Thailand 4.0

Thriving in the 21st Century
through
Security, Prosperity & Sustainability

Seeking for the New Economic Model

A Nation of Maker

Design in Innovation

Made in China 2025

Smart Nation

Creative Economy

A Nation of Maker

White House
Maker Faire

- **3 D Printer**
- **Laser Cutter**
- **CNC Router**

- **Nation of Makers Initiative**
- **Nation Week of Making**
- **Maker Movement**

Design in Innovation

- Cool Britannia

- Create UK

- Innovate UK

- Digital Economy Strategy

- Design in Innovation Strategy

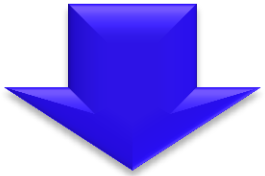
Made in China 2025

10 Target Industries

- New IT
- Numerical Control Tools & Robotics
- Aerospace Equipment
- Ocean Engineering Equipment & Hi-Tech Ships
- Railway Equipment
- Energy Saving & New Energy Vehicles
- Power Equipment
- New Materials
- Biological Medicine & Medical Devices
- Agricultural Machinery

Smart Nation

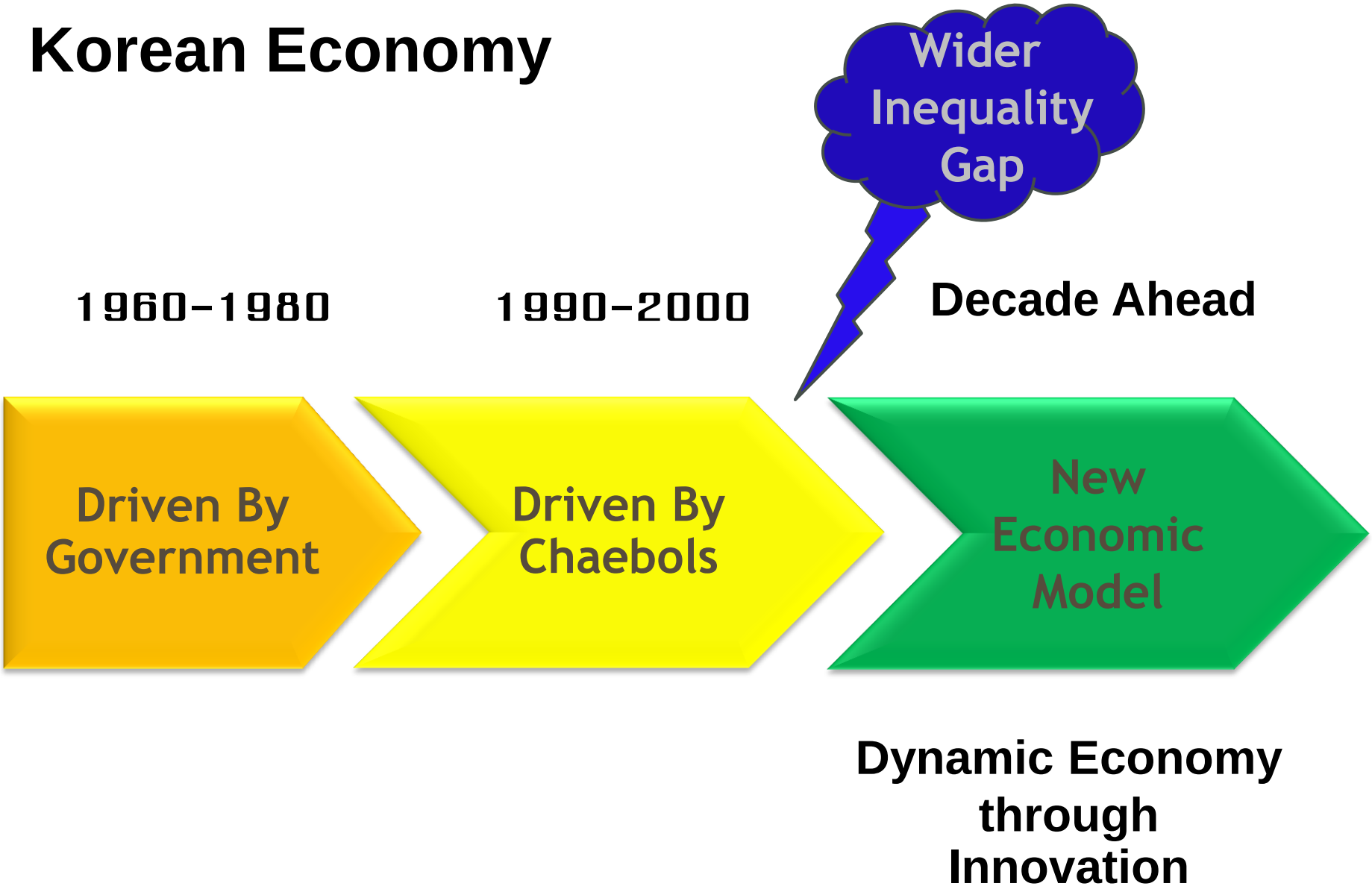
- **Intelligent Nation 2015**



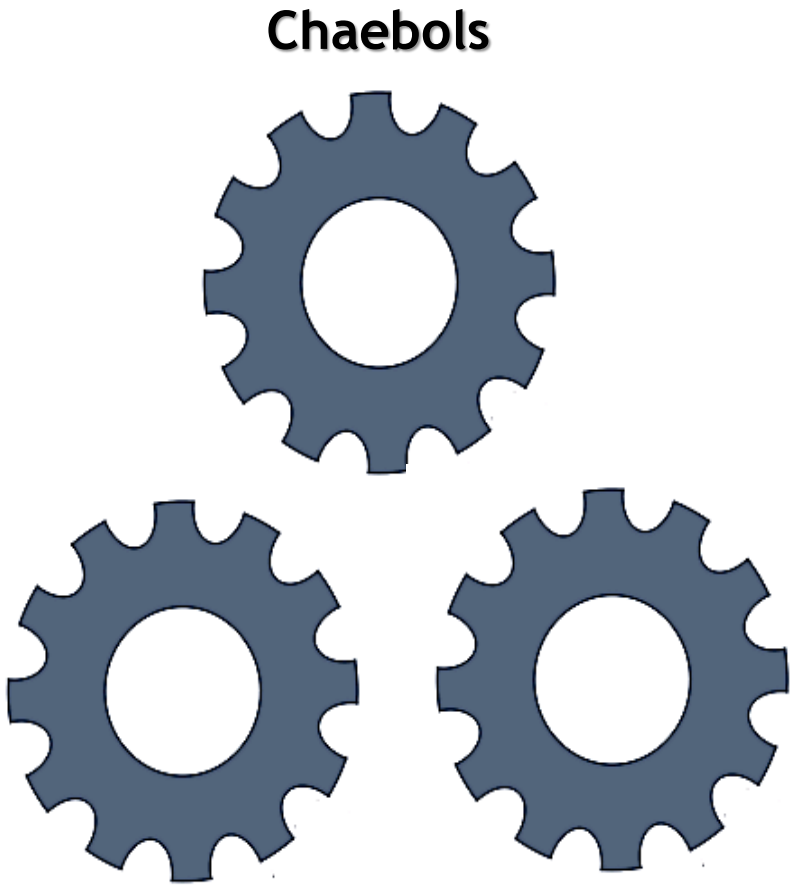
- **Smart Nation**

- **Media Ecosystem**
- **Tech Innovation Hub**

Korean Economy



18 Centers of Creative Economy & Innovation



- New Industries
- New Startups

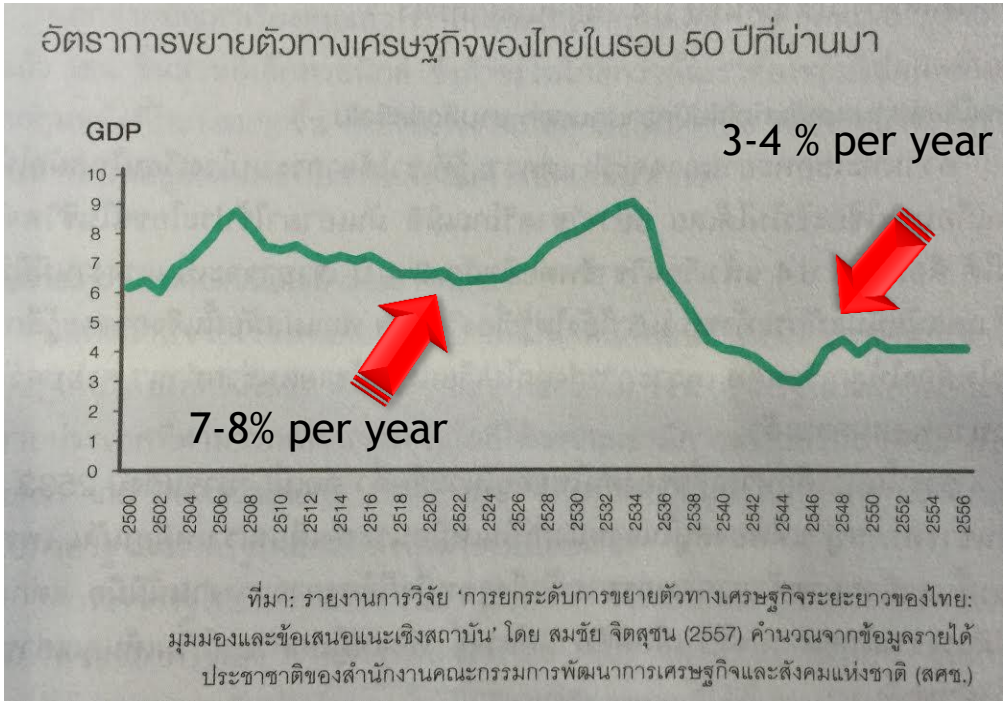
Creative Economy

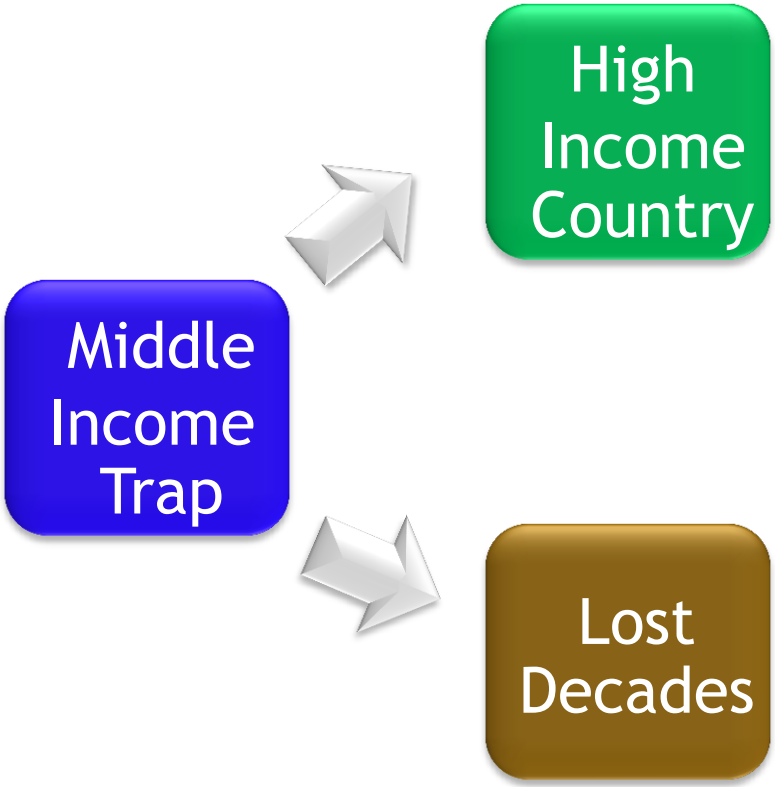
