Higher Education of the Future: Leading Digital and Green Transformations through Collaboration
"Building Research Ecosystem"

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REGIONAL HIGHER EDUCATION FORUM
10–12 May 2023, Bangkok, Thailand

Thailand: Hot But Vibrant

1st (Bangkok) & **10th** (Phuket) best workation city (2021)

1st Achieved highest digital competitiveness ranking (2021)

1st Best country to start a business (2020)

2nd Best country to invest in (2020)

5th Best world cultural heritage influence (2021)

5th Strongest health security (2021)

7th Resiliency and momentum for future growth (2022)

8th Best in the Asia to study aboard (2023)

8th Best country for expats (2022)

Higher Education Disruption and Transformation

Disruptive Forces

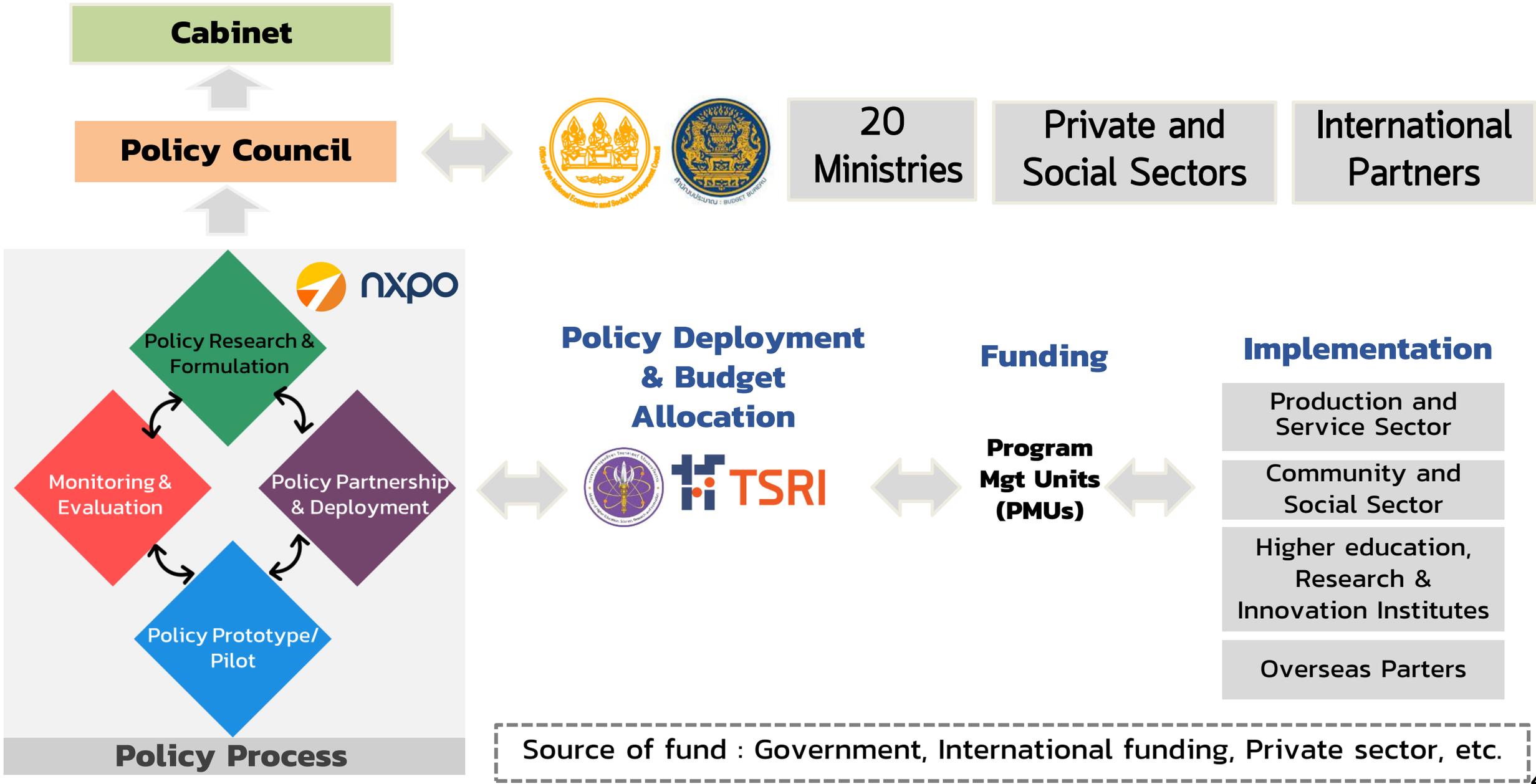**Muti-Stage Life**

Digital Disruption

Inequality

Generation Gap and Conflict

Higher Education Transformation

- Age-group to **Non-age group**

- Passive learners to **Agile learners**

- Degree to **Professional training**

- **Personalized education**

- Alternative Education Academy : **Corporate University, Private training provider, Platform & New learning model**

