



โครงสร้างพื้นฐานและระบบโลจิสติกส์

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*Friday 4th January 2019
at King Prajadhipok's Institute, Bangkok*

*Member of Board of Directors,
Dawei SEZ Development Co., Ltd. (SPV)*

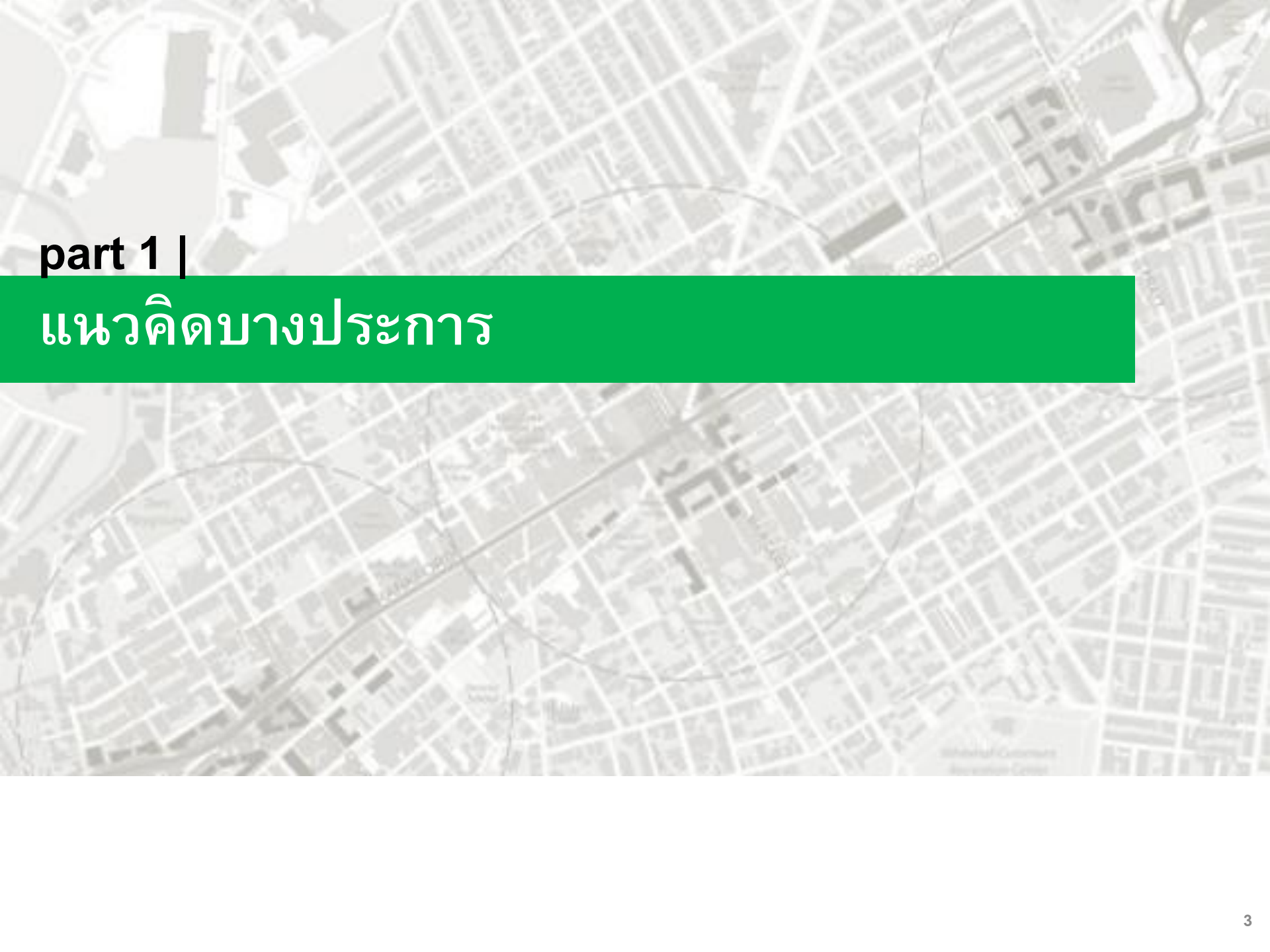
List of Topics

part 1 | แนวคิดบางประการ

part 2 | Supply Side

part 3 | Demand Side

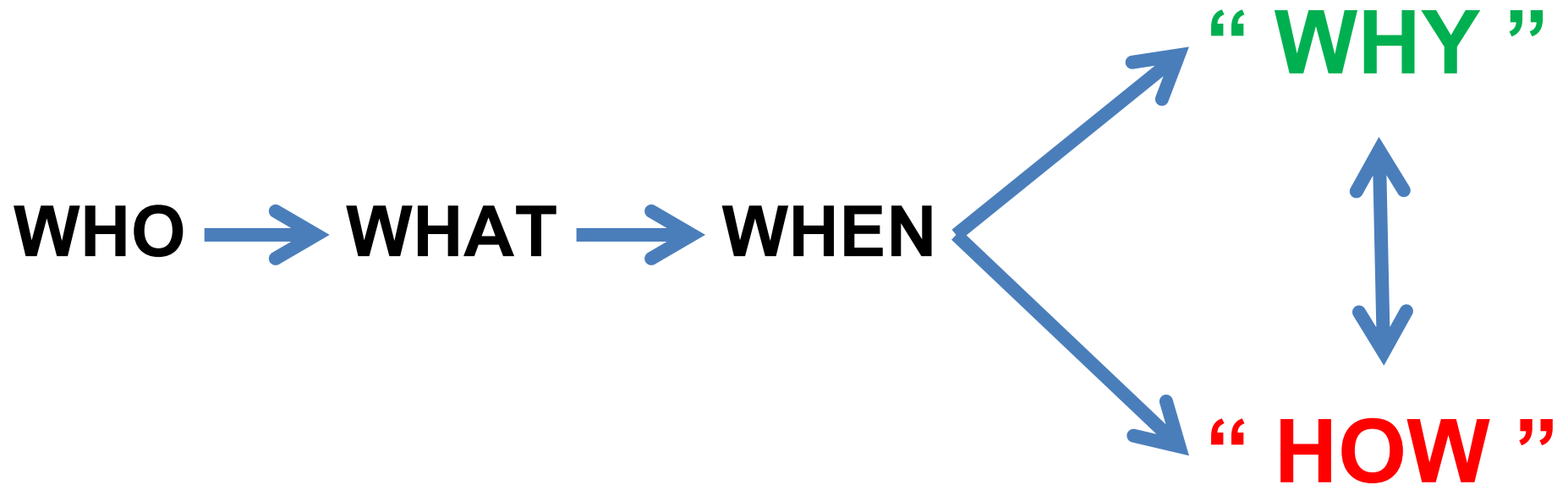