18 Centers of Creative Economy & Innovation

Location & Theme

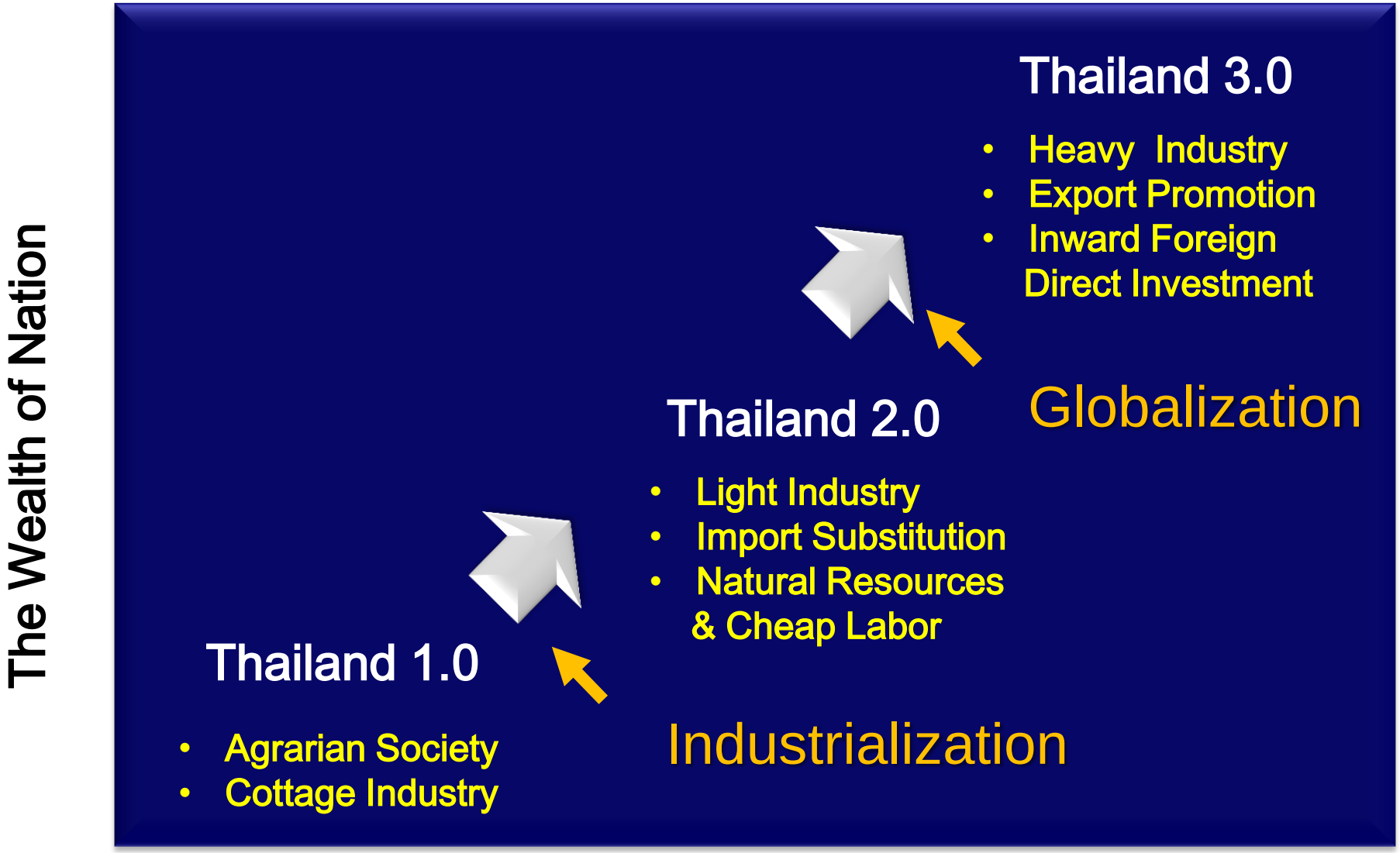
Region	Theme & specialty	Corporation in charge
Seoul	Culture & lifestyle	CJ
Incheon	Logistics industries, aviation	Hanjin
Gyeonggi	IT-based convergence industries	KT
Chungnam	Clean energy, agriculture as the 5th industry	Hanhwa
Daejeon	Global venture business	SK Telecomm
Sejong[1]	ICT-based agriculture	SK Telecomm
Chungbuk	Bio & beauty, environment-friendly energy industry	LG
Jeonbuk	Carbon-related industries, traditional culture	Hyosung
Jeonnam	Bio-chemical, new materials and convergence-oriented agro-fishery	GS
Gwangju	Mortor vehicle-related start-up and common people-oriented innovation platform	Hyundai Motors
Gyeongbuk	Smart factory innovation, convergence type culture and agriculture	Samsung
Daegu	Fashion, machinery and automobile parts, traditional industries	Samsung
Ulsan	Ship-building & marine plant, medical automation industry	Hyundai Heavy Industries
Gyeongnam	Machinery manufacturing innovation	Doosan
Busan	Global distribution, Film and video-oriented ecology, IoT-based smart city	Lotte
Gangwon	Big data, crowd sourcing tourism, health care and smart farm	Naver
Jeju	Smart tourism platform, electric car and renewable energy	Daum-Kakao