- Future of Job & Employability

Higher Education, Science, Research an Innovation System (Simplified): Thailand

Cabinet

Policy Council

20 Ministries

Private and Social Sectors

International Partners

Policy Process

- Policy Research & Formulation
- Monitoring & Evaluation
- Policy Partnership & Deployment
- Policy Prototype/ Pilot

Policy Deployment & Budget Allocation

TSRI

Funding

Program Mgt Units (PMUs)

Implementation

- Production and Service Sector
- Community and Social Sector
- Higher education, Research & Innovation Institutes
- Overseas Parters

Source of fund : Government, International funding, Private sector, etc.

Policy Direction in Science, Research and Innovation: Thailand

HE&I support to enable Thailand towards to High Income Country

- ❑ *Innovation Driven Enterprises (IDEs) Acceleration*
- ❑ *New Growth Engine : BCG Future Industry*
- ❑ *Drive Creative Economy from Cultural Heritage*

HE&I support to enable Thailand to achieve carbon neutrality and net zero emission of GHG

- ❑ *Sustainable Development and Green Economy*

Social Mobility and Targeting Poverty Eradication

- ❑ *Social mobility of People (the Base of the Pyramid)*

Higher Education Transformation for High-skilled Workforce Development to Support Strategic Industries and Frontier Technology

- ❑ *Future Skill Platform & Reinventing Higher Education System*
- ❑ *Frontier Research for Future Growth*

Policy in Action: Ecosystem Supporting IDEs

Policy Formulation
Design and develop policy proposals / measures and mechanisms

Policy

สภานโยบาย
การอุดมศึกษา วิทยาศาสตร์
วิจัยและนวัตกรรมแห่งชาติ

Setting Goals: >> 2% R&D investment of GDP
>> 1,000 IDE with avg. income of 1000 million THB (1000x1000)
>> 5 Thai Unicorns

Policy Deployment
Recommend policy, co-create the program, and drive policy

R&D Funding

Design a project to support IDE e.g.
- Deep Tech Accelerator
- Infrastructure Fund
- Develop IDEs through Intermediary

Incentive **Talent**

Measures to support IDE & High-skilled Workforce e.g. "Thailand Plus Package"