part 4 | Matchmaker

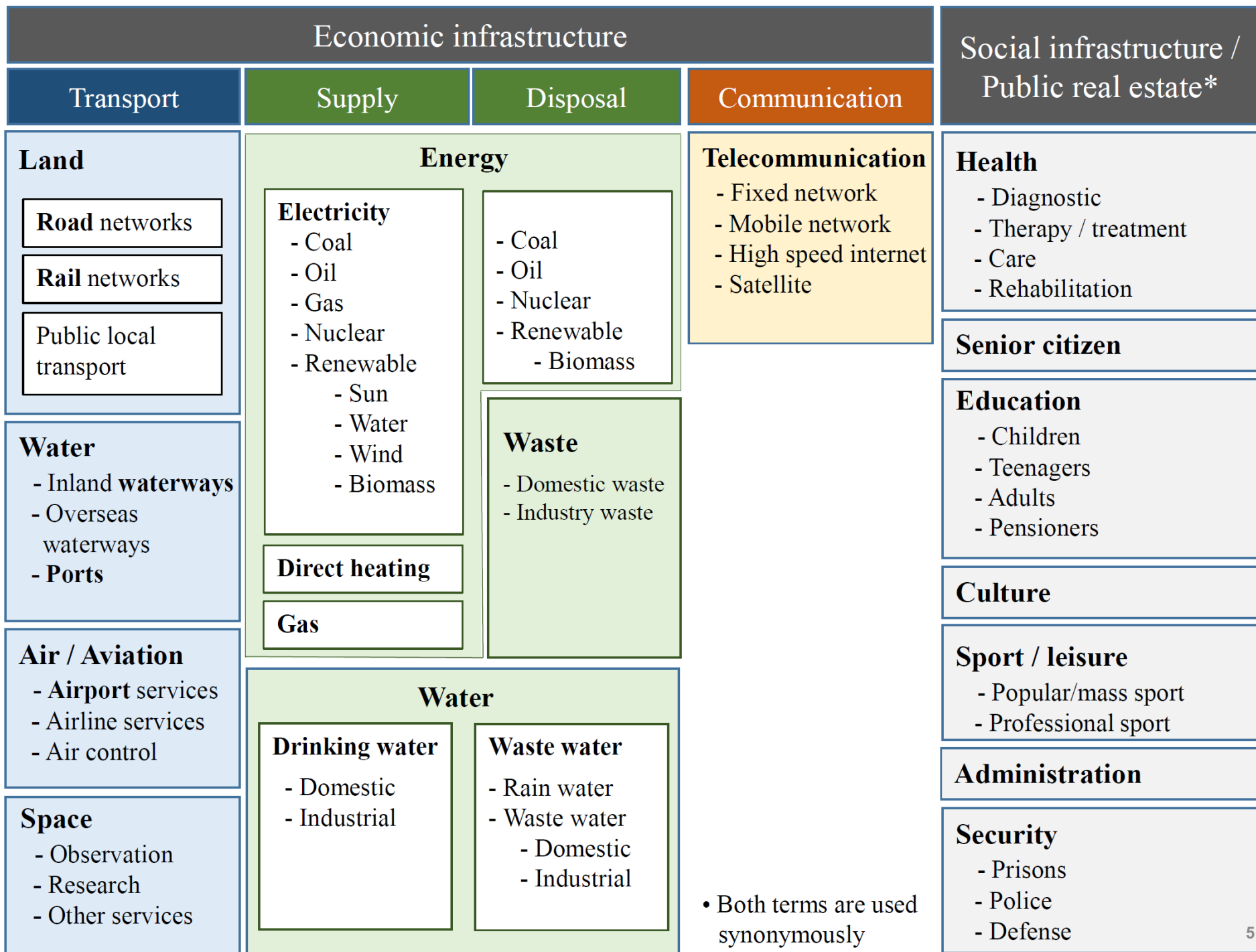
The background of the slide is a grayscale aerial photograph of a city grid. A solid green horizontal bar spans the width of the slide, positioned in the upper third. The text 'part 1 |' is located on the left side of this bar, and 'แนวคิดบางประการ' is written in white Thai script on the right side of the bar.