Thailand's Scenario

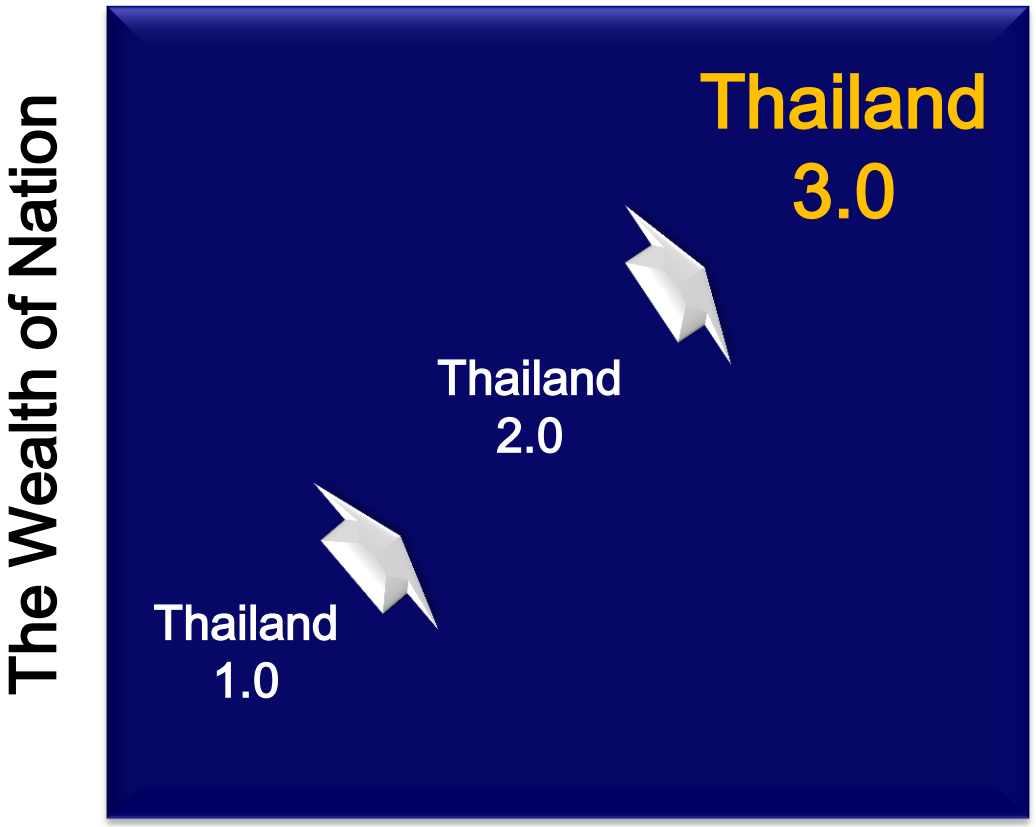




Thailand's Path to Development



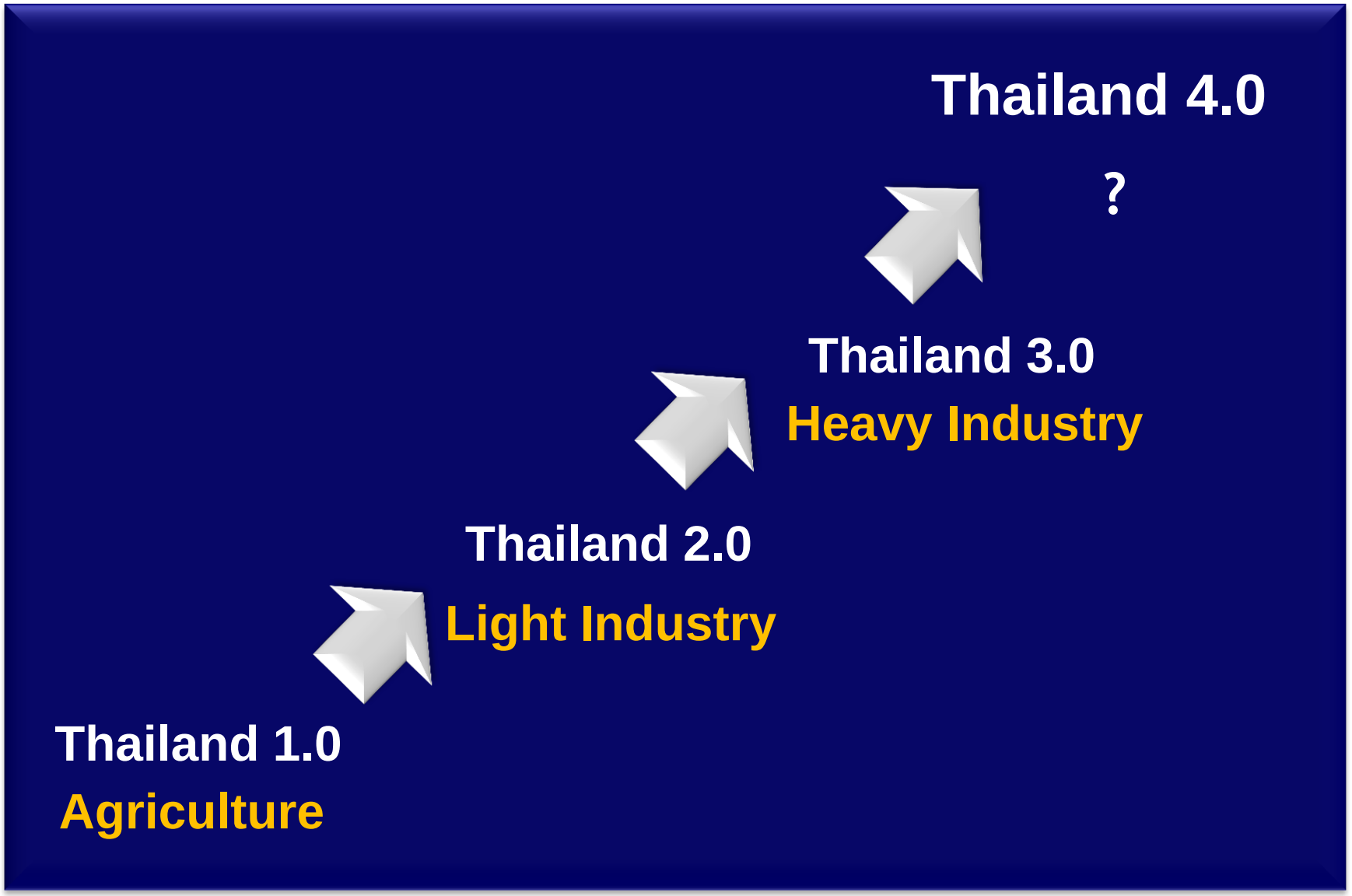
Systemic Challenges Facing Thailand 3.0



Systemic Challenges

- Imbalance Trap
- Inequality Trap
- Middle Income Trap

Thailand's Path to Development



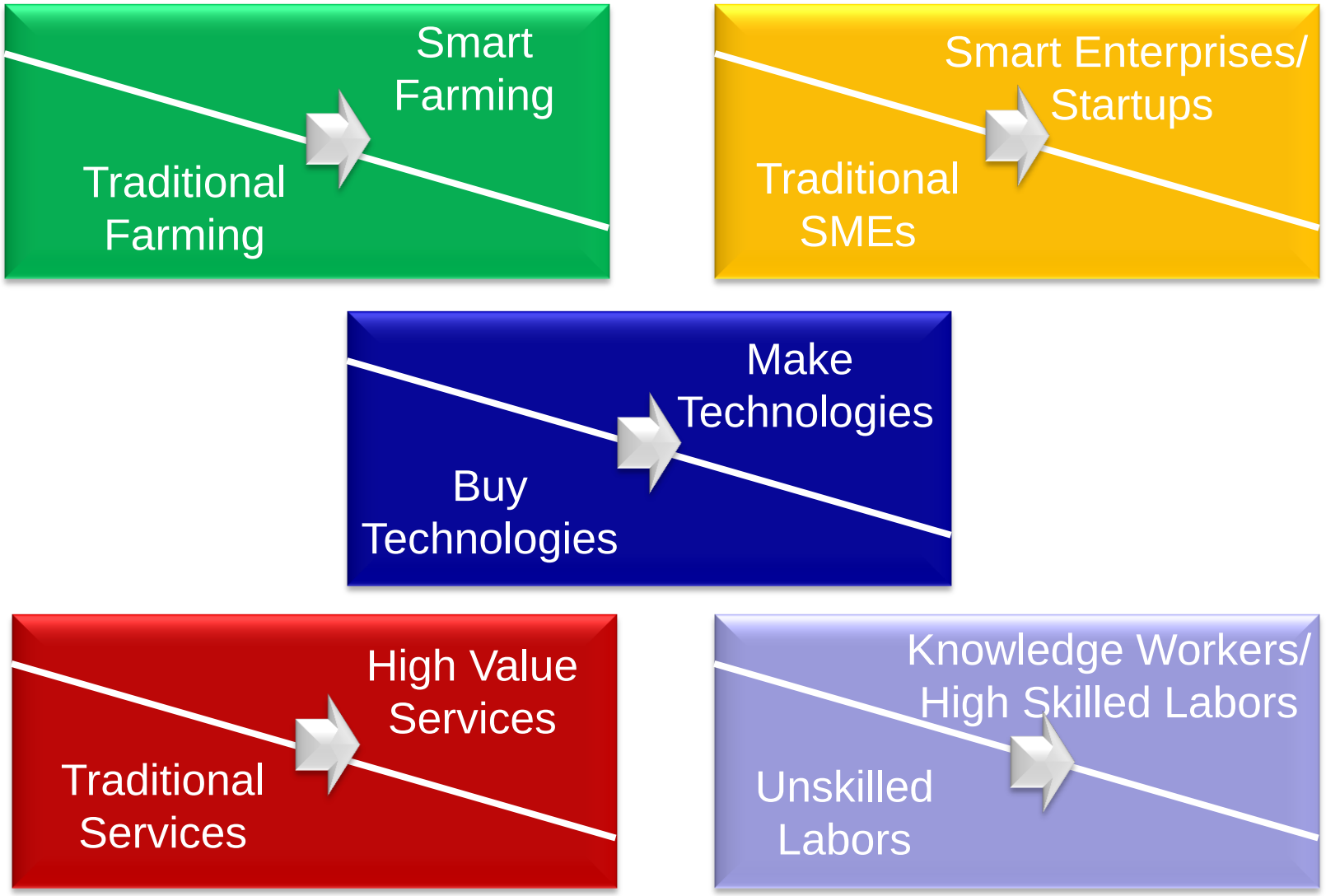
Thailand 4.0:
Transforming towards the Value-Based Economy

More for Less → **Less for More**

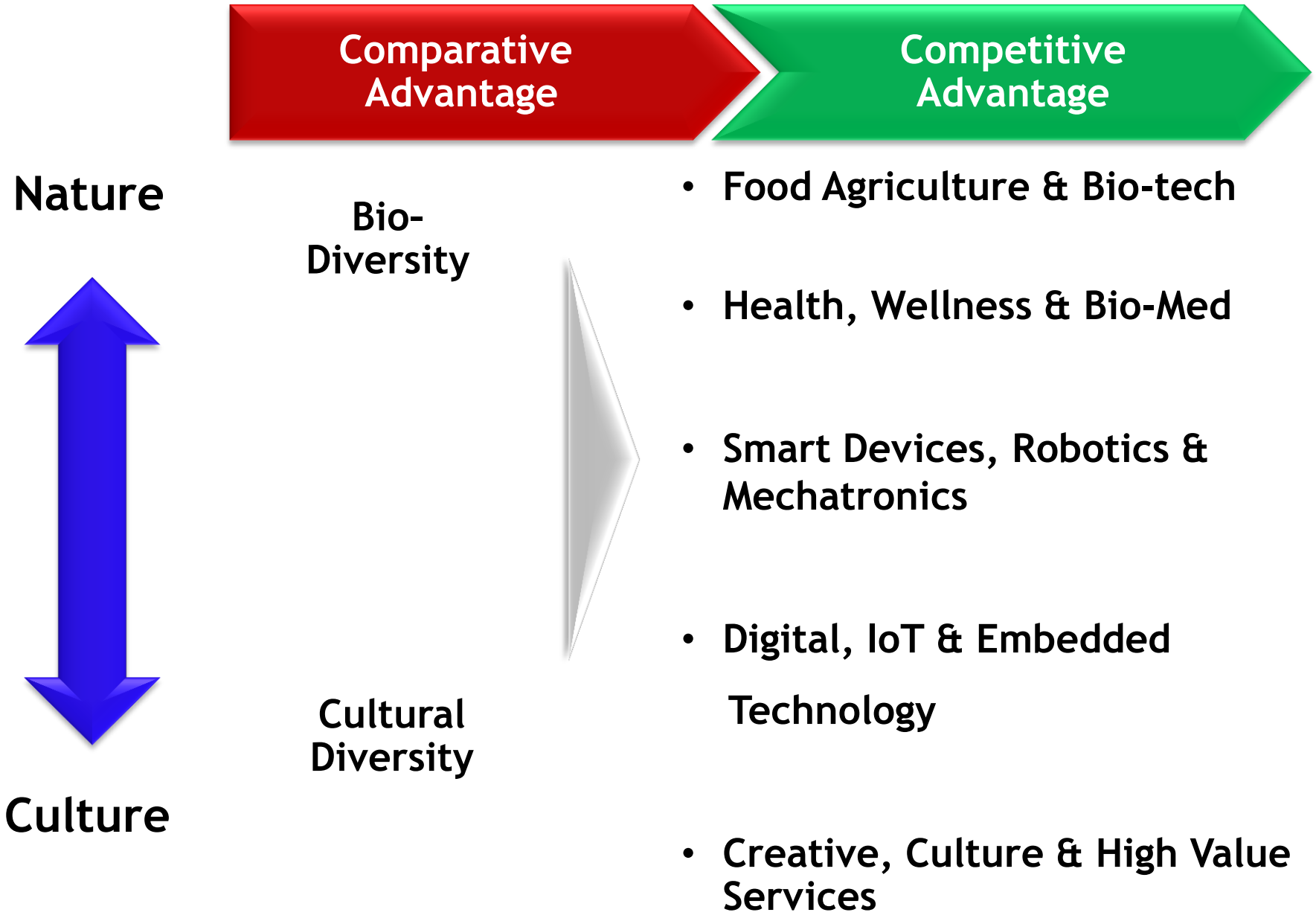
- Commodities
- Industries
- Trade in Goods

