrow)

In the center of the cycle, four horizontal green bars represent the core components of the BioEconomy:

- Life Cycle Assessment
- BioEconomy
- Sustainable Energy
- Sustainable Supply Chain

3EforA
 3EforA Engineering Energy and Environment for Agriculture to support Rural Project Foundation

PRUM Development Project, Mae
 Thailand Training Scheme for Rural Development (The 1995) scheme to Rural School Officers Support 20 Cities and Towns Development in rural area under the patronage of Her Royal Highness the Grand Princess Maha Chulabhorn.

Learning Community Enhancement, Community Base Enterprise
 Marketing and Technical Service for Royal Factory, Salween Region

Managing people in forest
 Mahasarakham, Laos

Community Enterprise Incubation Unit, New Am Chang, Ban Na, Ban Na

Prachinburi Secondary School and Gender Collaboration with Eastern Province Community Network

Collaboration with "Thung Muei, Bang Khun Phien, Pakkading and Sam Phang" in the program of career, quality of life and environmental protection

Lat Phraek Educational Service Center University for Western Region Development

Science and Technology Learning Integration for Rural School in Phang Nga
 Green Energy for Pak Nam, Nai Yang, Phang Nga

Carve and quality of life, development in Burmese area corner nation
 Maeing district, Shan State

Youth-team
青年团队

Leadership
领导力

Innovation
创新

KMUTT Youth-team
泰国国王科技大学
青年团队

Entrepreneurship & Global Partnership
创业&全球伙伴关系

Knowledge Convergence

知识交汇

– Flagships –

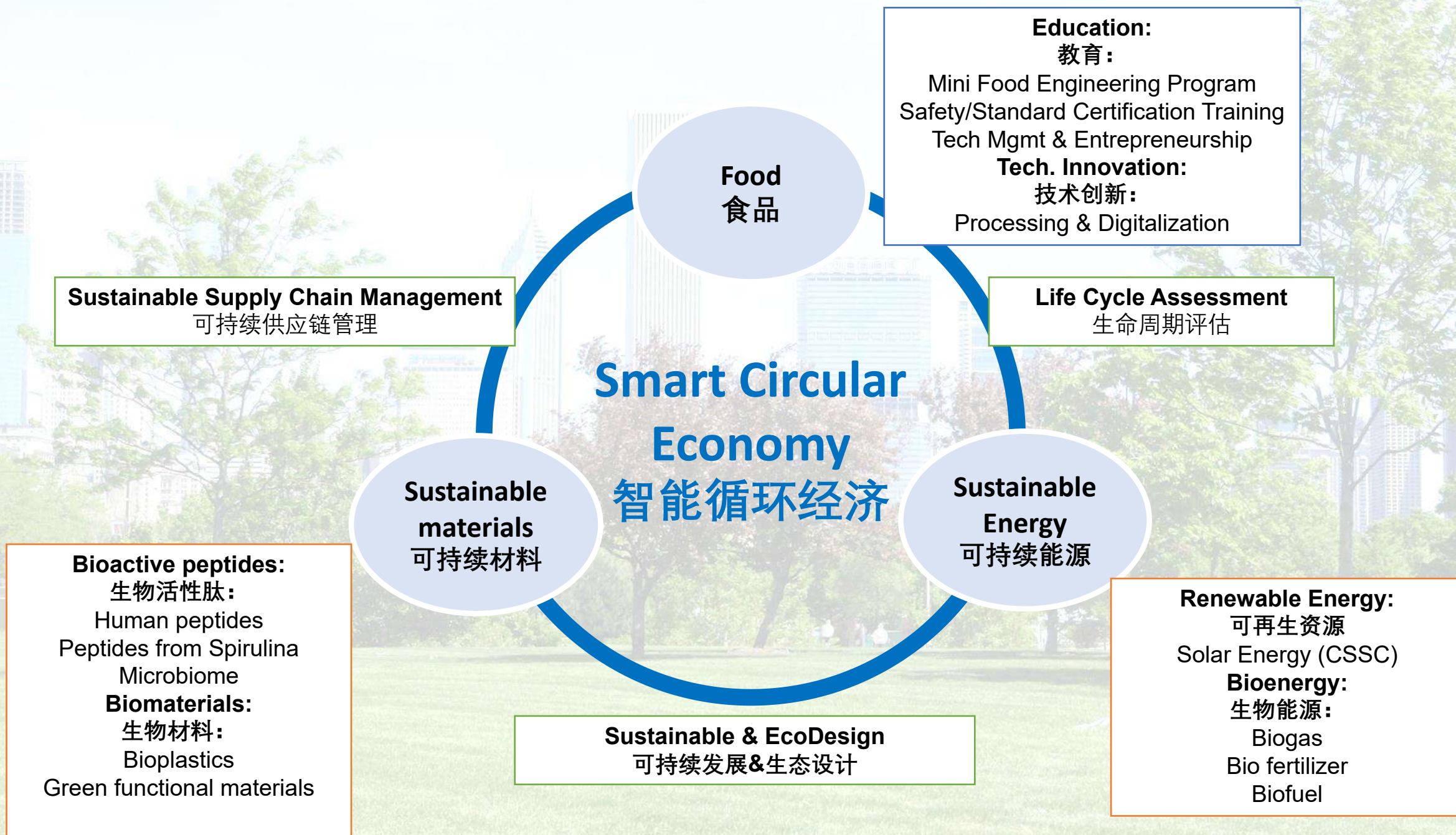
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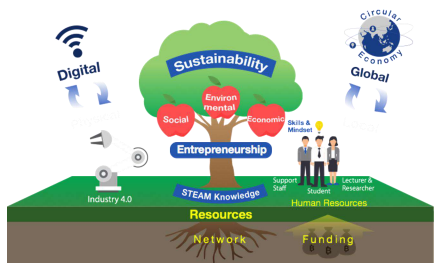
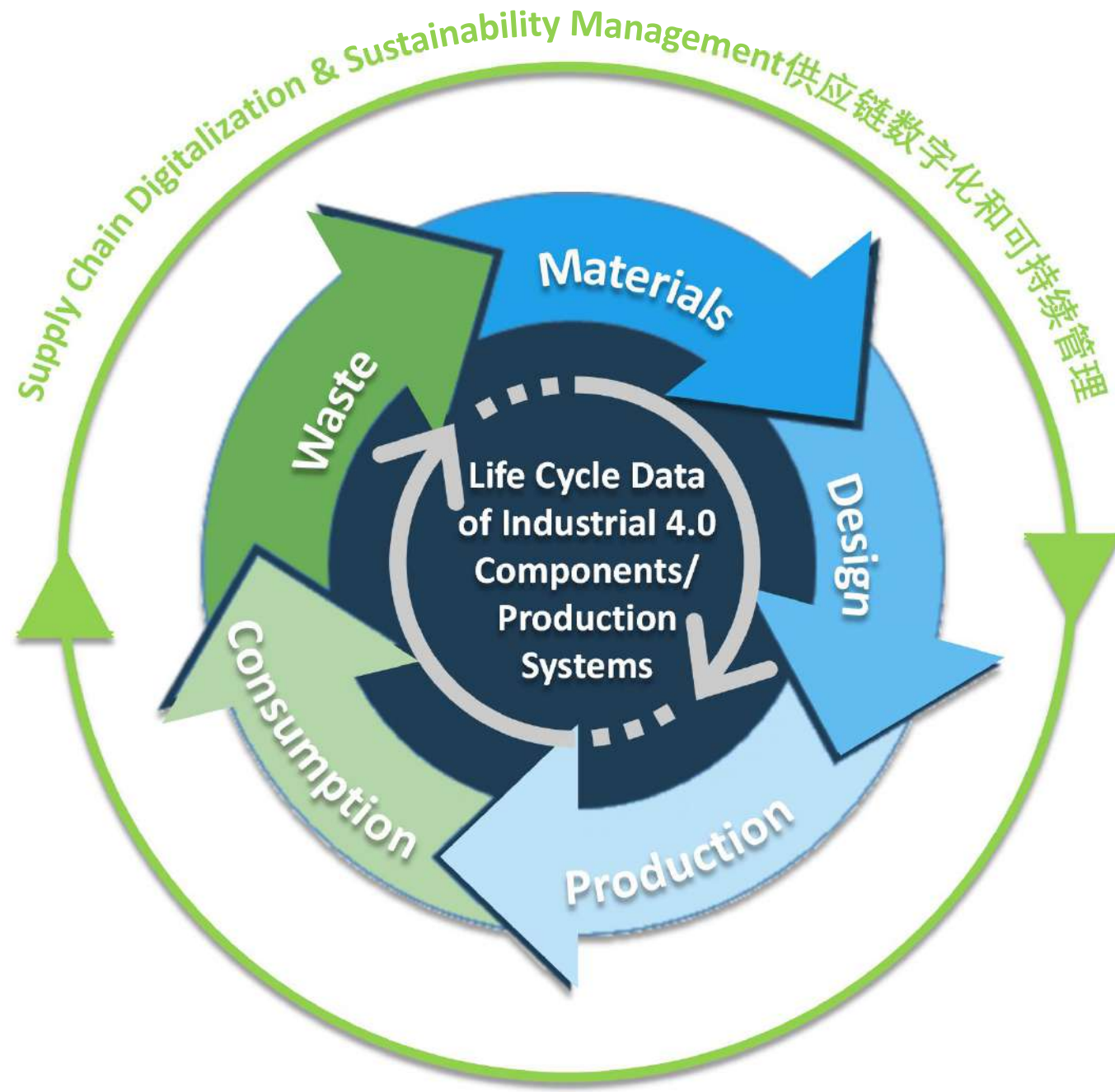
Smart Circular Economy