part 1 |

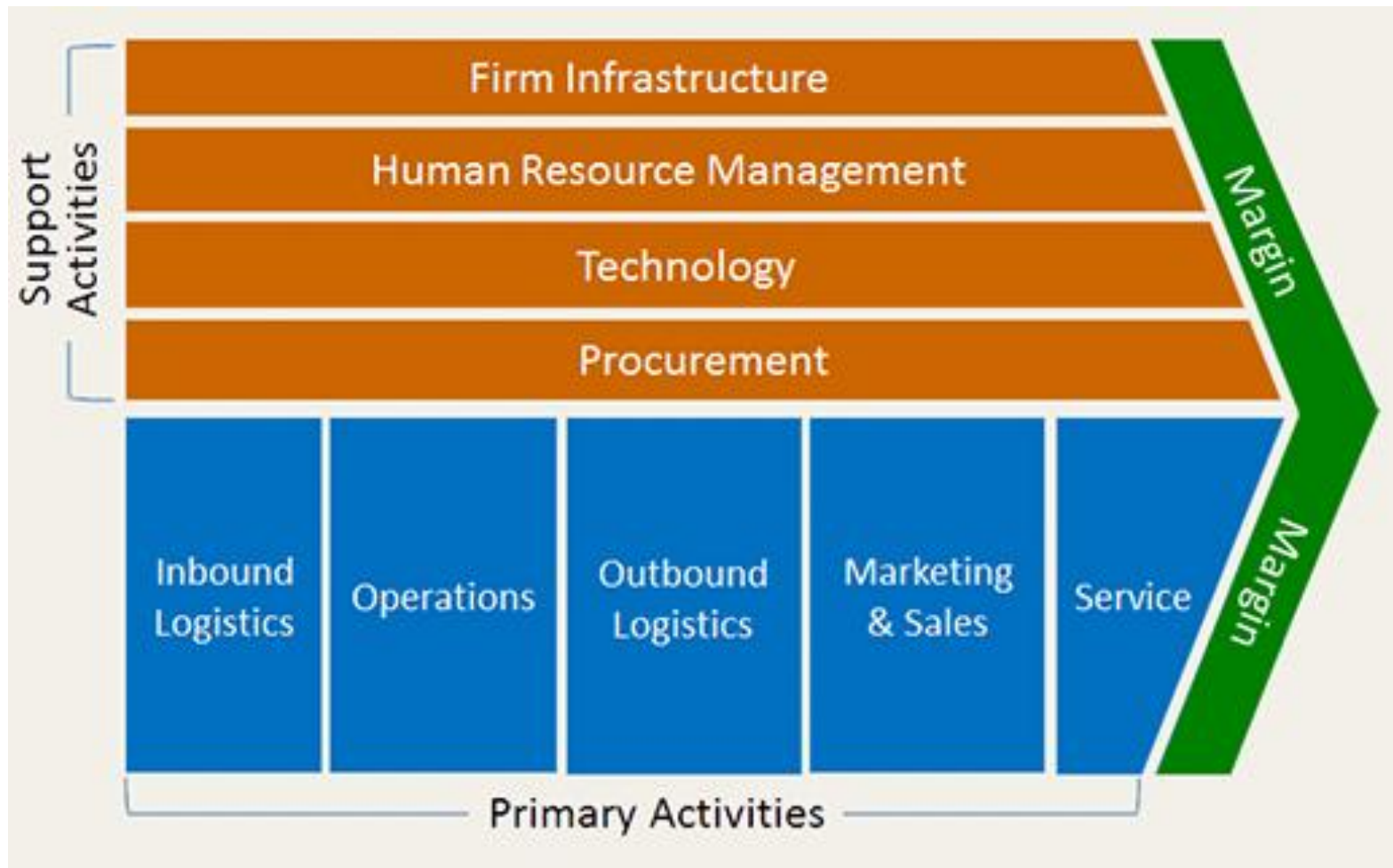
แนวคิดบางประการ

Policy Analysis & Politics





Value Chain

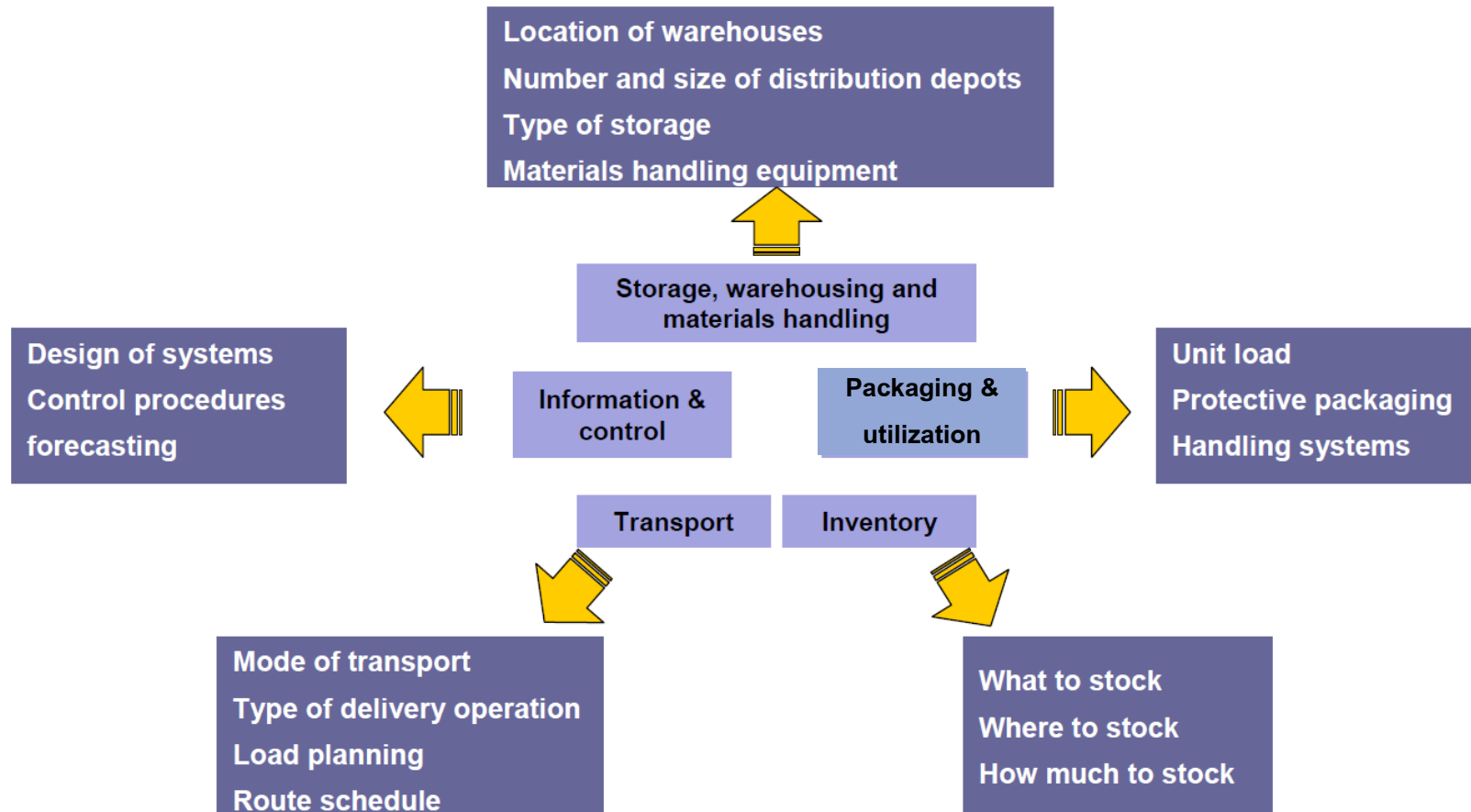


Logistics Definition

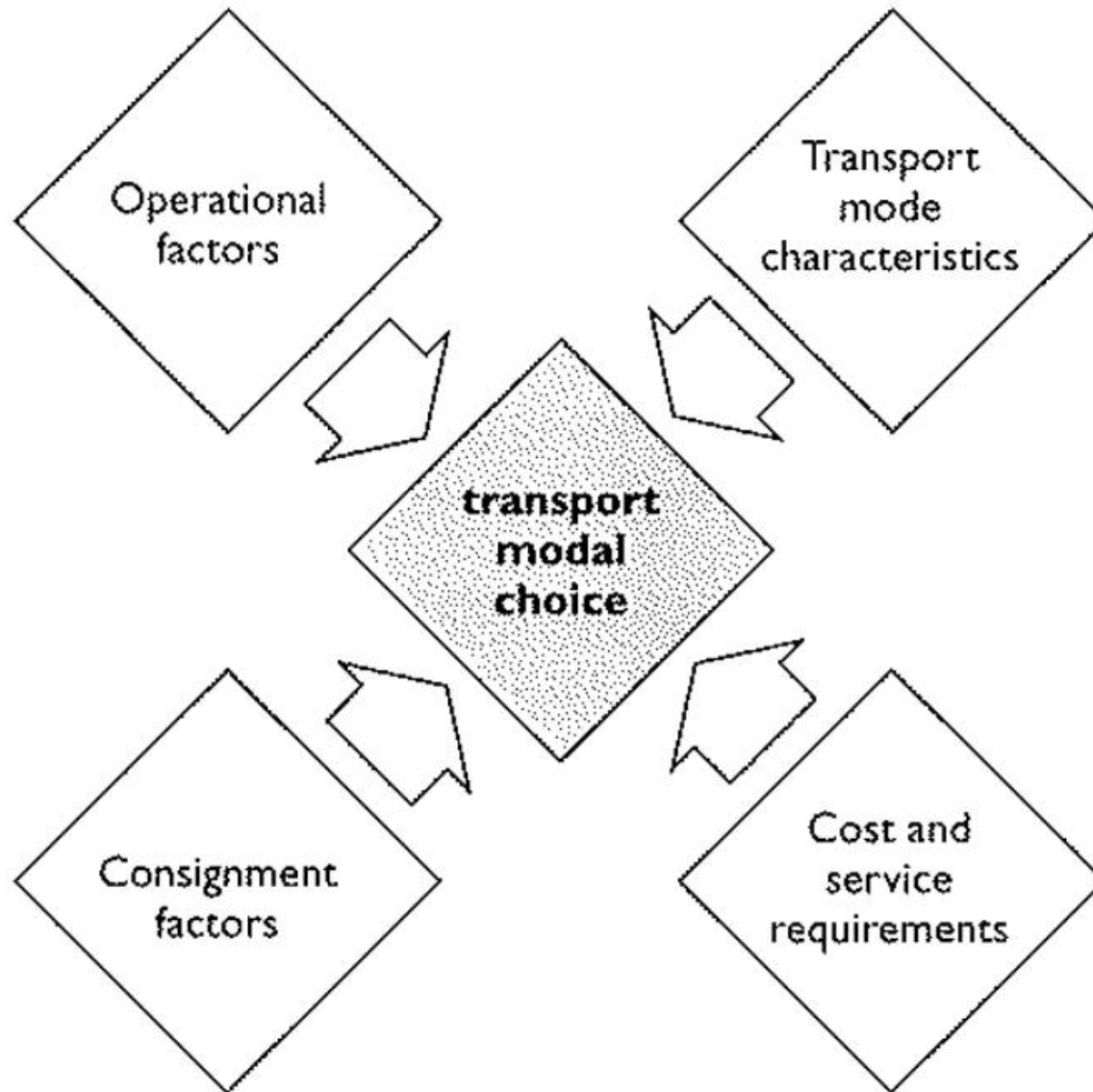
Logistics is... the positioning of resource at the right time, in the right place, at the right cost and at the right quality.

Logistics = Materials management + Distribution