- Innovation
- Technology & Creativity
- Trade in Services

Transformative Shifts



Thailand 4.0: New Engines of Growth



New Technology	New Industry	Enterprise
• Bio-tech	• Food & Agriculture	• Agritech • Foodtech
• Bio-Med	• Health & Wellness	• Healthtech
• Mechatronics	• Smart Devices & Robotics	• Robotech
• Embedded Technology	• Digital & IOT	• Fintech • Edtech • E-Marketplace • E-Commerce • Service Enhancing
• Service Design & Technology	• Creative, Culture & High Value Services	• Designtech • Lifestyle Business • Traveltech

Examples

Agriculture&Food

Smart Foods
Smart Ingredients:
Products and value chain

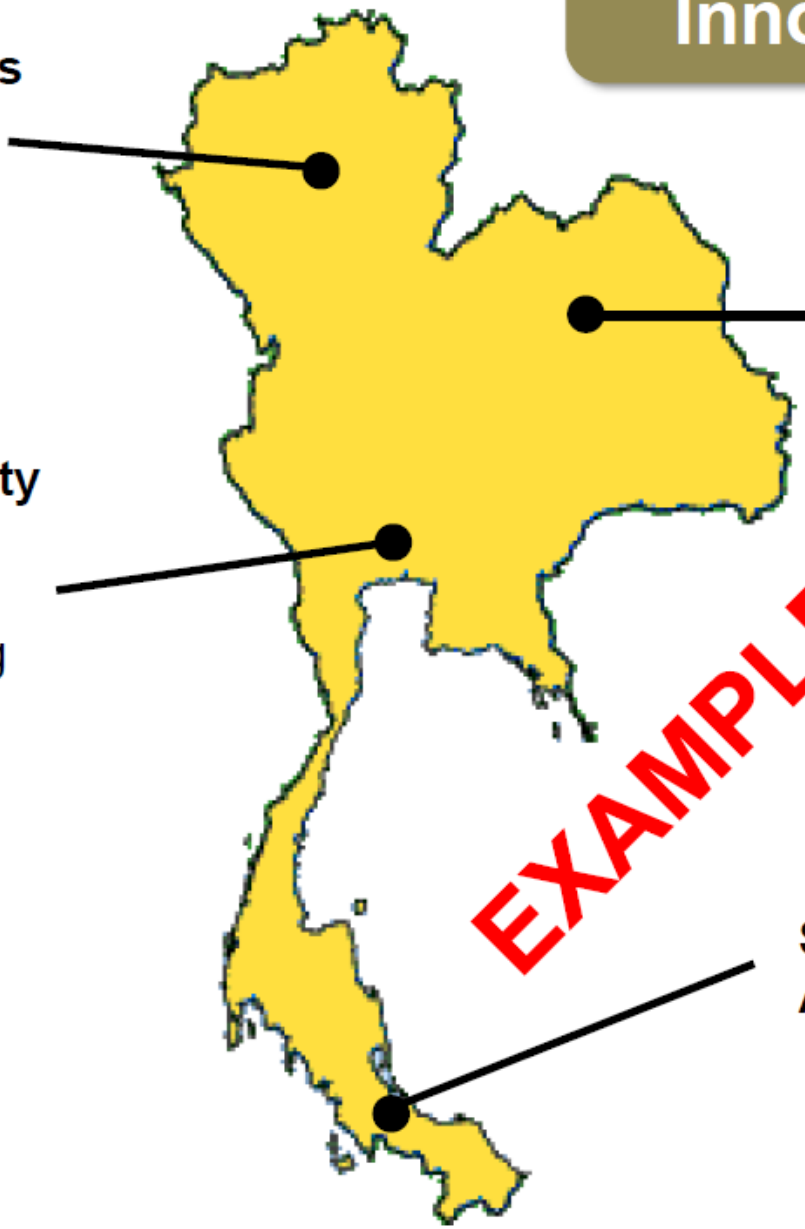
Smart Agriculture:
Premium quality under climate change and aging society

Advanced Agriculture Technology Provider:
Seed, feed, vaccine, machinery and other technologies for small holders

Agriculture&Food Innovation Hubs

Northern
Agri&Food Innopolis
- Smart farm
- Dairy products
- Functional food

Central - University
Food Innopolis
- Functional food
- Food for ageing



EXAMPLE

Northeastern
Agri&Food Innopolis
- Smart farm
- Livestock

Southern
Agri&Food Innopolis
- Seafood
- Halal Food
- Natural Rubber

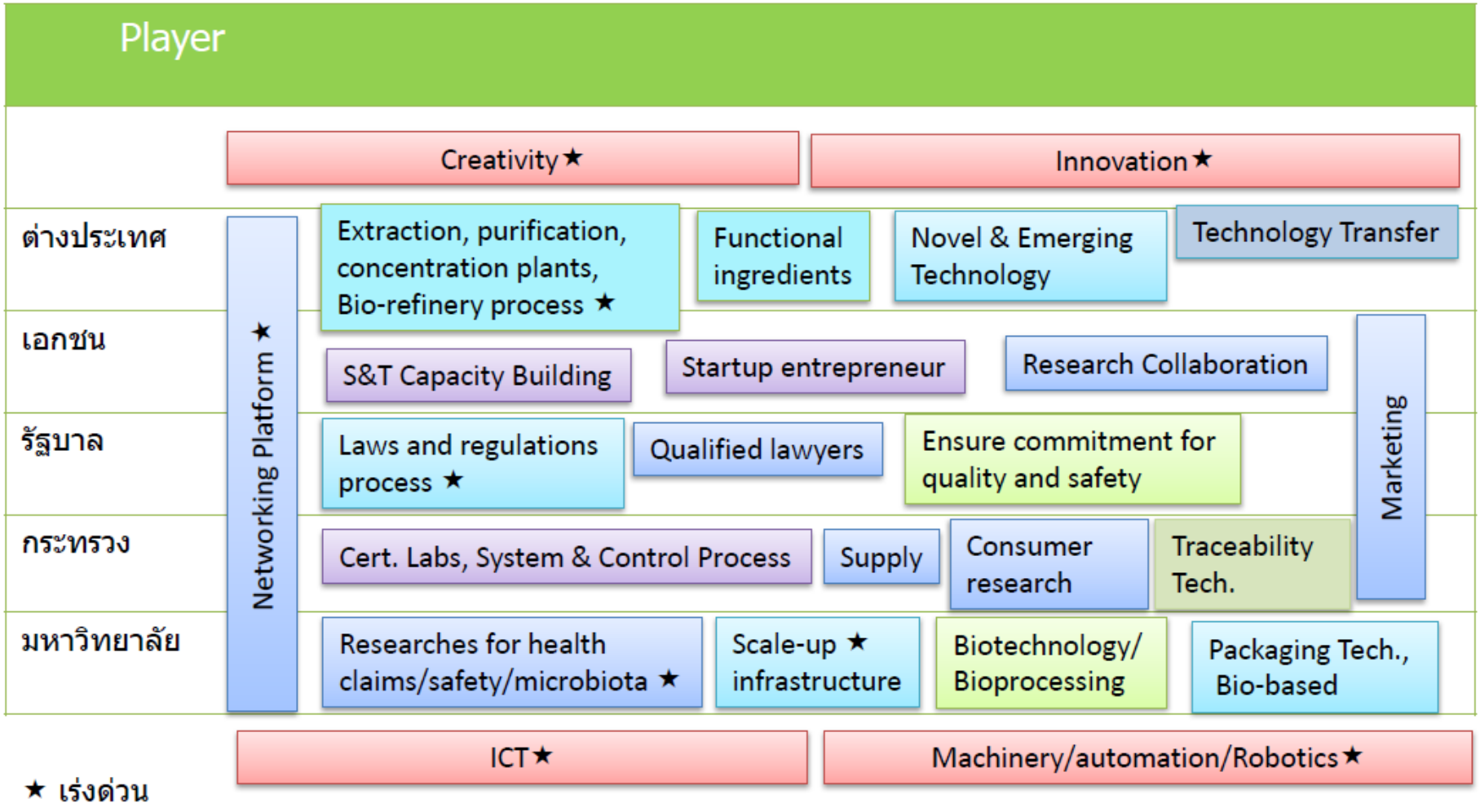
R&D Labs
Pilot Plants
Incubator& Accelerator
Services