Policy Engagement With Stakeholders
Support & pilot mechanisms

Risk Capital

Promote University Holding Company to invest in startup /university spin-off

Infrastructure

Enhance Science Park to E-Commercial and Innovation Park & SME Innovation Park

Market

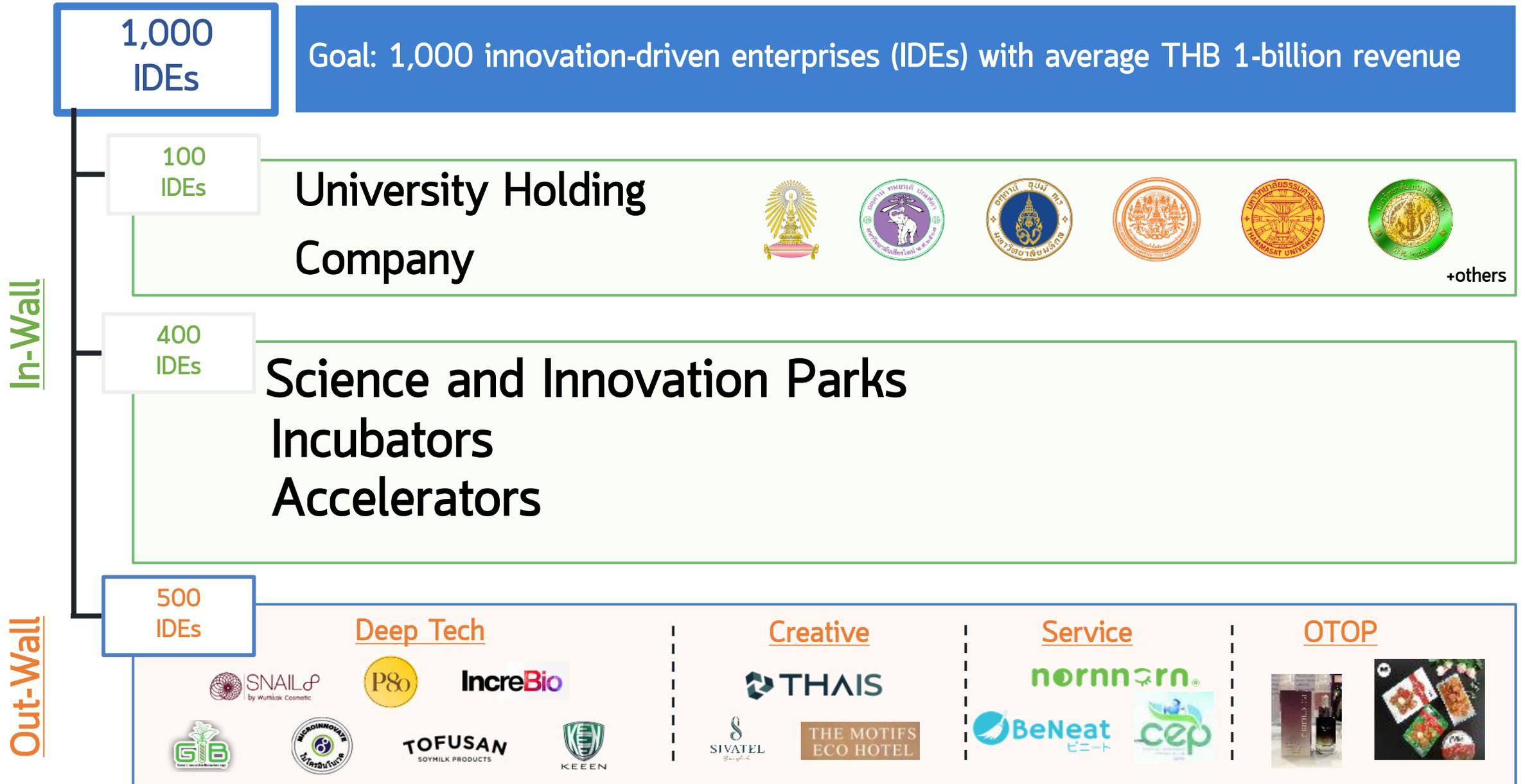Enhancing the potential of entrepreneurs and developing sale talents to support the innovative economic corridor

Co-Finance

"Innovation One" Fund Public-private partnerships to provide co funding for IDE

Intermediary

Innovation Club Thailand: Network of Leading Firms'CEOs to support IDEs

Ease of Doing Business

- Law & Regulation
- Innovation Sandbox
- Innovation business development providers (iBDS)

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1,000 (IDEs) X 1,000 THB Million

1,000 IDEs

Goal: 1,000 innovation-driven enterprises (IDEs) with average THB 1-billion revenue