Supply Chain = Suppliers + Logistics + Customers



Modal Choice Selection Process



Modal Choice Matrix

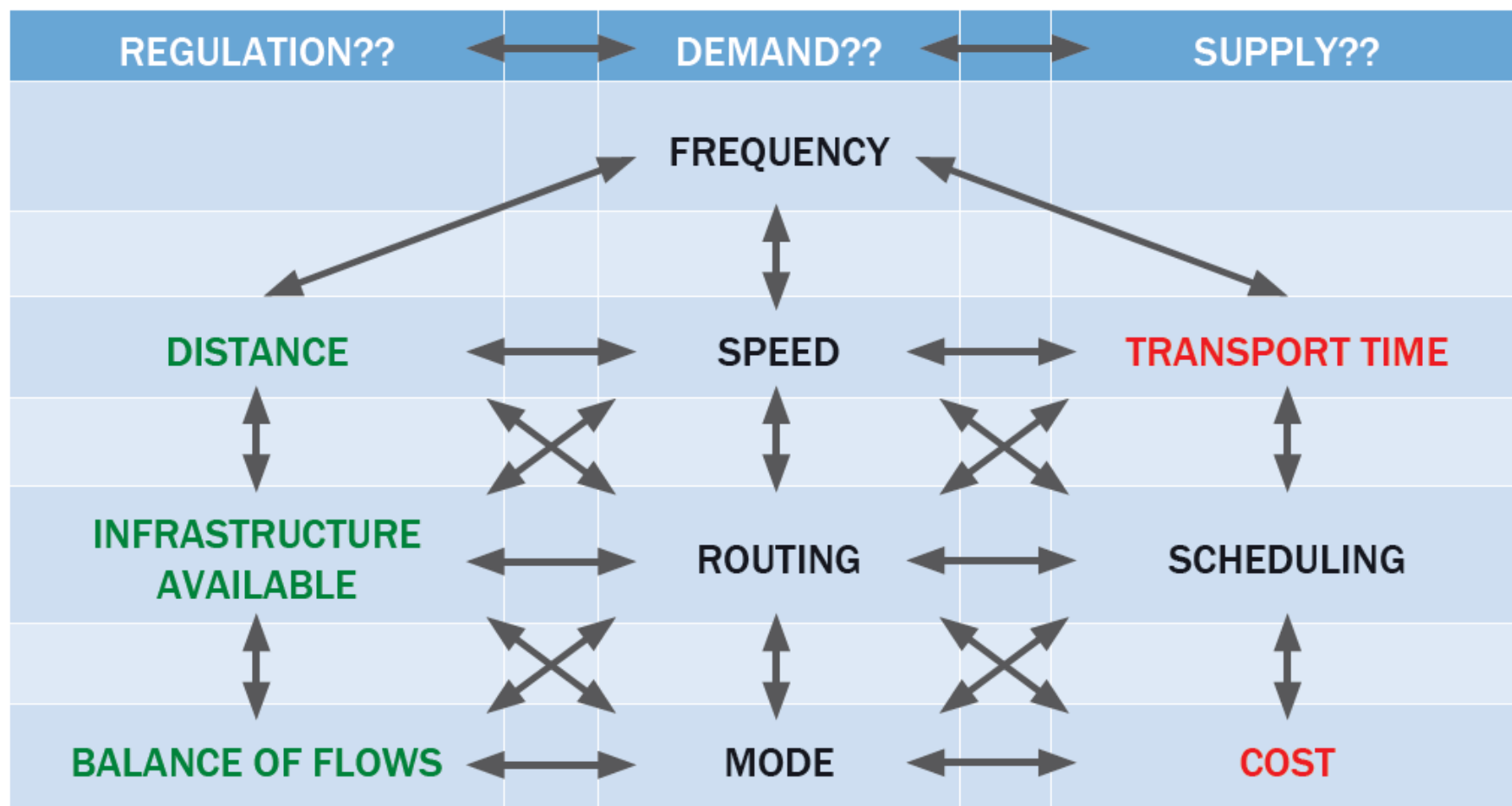
Size of order/load	100T	Road	Road/rail	Rail/sea	Sea
	20T	Road	Road	Road/rail	Road/rail
	Pallet	Road	Road	Road/rail	Air/sea
	Parcel	Post/road	Post/road/air	Post/road/air	Post/air
		Short	Medium	Long	Very long
Delivery distance					