แนวทางดำเนินการ

- **ใช้มหาวิทยาลัยเป็นฐาน**เพราะบุคลากรด้าน R&D ส่วนใหญ่อยู่ในมหาวิทยาลัย ให้มีการทำงานเป็นเครือข่ายของมหาวิทยาลัย อาจใช้รูปแบบของ RUN (Research University Network) แต่เพิ่มมหาวิทยาลัยเข้าร่วม โดยเบื้องต้นเริ่มจากมหาวิทยาลัยในกลุ่ม ทปอ. 27 มหาวิทยาลัย และมหาวิทยาลัยเอกชนที่มีศักยภาพ
- **ดึงมหาวิทยาลัยต่างประเทศ**ที่มีชื่อเสียงในด้านนี้มาร่วม
- **ดึงภาคเอกชน**ในพื้นที่มาลงทุนโดยใช้กลไกที่มีอยู่แล้วมาสนับสนุน เช่น Supercluster/Cluster/เขตพัฒนาเศรษฐกิจพิเศษ/การเกิด Food Innopolis ระยะที่ 2/อุทยานวิทยาศาสตร์ภูมิภาค
- **ดึงสถาบันการเงิน** และการลงทุนในรูปแบบต่าง ๆ มาต่อยอดนวัตกรรม
- **รัฐสนับสนุนโครงสร้างพื้นฐานที่จำเป็น**
- ความเชี่ยวชาญของแต่ละศูนย์จะต้อง**สอดคล้องกับการพัฒนาพื้นที่**เพื่อให้มีชีวิตความเป็นอยู่ที่ดีขึ้น จาก R -> D -> I

Key Components

Smart Foods, Smart Ingredients:
Products and value chain

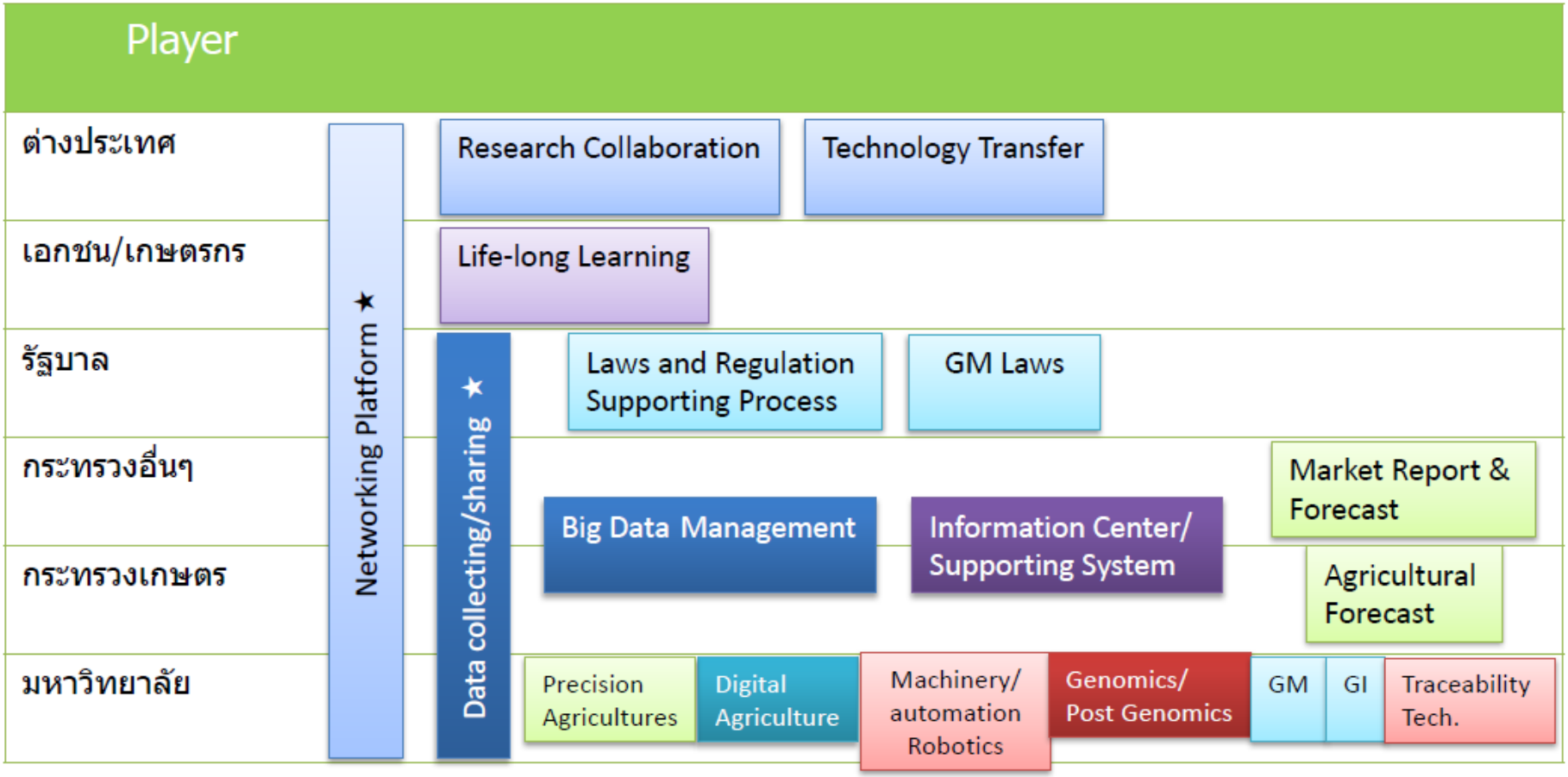


★ เร่งด่วน

Technology Readiness:
Smart Foods, Smart Ingredients

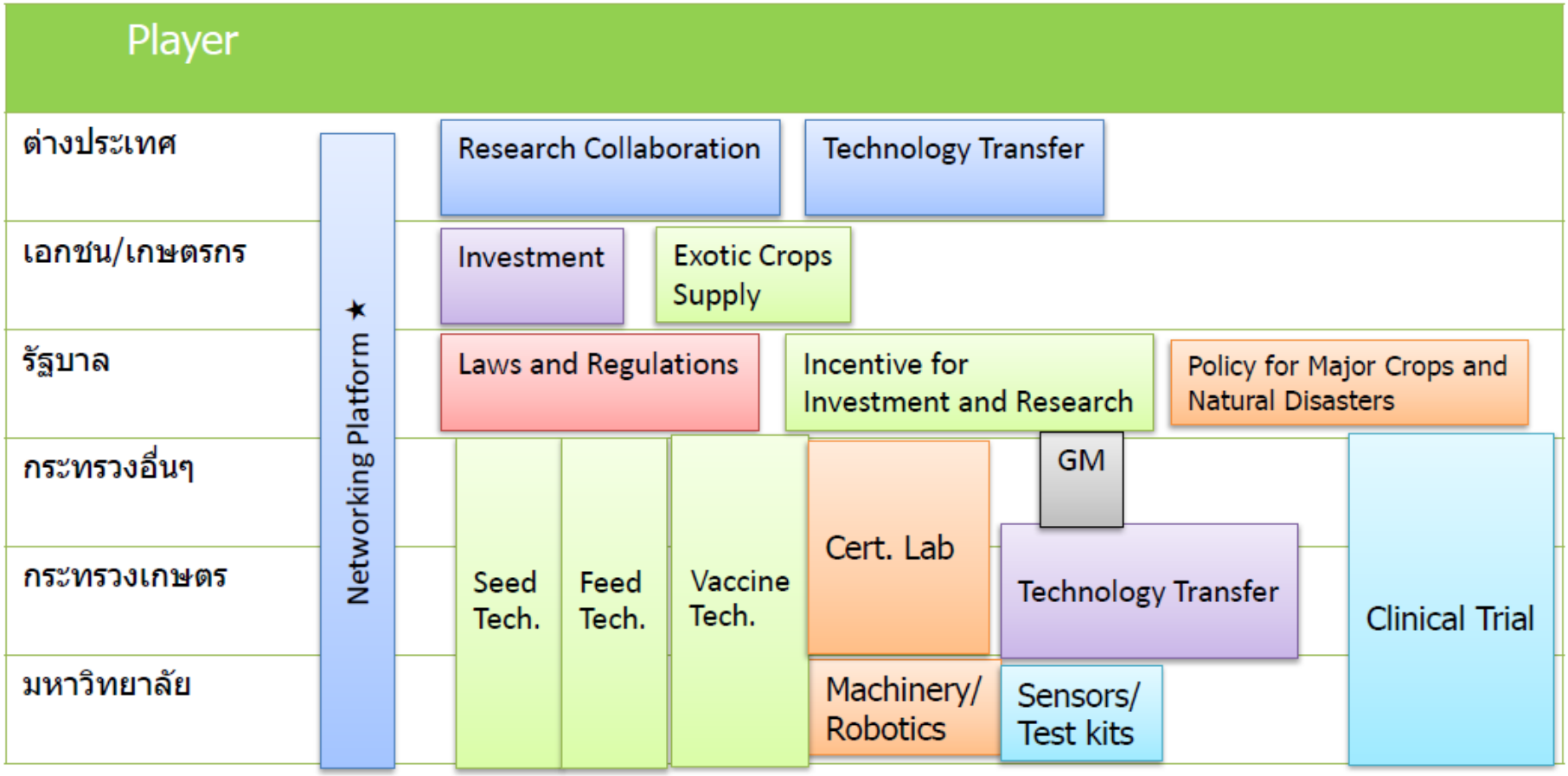
Technology	Potential	Readiness	Technology Missing Link
Microwave assisted processing			Design of specific parameters
High pressure processing			Machine building and specific parameters
Encapsulation and controlled-released for health food			Design for specific product and scale up run
Gut-microbiota research for health			Instruments investment and research discipline collaboration
Bio-based materials for packaging			Scale up production
Food automation system, machinery and sensor			Collaboration of ICT, engineering and food processing
Biomass and bio-refinery for bioprocessing			Infrastructure, enzyme technology for specific processes