In-Wall

100 IDEs — University Holding Company +others

400 IDEs — Science and Innovation Parks
Incubators
Accelerators

Out-Wall

500 IDEs

| Deep Tech | Creative | Service | OTOP |

Reaping the Harvest : Science and Innovation Parks

Incubate & accelerate the growth of 10,000 business enterprises, including:
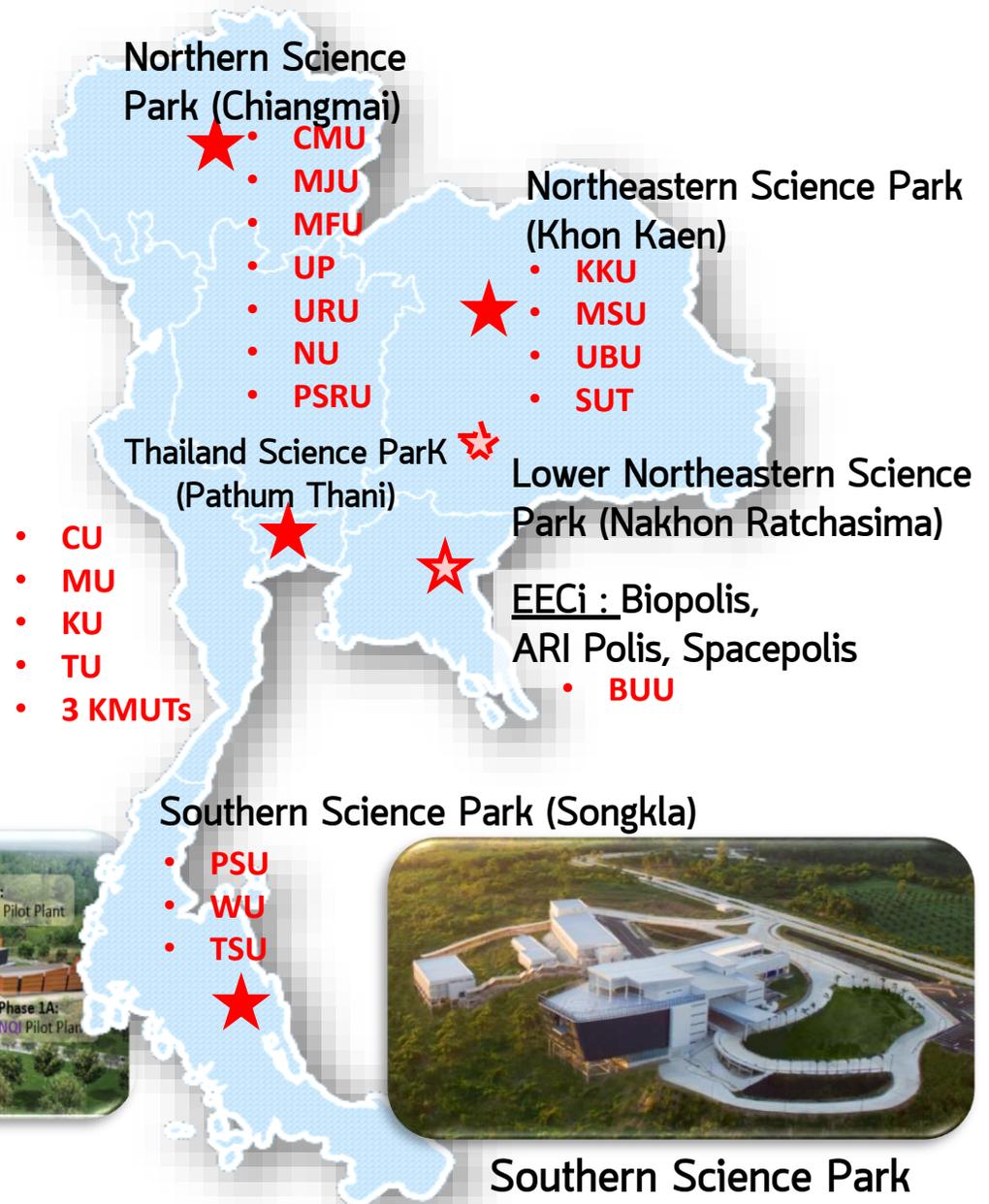
- Startup

- Smart SME

- Community-Based Enterprises

North
- Organic Food
- Rice as a Commodity → High Value-Added Products
- Wellness Tourism & Creative Economy
- Digital Industry

Central
- Biopharmaceutical & Medical Devices/Services
- Future Mobility
- Functional Ingredients
- Smart Materials

Northeastern
- Livestock
- Biofuels
- Functional Food
- Manufacturing Technology (Electronics/Digital)

South
- Seafood/Halal Food
- Rubber-Based Innovation
- Tourism

Northern Science Park (Chiangmai)
- CMU
- MJU
- MFU
- UP
- URU
- NU
- PSRU

Northeastern Science Park (Khon Kaen)
- KKU
- MSU
- UBU
- SUT

Thailand Science ParK (Pathum Thani)

Lower Northeastern Science Park (Nakhon Ratchasima)

- CU
- MU
- KU
- TU
- 3 KMUTs

EECi : Biopolis, ARI Polis, Spacepolis
- BUU

Southern Science Park (Songkla)
- PSU
- WU
- TSU

Northern Science Park

Northeastern Science Park

Phase 1A: BIOPOLIS Pilot Plant
Phase 1A: ARIPOLIS Pilot Plant
Phase 1A: BIOPOLIS Green House
Phase 1A: NQI Pilot Plant
Phase 1A: EECi Main Building

EECi

Southern Science Park

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Example of University Holding Company and Spin-off Company

METICULY
- ผู้ออกแบบและผลิตกระดูกเทียมไทเทเนียมเฉพาะบุคคล
- ใช้การ CT Scan สรีระร่างกายของคนไข้ เพื่อนำไปพิมพ์ภาพสามมิติและวางแผนร่วมกับศัลยแพทย์ที่ทำการผ่าตัด
- มีเป้าหมายในการเพิ่มโอกาสให้คนไทยเข้าถึงกระดูกเทียมไทเทเนียมคุณภาพสูง ในราคาที่ถูก พร้อมมีความรวดเร็วในการรักษาและได้รับผลที่แม่นยำ