智能循环经济

**Circular
Economy
循环经济**

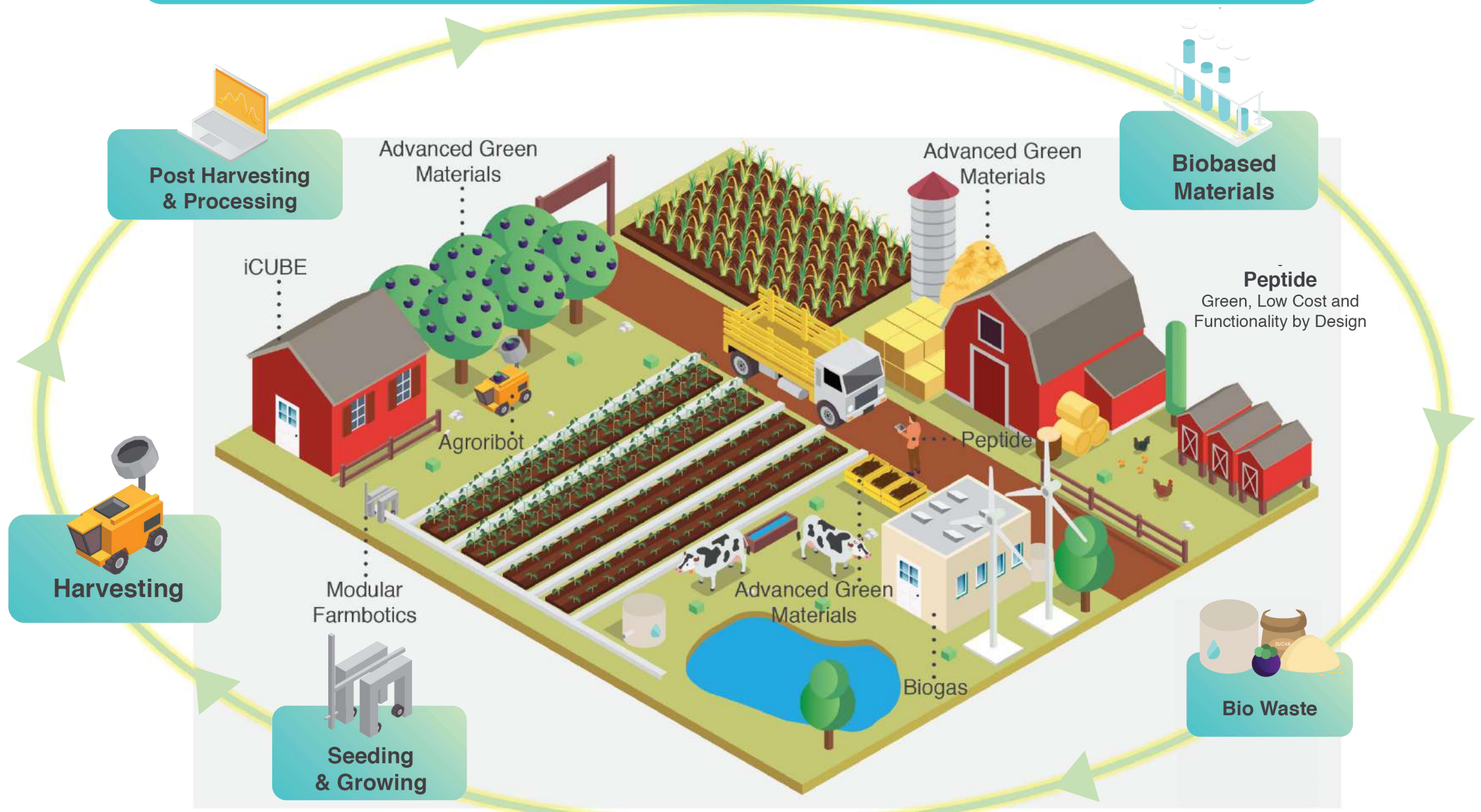
**Industry 4.0
工业4.0**





KMUTT Smart & Sustainable Agriculture 4.0

国王科技大学智能&可持续农业4.0



Regulation: Standards & Safety 规范：标准&安全



Mini Food Engineering Program 迷你食品工程计划

- Food Microbiology, Chemistry and Food Engineering
- Case studies from various food industry



- Operation Standards to ensure food safety in compliance with Thai and US FDA
- Train certified retort supervisor and process authority



Technology Management & Business 技术管理&商业

- Food Technology and Innovation adoption in food industry
- Supply chain management
- Finance and marketing

Skills & Mindset 技能&思维

Critical
thinking
批判性思维

LCA thinking,
Sustainability,
Ethics
生命周期评估
思考、可持续
性、道德规范

Communication Skills
沟通技能

Knowledge
Convergence
知识交汇

Entrepreneur
Mindset
企业家思维

Strategic Marketing, Research Management, Business Development & Partnerships
战略营销、研究管理、业务发展和合作伙伴关系

Syllabus教学大纲

Knowledge Convergence (5 weeks)知识整合 (5周)

Circular Economy (LCA, Supply Chain, EcoDesign, Materials, Energy and Food)

Industry 4.0 (IoT, AI, Data Analytics)

循环经济 (LCA, 供应链, 生态设计, 材料, 能源和食品)

工业4.0 (物联网, 人工智能, 数据分析)

Skills & Mindset (4 weeks)技能与思维 (4周)

SDGs 2030 可持续发展目标2030

Critical Thinking 批判性思维

Communications 沟通能力

Leadership Skills 领导技能

Entrepreneurship (3 weeks)创业 (3周)

Design Thinking 设计思维

Business Model 业务模式

Sustainability Impact 可持续性影响

Assessment评估

Mid Term- Innovation Showcase KMUTT 中期展示

Final Project – Solutions for SDGs (Winners With Awards and Full Funded Overseas Internships

***期末项目 - 可持续发展目标解决方案 (获奖者可获全
资海外实习机会)***

Experiential/Creative, Peer to Peer Learning involving site visits, interviews and workshops
体验性、创意性强的同侪学习, 包括实地考察、面试和研讨会





STEAM
PLATFORM

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