Smart Agriculture:
Premium quality under climate change and aging society



★ เร่งด่วน

Advanced Agriculture Technology Provider:
Seed, feed, vaccine, machinery and other technologies for small holders



★ เร่งด่วน

Technology Readiness:
Agriculture Technology and Bio-technology (1)

Technology	Potential	Readiness	Technology Missing Link
Genetic (Plants & Animals) and genomic technologies			การปรับปรุงพันธุ์พืชและสัตว์เศรษฐกิจที่ปรับตัวและให้ผลผลิตได้ดีและมีคุณภาพสูงในเขตร้อน
Agricultural precision technologies			
Feed and fertilization technologies			ปุ๋ยสั่งตัด ชุดวิเคราะห์ดิน โปรแกรมคำนวณสูตรอาหาร
Water and irrigation technologies			
Housing and environmental control technologies			
Plant and animal protections, vaccination, insect and decease control technologies			

Technology Readiness:
Agriculture Technology and Bio-technology (1)

Technology	Potential	Readiness	Technology Missing Link
Farm machinery and robotics technologies			
Post harvesting technologies			
Agricultural Transportation technologies			

Examples

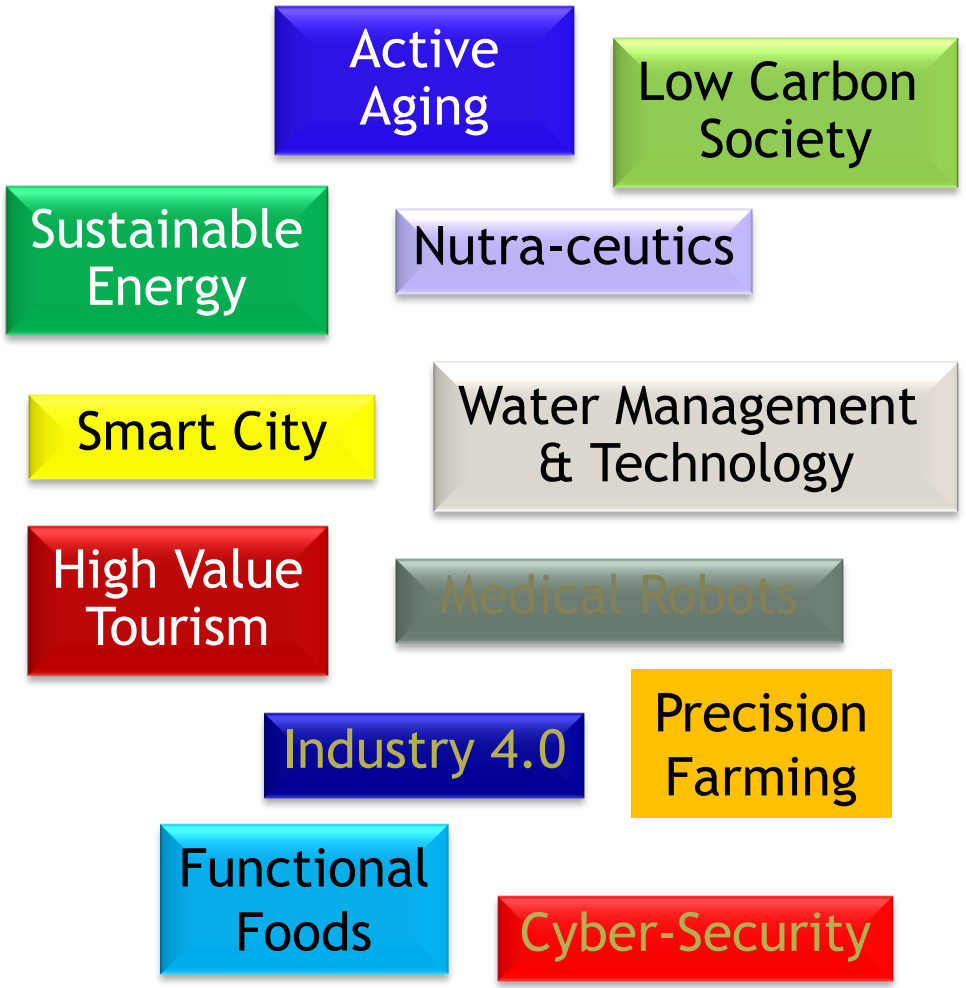
New Growth Engine	Private Sector	Financial Institution	Local Leading University/ Research Institution	Global Leading University/ Research Institution	Govt. Support
• Food, Agriculture & Bio-tech	อิสระ, CP, ธีรพงศ์	GSB	- ม.เกษตร - ม.สงขลาฯ	- Wageningen - UC Davis - Cornell	
• Health, Wellness & Bio-Med	ปณต สหพัฒน์	BBL	- ม. มหิดลฯ - ม.เชียงใหม่ - จุฬาฯ - ม.ขอนแก่น		
• Smart Devices, Robotics & Mechatronics	กานต์ ประเสริฐ	KTB TMB	- พระจอม เกล้า ธนบุรี - จุฬาฯ - สุรนารี		
• Digital, IoT & Embedded Technology	ศุภชัย ศุภจี	SCB	- พระจอม เกล้า ลาดกระบัง - จุฬาฯ	- MIT Media Lab - Stanford Startup Garage	
• Creative, Culture & High Value Services	ฐาปน วีระศักดิ์ กันตนา	KBANK	- ม.กรุงเทพฯ - ม.ศิลปากร - TCDC	- KOCCA - KIDP - Stanford D School	

Emerging Priorities for Innovations

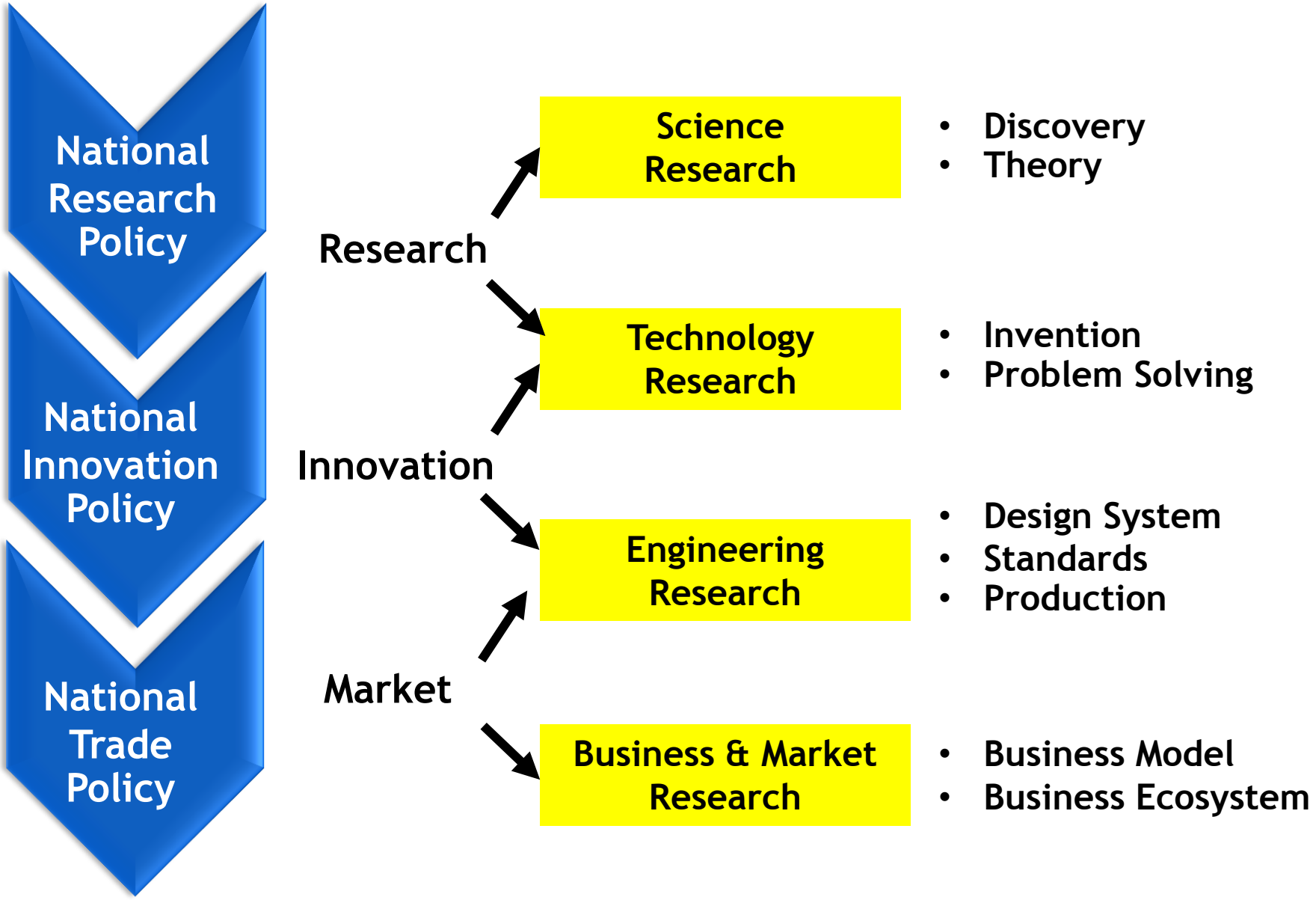
New Engines of Growth

- **Food, Agriculture & Bio-tech**
- **Health, Wellness & Bio-Med**
- **Smart Devices, Robotics & Mechatronics**
- **Digital, IoT & Embedded Technology**
- **Creative, Culture & High Value Services**