Bio ink
Trustful Scientific Partnership
- เนื้อหมูจากการเพาะเลี้ยงเนื้อเยื่อ (Cultured meat)
- การพัฒนาผลิตภัณฑ์ และบริการด้านเซลล์บำบัด และภูมิคุ้มกัน
- การพัฒนาโมเลกุลยา สารออกฤทธิ์ และสารพฤกษเคมี
- การพัฒนาเครื่องมือแพทย์ และวัสดุทดแทน
- การทดสอบผลิตภัณฑ์ สารออกฤทธิ์

Ense - บริษัท พลังงานนครพิงค์ จำกัด
137 ถูกใจ • ผู้ติดตาม 146 คน

BAIYA PHYTOPHARM
BaiyaPharming
เทคโนโลยีการผลิตไบโอโมเลกุลจากพืช
☑ วัคซีน COVID-19
☑ ผลิตภัณฑ์ดูแลผิวที่มีฤทธิ์ Anti-aging
☑ ชุดตรวจคัดกรองโรค COVID-19
☑ ชุดตรวจไวรัส มือ เท้า ปาก สายพันธุ์ EV 71

- ผู้สร้างนวัตกรรมที่ช่วยบรรเทาสถานการณ์โควิด-19 ให้ดีขึ้น
- รถกองหนุน
- ตู้ความดันบวกเคลื่อนที่
- รถวิเคราะห์ผลด่วนพิเศษ
- รถห้องปฏิบัติการ PCR เคลื่อนที่
- รถ-ดม-ไว
- ผลิตและแจกจ่าย "กล่องรอดตาย"
- พัฒนาเครื่องแบ่งวัคซีนอัตโนมัติ Autovacc
- ปัจจุบันกำลังพัฒนานวัตกรรมระบบนำส่งยา และด้านเนื้อเยื่อ/อวัยวะเทียม ที่ทำจากโปรตีนธรรมชาติที่สกัดจากรังไหมไทย

EngineLife
Engineer your life
บริษัท เอนจินไลฟ์ จำกัด

BOUTIQUE SOFTWARE

Cupcode
1 พัน ถูกใจ • ผู้ติดตาม 1.1 พัน คน

New Growth Engine : BCG Future Industry

Future Food
- ✓ Industry roadmap
- ❑ MoU among organizations within the initiative of "Food Future Thailand"
- ❑ Support cluster manager & key activity

Fruit Innovation Corridor
- ❑ Fruit design & innovation labs
- ❑ Technical support facilitation

Microbes Economy
- ✓ Cluster manager in 3 regions
- ❑ Service Model for Microbe Center
- ❑ Network connection

Synthetic Biology
- ✓ Roadmap
- ✓ Activity support
- ✓ Consortium manager

Medical Device
- ❑ Support platform for stakeholders

Policy Support Network

- ❑ Novel food protocols
- ❑ Biodiversity Act
- ❑ Alcohols unlock
- ❑ Competitiveness of Thai medical device

Design granting programs
- ❑ Future Food
- ❑ Biodiversity for commercialization
- ❑ Synthetic Biology
- ❑ Medical Device

- ❑ Supporting funds for SMEs

Investment Incentives
- ❑ Food Ing. supply chain
- ❑ Fruit innovation corridor

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New Growth Engine : Future Mobility, Digital & Smart Electronics

Future Mobility

- ❑ EV conversion training
- ❑ EV conversion prototype
- ❑ Electric Vehicles Conversion Association of Thailand (ECAT)

Drone/ UAV

- ❑ Pilot project: Drone flight check
- ❑ UAV ecosystem development plan in the EEC
- ❑ Consortium development

Digital Creative Content

- ❑ Cultural & creative incubation and acceleration programs
- ❑ Personnel development platform
- ❑ Pilot project development

Smart Electronics

- ❑ Personnel Development Plan
- ❑ Supply Chain Development
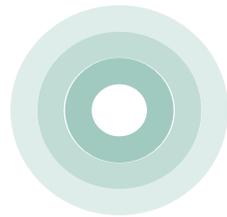- ❑ Linking companies and research institutes

Policy Support Network

Design granting programs
- ➤ Future mobility
- ➤ Digital, AI & Smart Electronics
- ➤ Digital Creative Content

Design of measures to attract investment
- ➤ EV & Battery
- ➤ Smart Electronics
- ➤ Digital & AI

UAV Ecosystem Development Plan in the EEC: Innovation, Testing and Incubation

Social Mobility and Targeting Poverty Eradication

- ❑ To unlock entrepreneurial potential of local people by applying knowledge, technology and innovation
- ❑ To develop infrastructure and industry to create a new growth pole of country
- ❑ To upward social mobility of 1 million vulnerable people in 2027