The Complexity of Interconnected Variables in Logistics

**IMPACT OF
POLICY &
GEOGRAPHY**

**LOGISTICS DEMAND IS
ALWAYS DERIVED
DEMAND**

**DECISIONS BY
SERVICE PROVIDERS
AND **OUTCOMES****



Terminology, and Types of goods

	Excludable	Non-excludable
Rivalrous	<i>Private goods</i> food, clothing, cars, personal electronics	<i>Common goods</i> <i>(Common-pool resources)</i> fish stocks, timber, coal
Non-rivalrous	<i>Club goods</i> cinemas, private parks, satellite television	<i>Public goods</i> free-to-air television, air, national defense

Regional Public Goods by Sectors

Health: prevalence of weakest-link and best-shot public goods (capacity concerns)

- vaccines for region-specific diseases
- monitoring disease outbreaks
- developing best practices for treating region-specific diseases
- maintaining sterilization in hospitals

Environment: prevalence of summation and weighted sum public goods (need for information)

- curbing acid rain
- reducing transboundary haze
- preserving rain forests
- preventing floods

Knowledge: prevalence of best-shot public goods (pooling efforts; leadership)

- agriculture extension services
- network of data and information exchange
- geoclimatic-specific research findings
- mapping spillovers of public goods

Regional Public Goods by Sectors (cont.)

Governance: prevalence of weakest-link public goods (coordination needed)

- adopting sound financial practices
- monitoring financial practices (Regional Economic Monitoring Unit in Asia)
- harmonizing transport conventions
- eliminating trade barriers

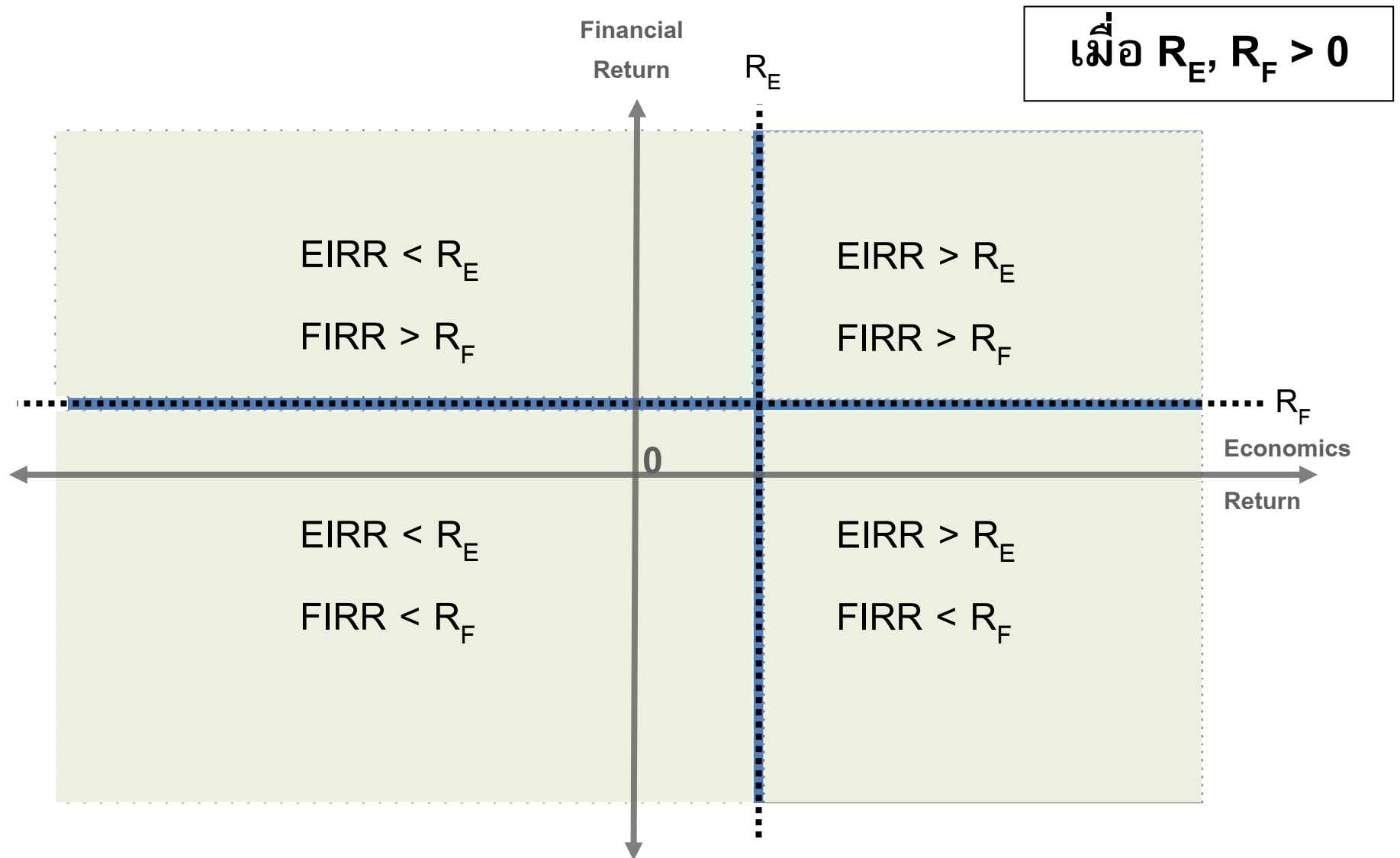
Peace and security: prevalence of weakest-link public goods (coordination and capacity)

- eliminating insurgencies
- reducing terrorism
- combating organized crime
- uncovering intelligence