National Agenda/Global Agenda



The National Wealth Creation Strategy



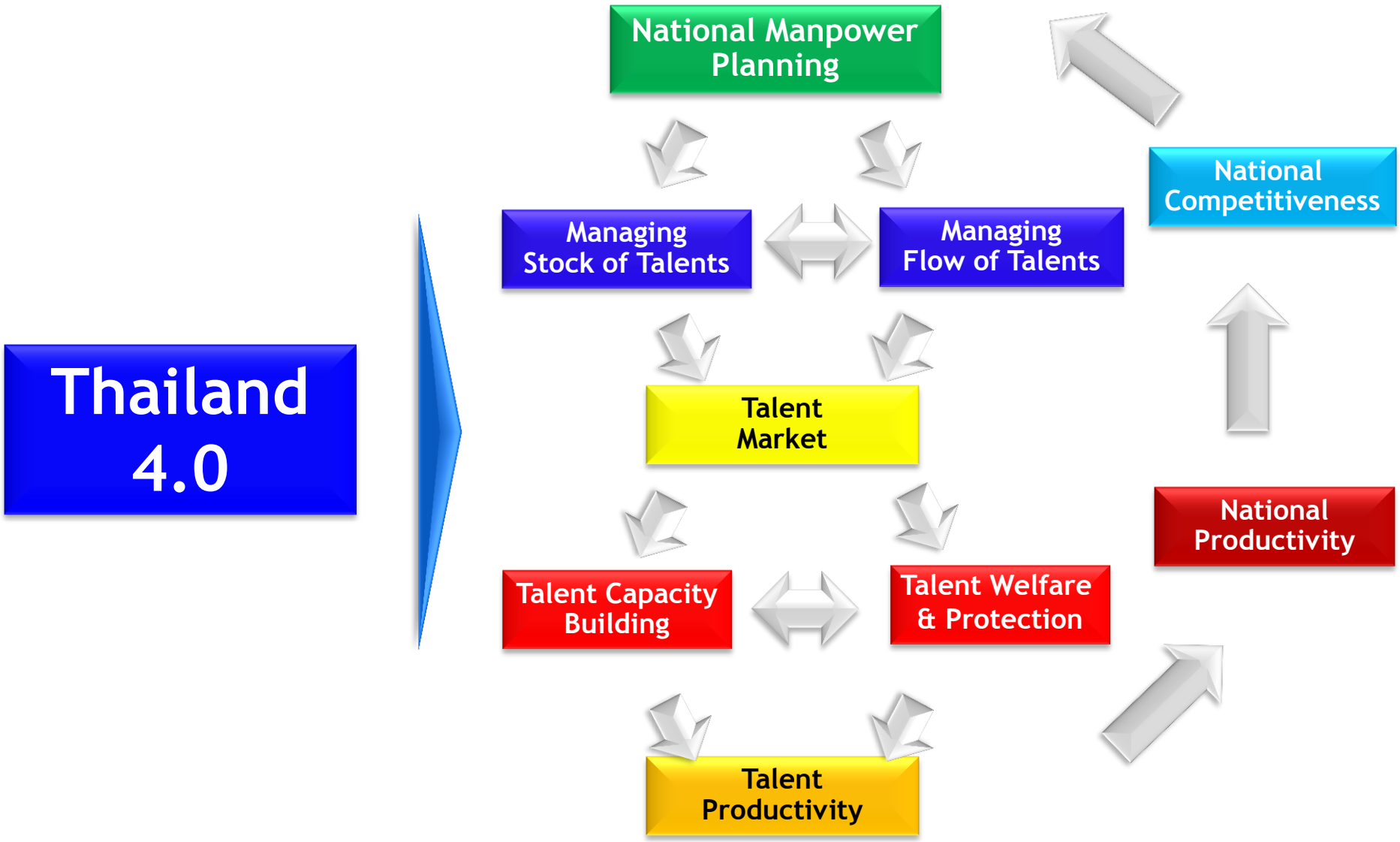
Bridging National Competiveness with Global Connectivity

- Smart Farmers
- Smart Enterprises & Startups
- Competitive Talents
- Productive Labor Forces

- 5 Key Technologies
- 5 Targeted Industry Clusters
- Special Economic Zone
- Regional Head Quarter

- Digital Platform
- Logistic Hub

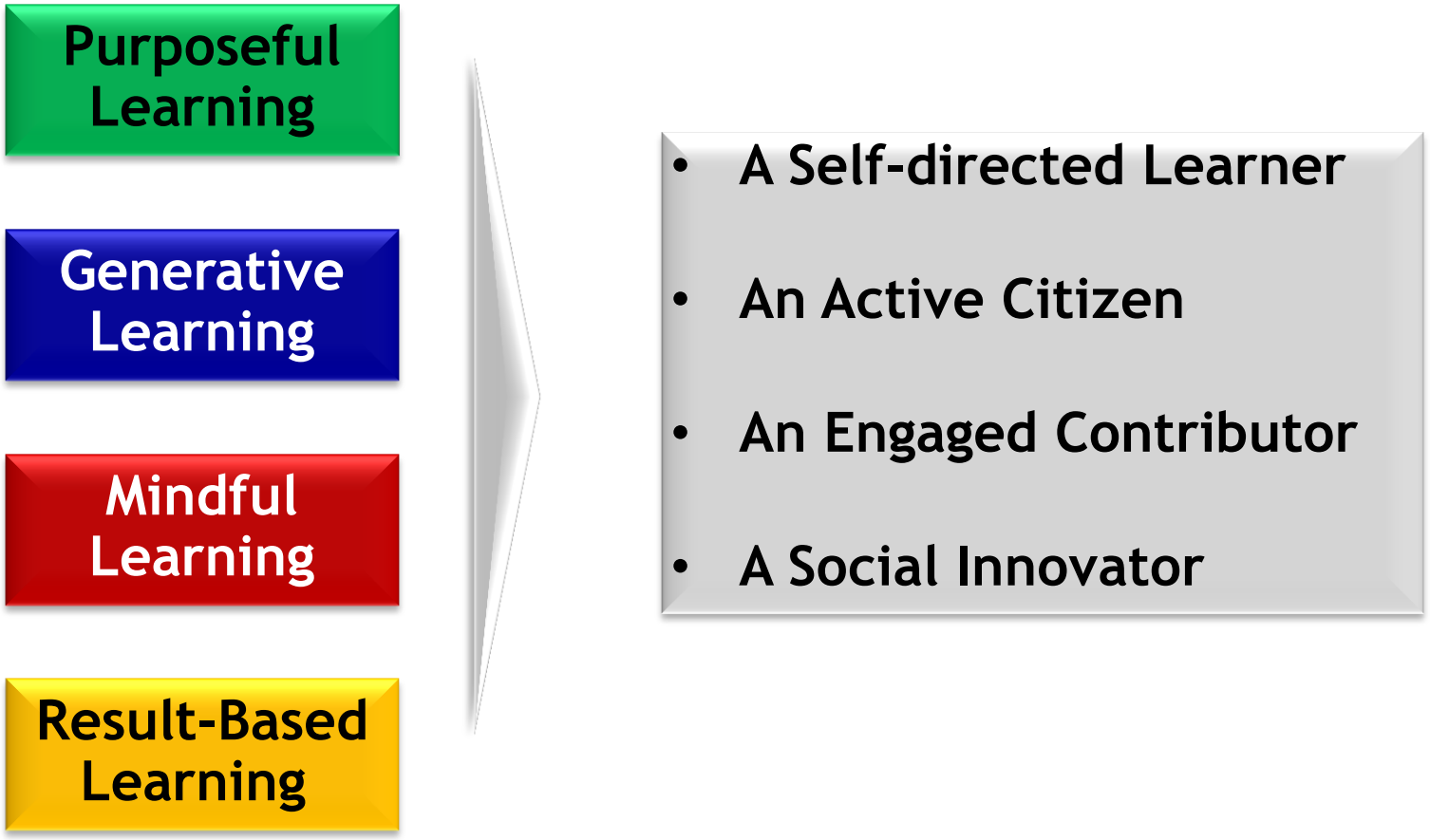
Thailand 4.0 & National Human Capital Development



Thailand 4.0 & Learning Society Creation

Purposeful Learning	• Standardized • Duty-Driven	• Personalized • Passion-Driven
Generative Learning	• Fact-Based • Passive Learning • Transmitting	• Idea-Based • Active Learning • Mentoring
Mindful Learning	• Individual Creating • Competing Incentive	• Common Creating • Sharing Incentive
Result-Based Learning	• Theory • Lecture • Completion Credit	• Theory in Practice • Project/Assignment/Workshop • Achievement Credit

Thai Citizen 4.0



Fundamental Logics of Thailand 4.0

Thailand 4.0 : Key Attributes

- People-Centric
- Governance-Focused
- Building Common Ground
- Achieving Common Goal

Thailand 4.0:
People-Centric

Thailand 3.0
"People for Growth"