Social Mobility

1 million people
In 2027

vulnerable target group
- ✗ Rural Area
- ✗ Marginalized Youth
- ✗ Urban Poor
- ✗ Gig Workers
- ✗ State Welfare Card Holders

INCOME

EDUCATION

WELL-BEING

HEALTH

ACCESSIBILITY TO PUBLIC SERVICES

Rural Entrepreneurship Development

Education Promotion

Workforce Development

Health Promotion

Social Welfare System

Strengthening Local Economy and Regional Growth Poles

Social Mobility Consortium

Youth/Underpriviledge
- ✓ Role of NGOs
- ❑ Consortium business model and manager

Upskilling and Career Platform for Social-Welfare Card holders

Working Age
- ✓ Character of Social Welfare card holders
- ❑ Incentives for employer

Social Enterprise Incubation Platform
(Academy program/Mentorship program)

Social / Local Entrepreneur
- ✓ Social / Local Entrepreneur Persona
- ❑ Testing SE Incubator Platform

Policy Support Network

Design a mechanism for Social Mobility
- ► UN body   ► Government
- ► NGOs   ► Private

Design a granting program
- ► Scholarships for vulnerable children
- ► Social Enterprise / Community Based Enterprise
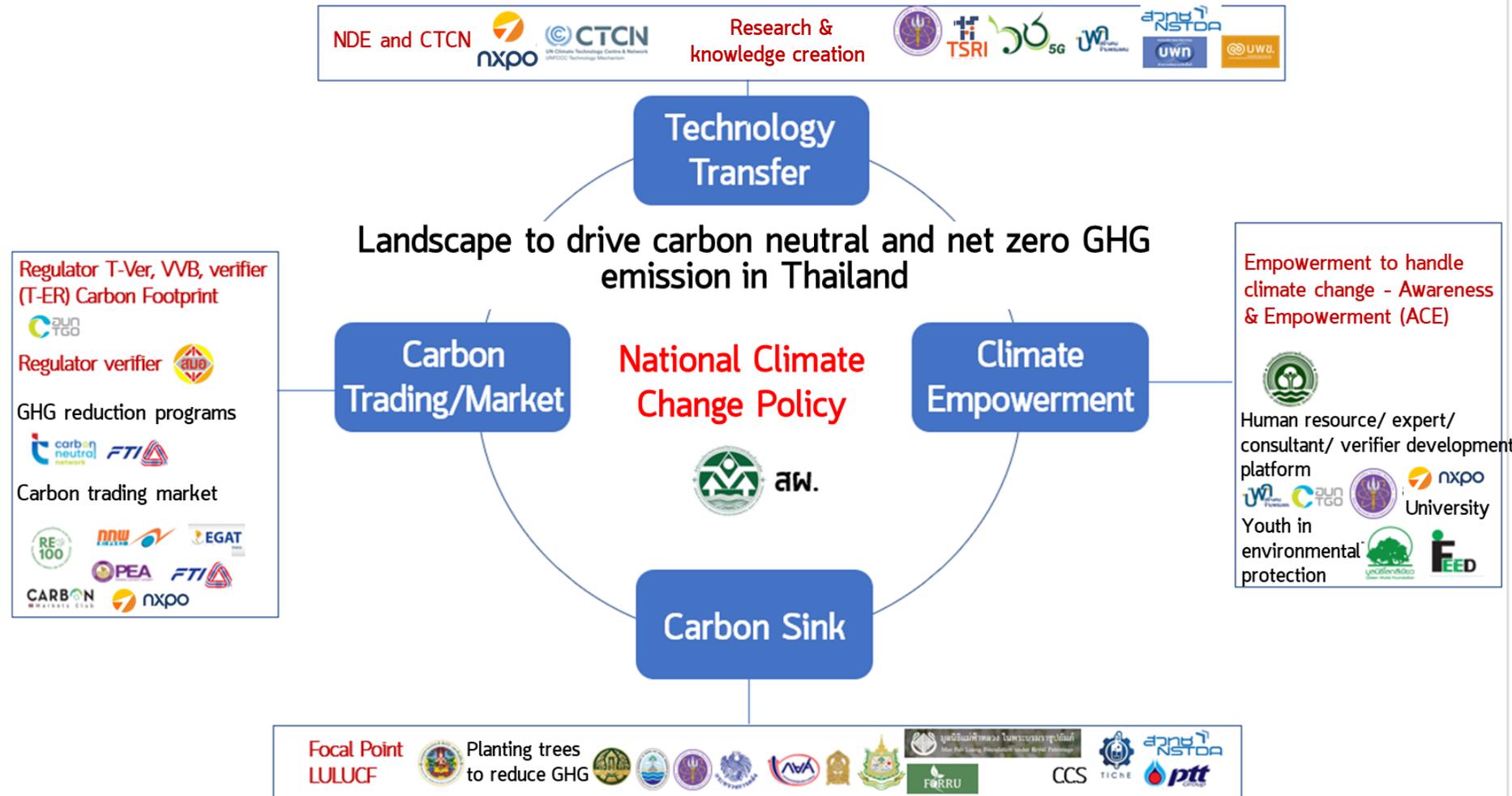- ► Incubator for local community