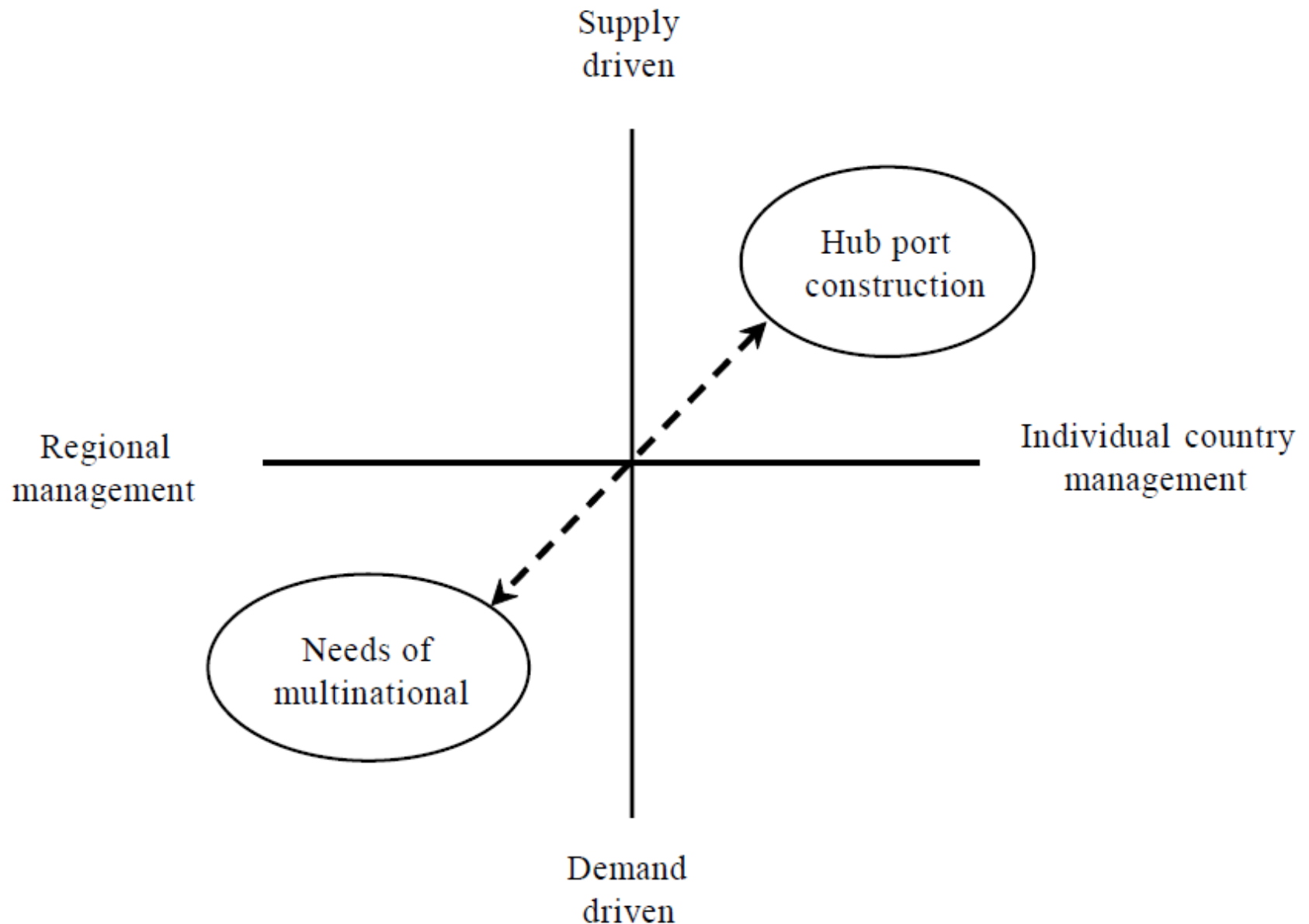
Infrastructure: summation and weakest-link public goods (coordination and capacity), club goods

- river development (Greater Mekong Subregion program)
- interstate highways
- energy grids
- rail transport (harmonization of gauge and practices)

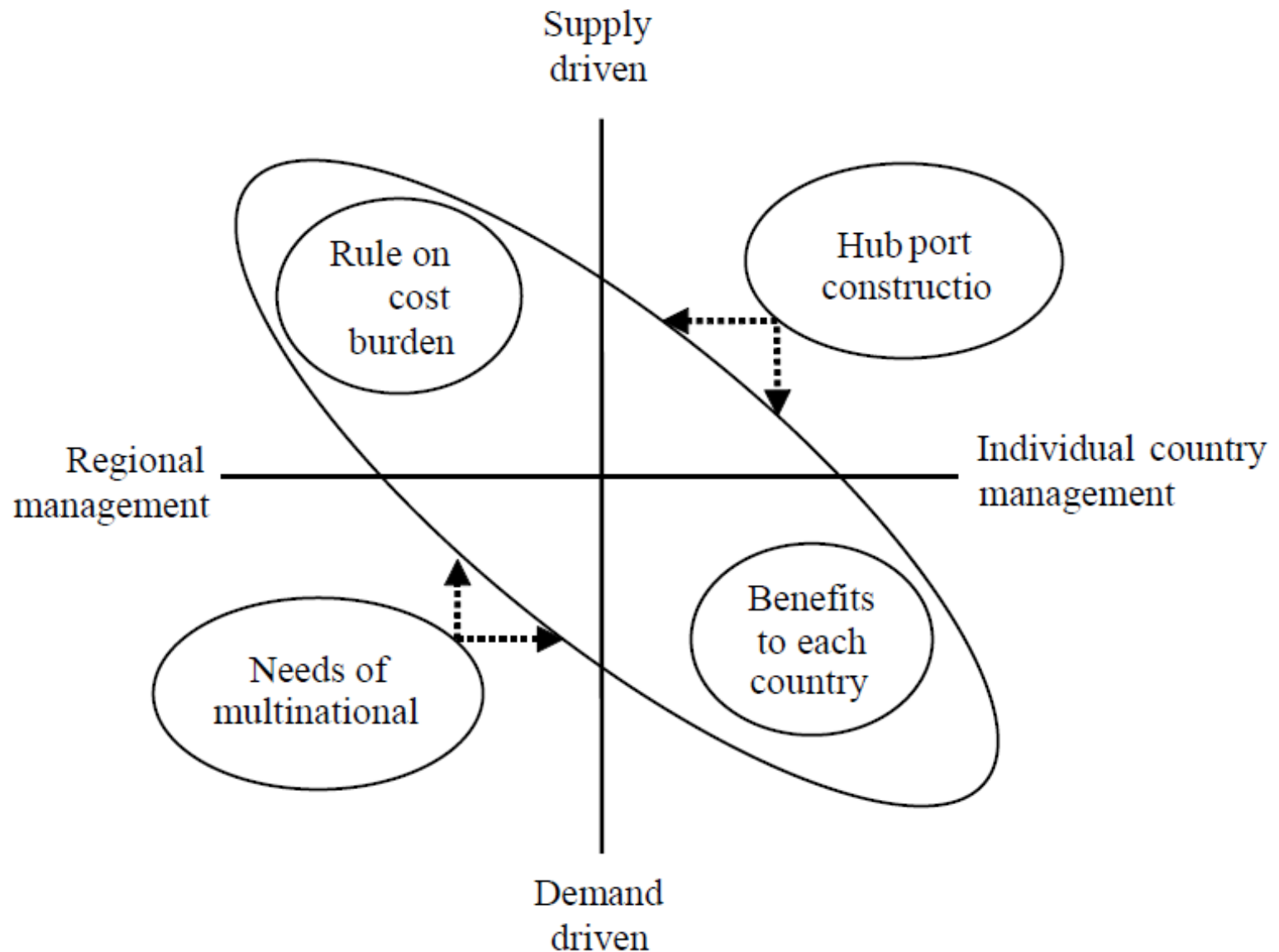
ผลตอบแทนทางการเงิน vs. ผลตอบแทนทางเศรษฐศาสตร์