Investing in Human Capacity

Factor of Production

Economic Growth

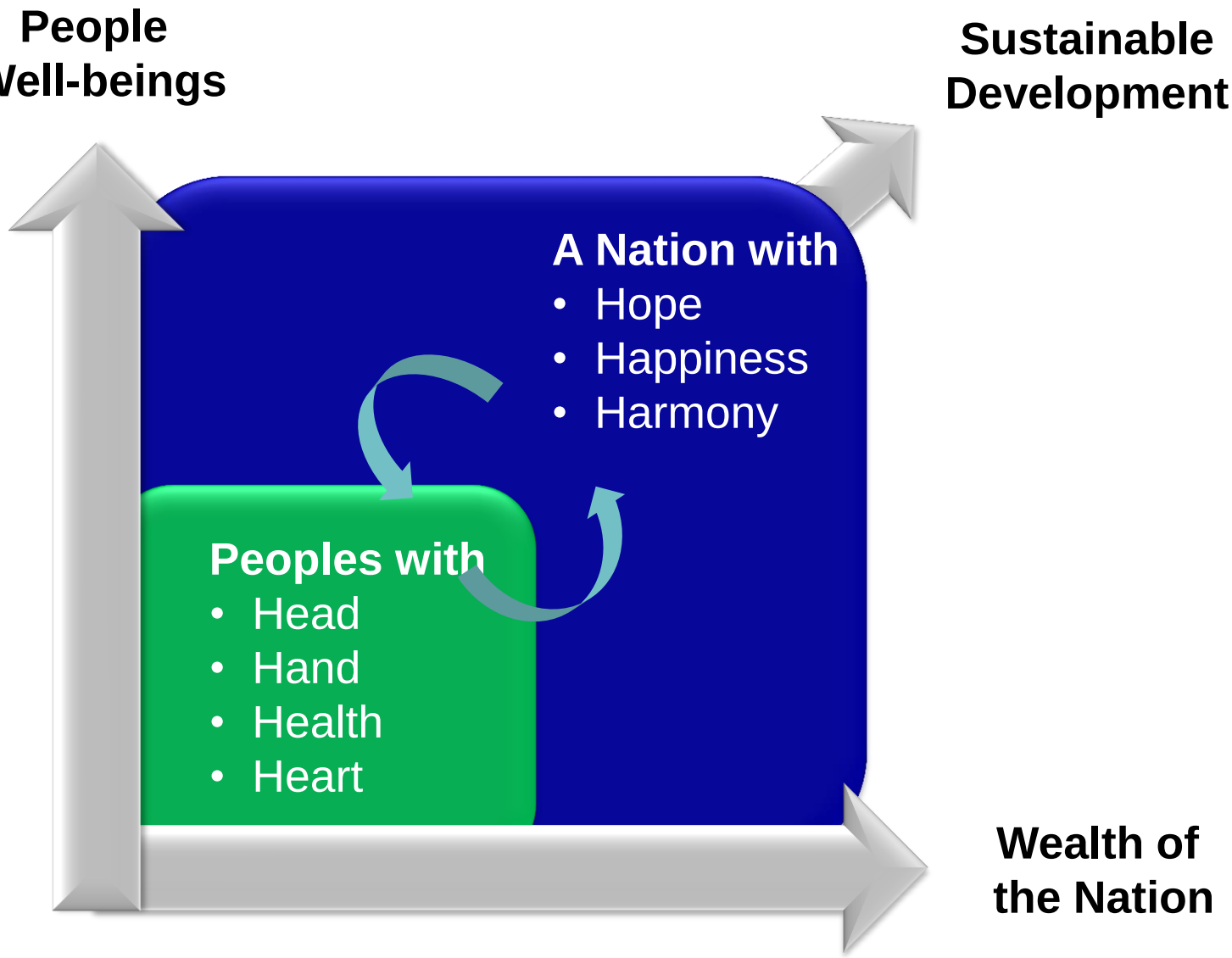
Thailand 4.0
"Growth for People"

Economic Growth

Enabling Environment

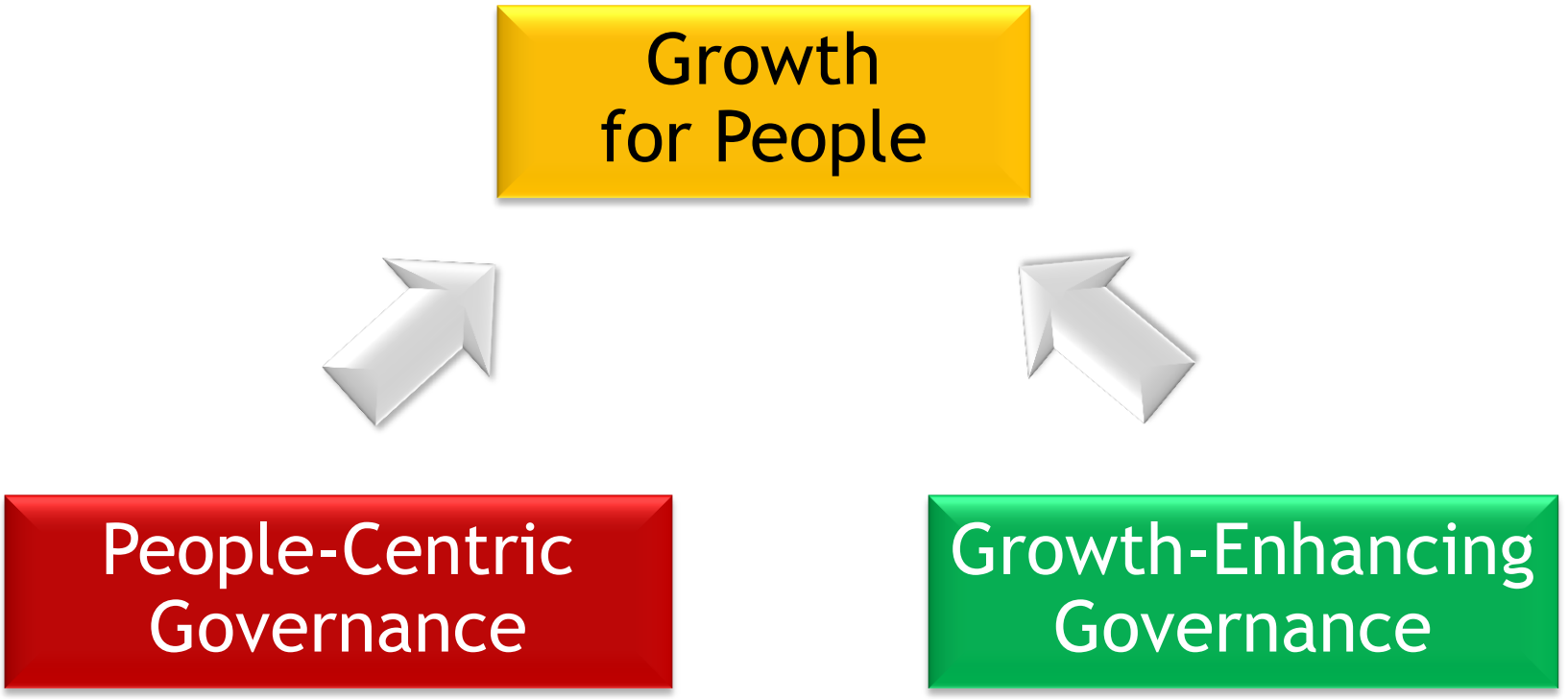
Unleashing Human Potential

Thailand 4.0:

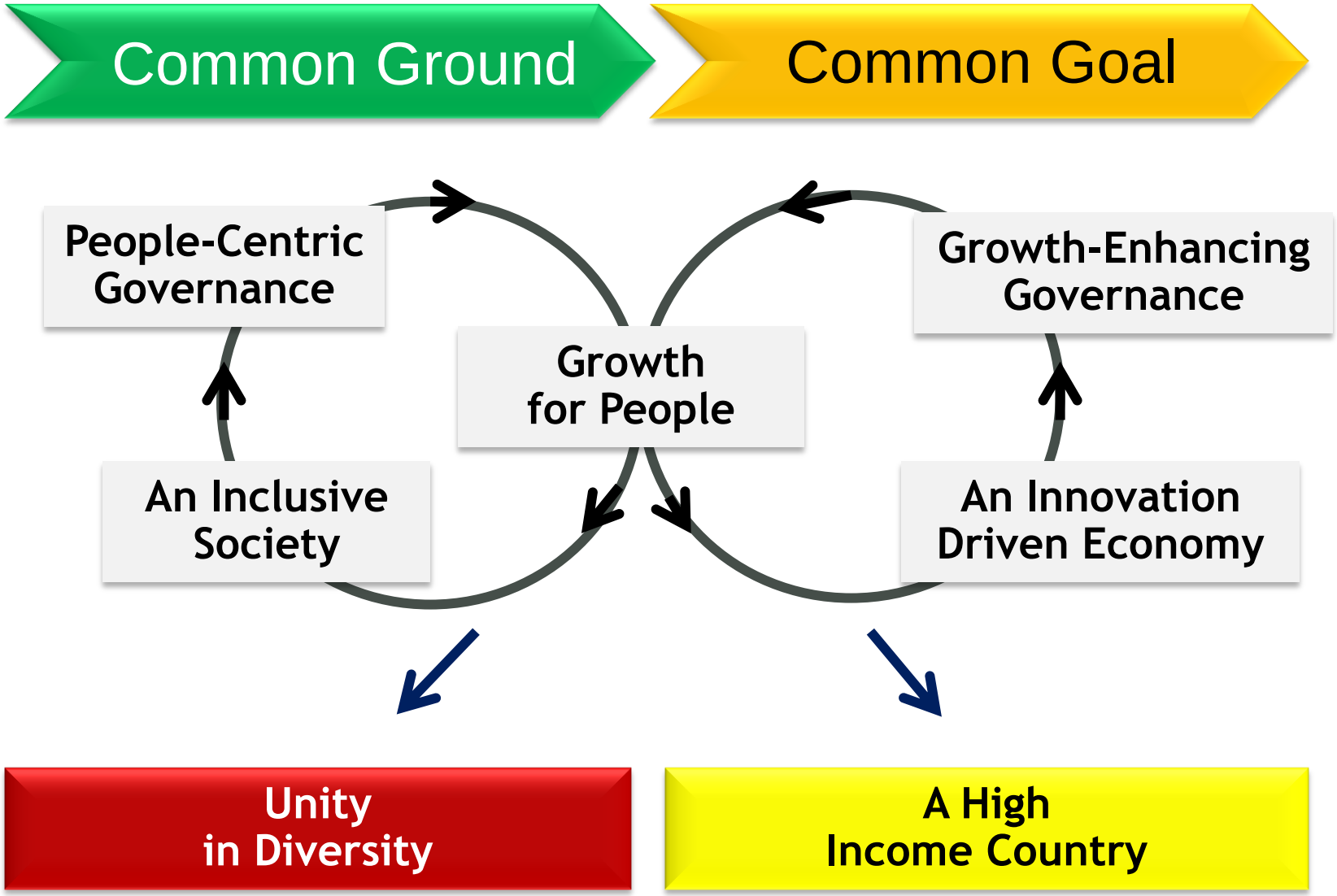


People Well-beings X Wealth of the Nation = Sustainable Development

Thailand 4.0:
Governance-Focused



Thailand 4.0:
Building Common Ground

Thailand 4.0:
Achieving Common Goal

Thailand 4.0:
Bridging Divides, Thriving Together