Measures/Mechanisms for SE/CBE for access to finance and market

HE&I supporting Ecosystem to achieve carbon neutrality and net zero emission of GHG

Policy in action

- Innovation consortium for decarbonization
- Area–based initiative being collaborative with local industry : Saraburi sandbox, Rayong sandbox & Maemoh model
- Carbon–Net–Zero Campus
- Green Community
- Linkages to UNFCCC's technology and finance mechanisms

NDE and CTCN   CTCN   Research & knowledge creation

Technology Transfer

Landscape to drive carbon neutral and net zero GHG emission in Thailand

Regulator T-Ver, VVB, verifier (T-ER) Carbon Footprint

Regulator verifier

GHG reduction programs

Carbon trading market

Carbon Trading/Market

National Climate Change Policy

สพ.

Climate Empowerment

Empowerment to handle climate change – Awareness & Empowerment (ACE)

Human resource/ expert/ consultant/ verifier development platform

University

Youth in environmental protection

Carbon Sink

Focal Point LULUCF   Planting trees to reduce GHG   CCS

Sustainable Development and Green Economy

Industrial Decarbonization Consortium

✓ Transition to Carbon Neutrality and GHG Net Zero
✓ Linking between the Science research and innovation plan, and the mechanisms of higher education with international mechanisms and the Net Zero ecosystem

NXPO: the National Designated Body on Technology Transfer, Link to UNFCCC

✓ Technology and Innovation Support with Technology and Finance Mechanism
✓ Emphasize the role and cooperation of Thailand with international on research and innovation

Green Campus

Support development of university network as part of the Net Zero ecosystem.

BCG Entrepreneurs for Net Zero

Connect and develop BCG entrepreneurs as a part of the Net Zero Emission and achieve sustainable competitiveness.

Innovation Development for Water Management

Development of mechanism on innovation water management system base on HESRI system

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Higher Education Transformation

NXPO

01 Job Matching & Employment

Intensive upskill & reskill program belonging to job requirement

- **Job Matching** : Job seeker–Employer
- **Co-design** upskilling course by employer
- **Short intensive bootcamp** for 4–12 weeks

02 HE Sandbox
Educational Innovation

- Unlocking the restricted rules to create educational innovation in higher education
- Preparing graduates having competencies that meet country/industry needs

03 Industrial Tailor-made Vocational Training

- Elevating expert's capability to solve problems and develop research in the manufacturing and service sectors.

04 Future Skill Platform
Massive Access

- System change of manpower development via seamless linkage between university and private sector

1) Career Growth Opportunity
   o Providing competencies requirement in each job position
   o Job details & Expert sharing
2) Assessment Center
   o Skill gap assessment to design individual learning pathway
3) Learning Program (Co-creation)
   o Digital Learning
   o Virtual Learning
   o Action Learning

Soft Skill Learning, Development and Solution Platform for Students & Employees > 2,000,000 Accounts

NXPO · BrighterBee

NXPO x BB
พิธีลงนามบันทึกข้อตกลงความร่วมมือระหว่าง
สำนักงานสภานโยบายการอุดมศึกษา วิทยาศาสตร์ วิจัยและนวัตกรรมแห่งชาติ (สอวช.) และ
บริษัท ไอริส คอนซัลติ้ง จำกัด (ไบร์ทเทอร์บี)
และนำเสนอไบร์ทเทอร์บีทาเล้นท์โซลูชันและประโยชน์ต่อนิสิต/นักศึกษา องค์กรและมหาวิทยาลัย
31 OCT 2022
@The Crystal Box, Gaysorn Urban Resort, Gaysorn Tower, 19 Floor