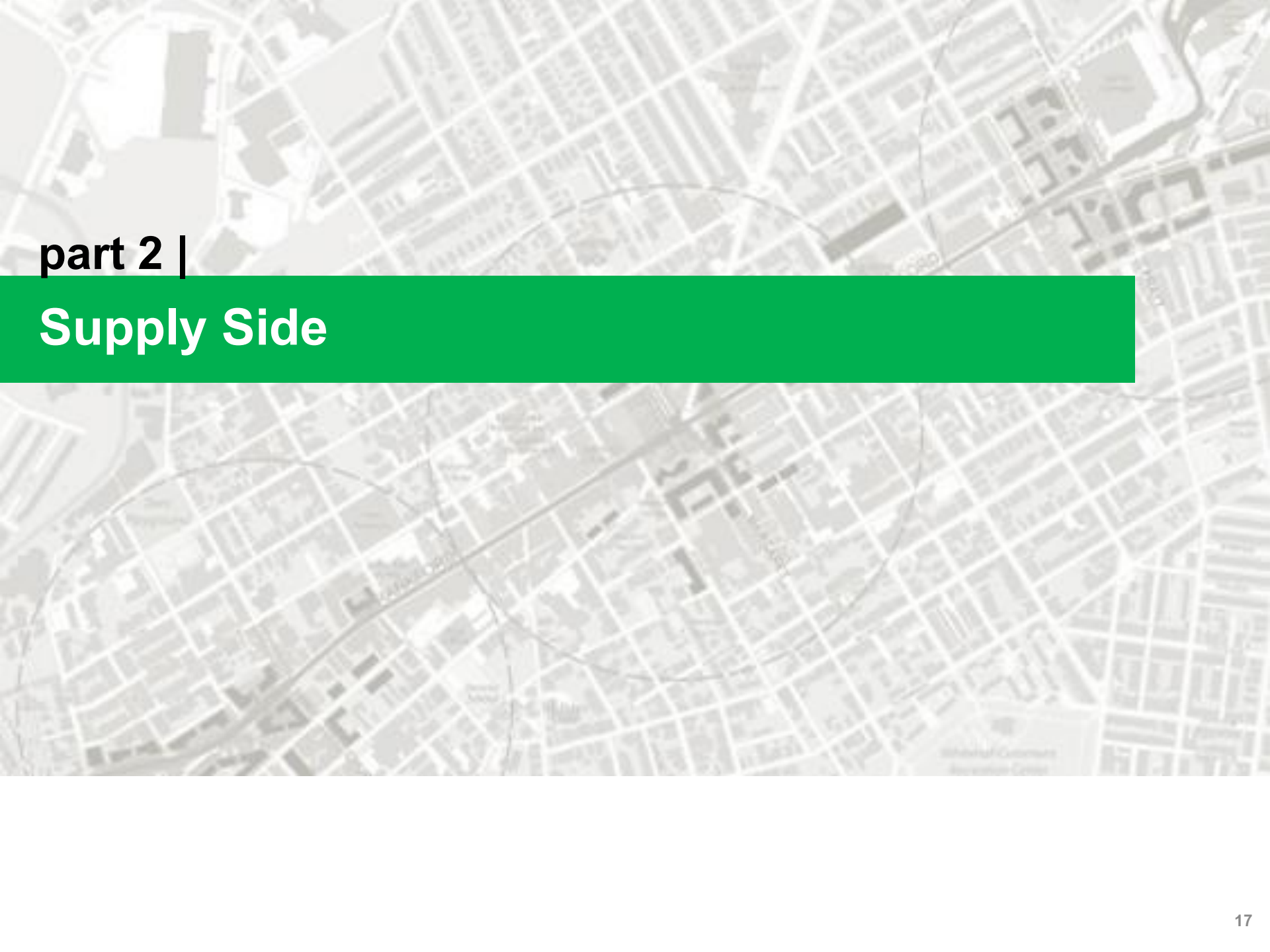


Gap between globalized shippers' needs and infrastructure supply of each country



Planning framework for international freight transportation infrastructure by international cooperation