OCTOBER 2022

Category	Example
Global Cases (50 courses)	• Innovation Application in Google, Tesla, Netflix, Samsung
Critical Mindset & Skills for Everyone (33 courses)	• Technology and Digital Adaptability • Digital & Data Literacy (BrighterBee SkillDemy)
Creative & Design (7 courses)	• Using Brain Science to Design & Build Better Products • Creative Product Design and Development
Legal, Compliance & Audit (7 courses)	• Internal Audit and Business Process Design & Transformation
Digital Finance (3 courses)	• Intellectual Property Management
Data & Technology (2 courses)	• Data Analytics for Business Decision • AI Impacting Work
Big Data & Security (2 courses)	• Data Visualization Beginner's Guide • The Era of Big Data

Demand vs. Supply Manpower Data Analysis
✓ Demand and Supply Manpower Analysis in Science & Engineering
✓ Certified Up-skill, Re-skill courses in Thailand Plus Package

Talent Support
• Linkage of STEM-OSS platform and E-Workforce Ecosystem: (EWE)
• Talent Utilization Platform for Nation Talent Pool

Thailand Plus Package Incentives
✓ Certification body of STEM courses and employees by the committee

Training Grants for advance technology, Merit-based Incentives
✓ Criteria setting and mutually deployment for Training Grants for manpower development and Merit-based Incentives

Demand Driven Massive Access Future Skill Platform
BrighterBee   HUAWEI   salesforce
• Open platform for Future skills for 2 millions students in universities
• Technical & Soft skill Open platform for manpower (e.g. digital skill)

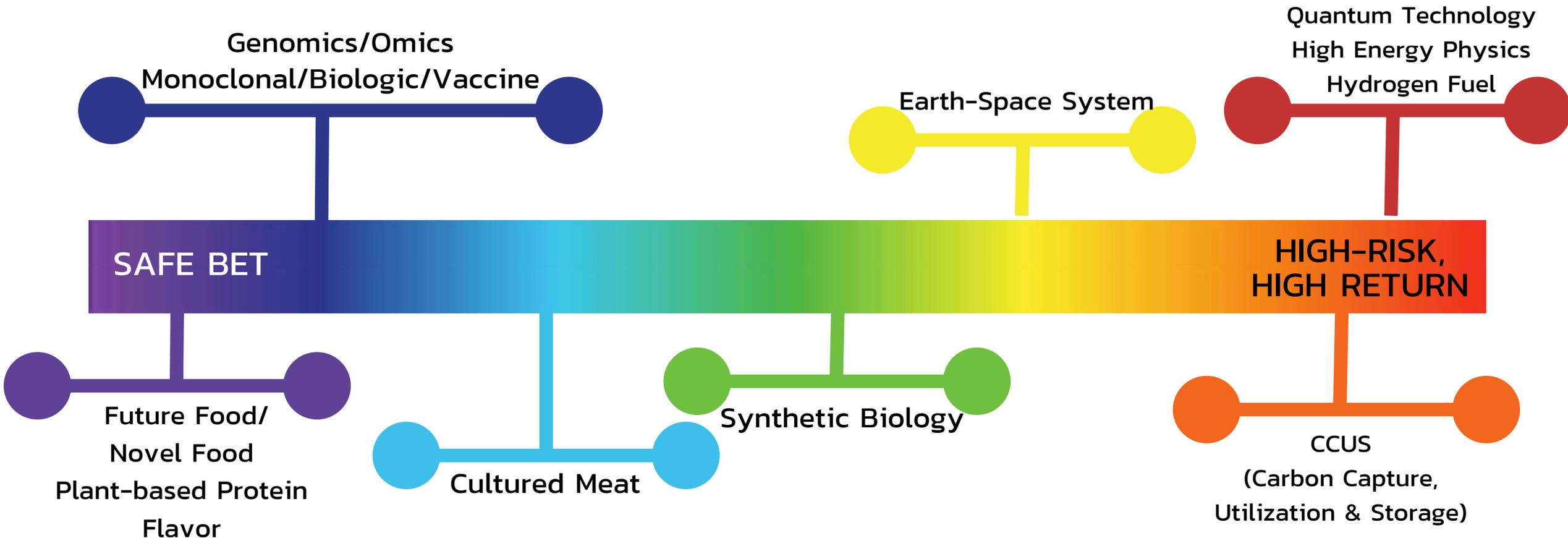## Science and Technology Talents Utilization Platform
Science and Technology Manpower and Talents Utilization

Re-skill, Upskill Platform with urgent response to employment
Generation THAILAND   Mercer
GenNx Model: Software Developer, Care Giver

Frontier Research to Foster Innovation and Creation of Future Growth Engines

– Set goals and directions of medium to long-term investment

– Build and attract talents for supporting future industries

– Cooperate with other countries in big science and global frontier research projects

Thank You

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