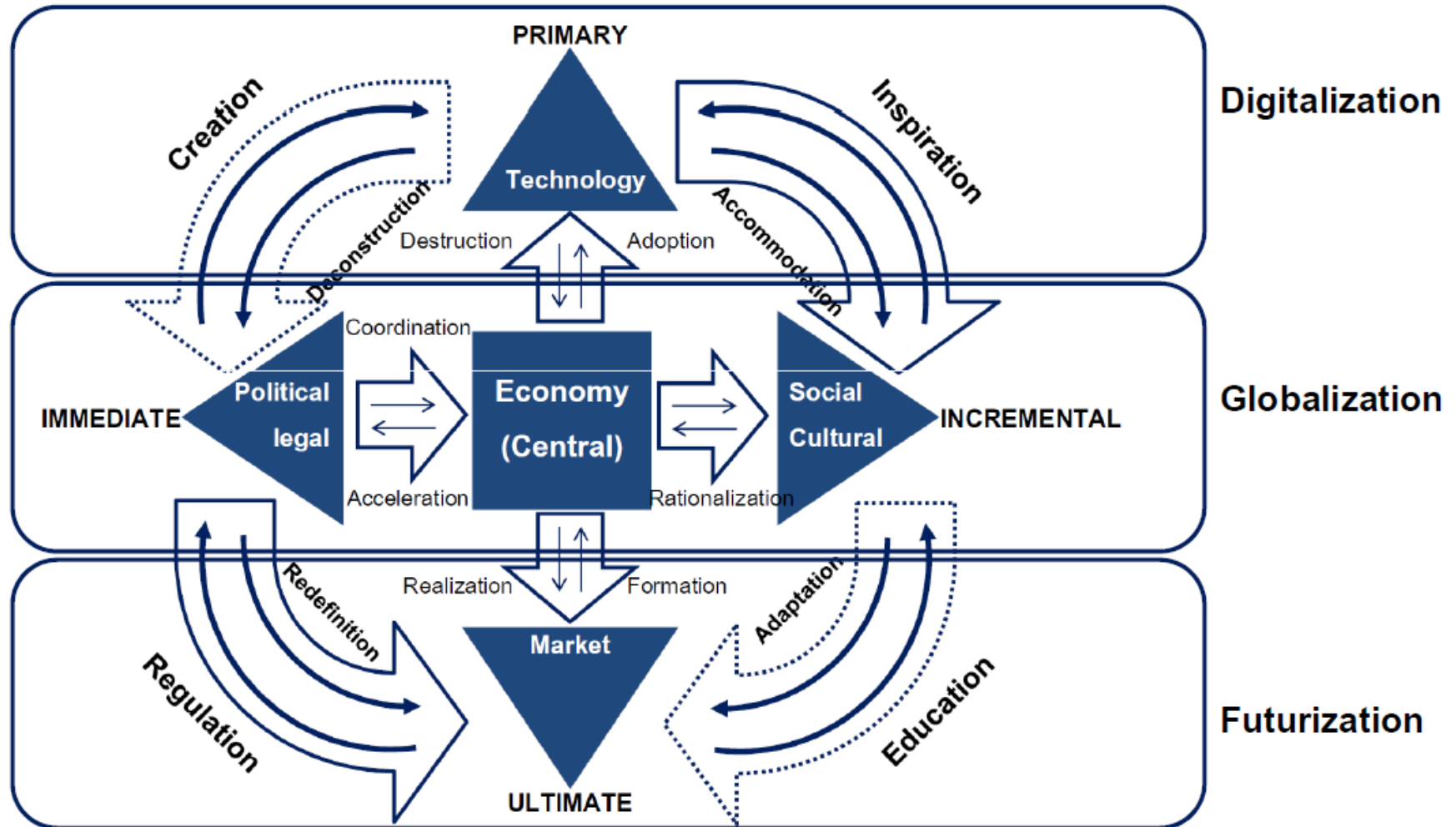


An aerial photograph of a city grid, likely New York City, showing streets, buildings, and parks. A green horizontal bar is overlaid on the image, containing the text 'part 2 | Supply Side'.

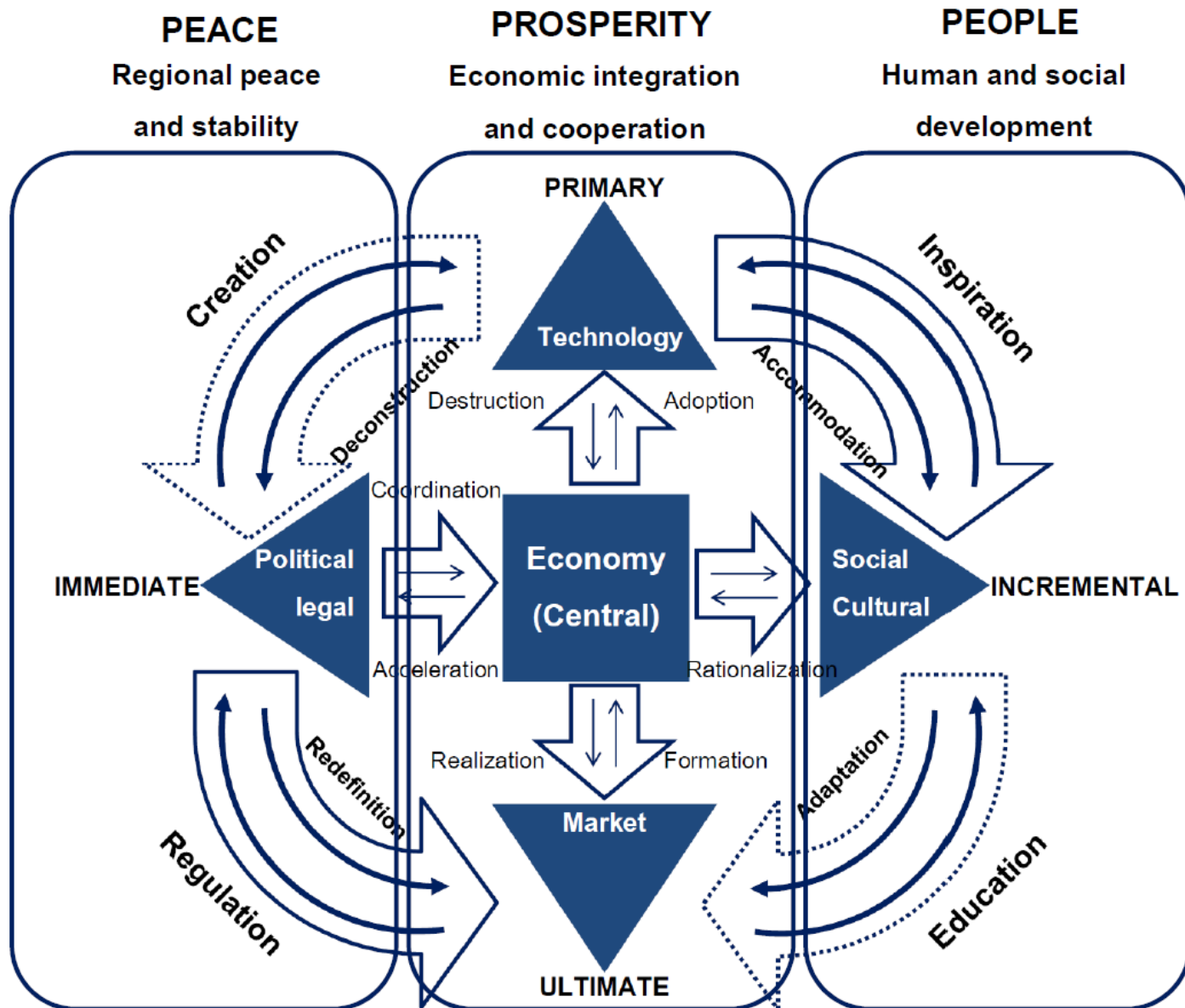
part 2 |

Supply Side

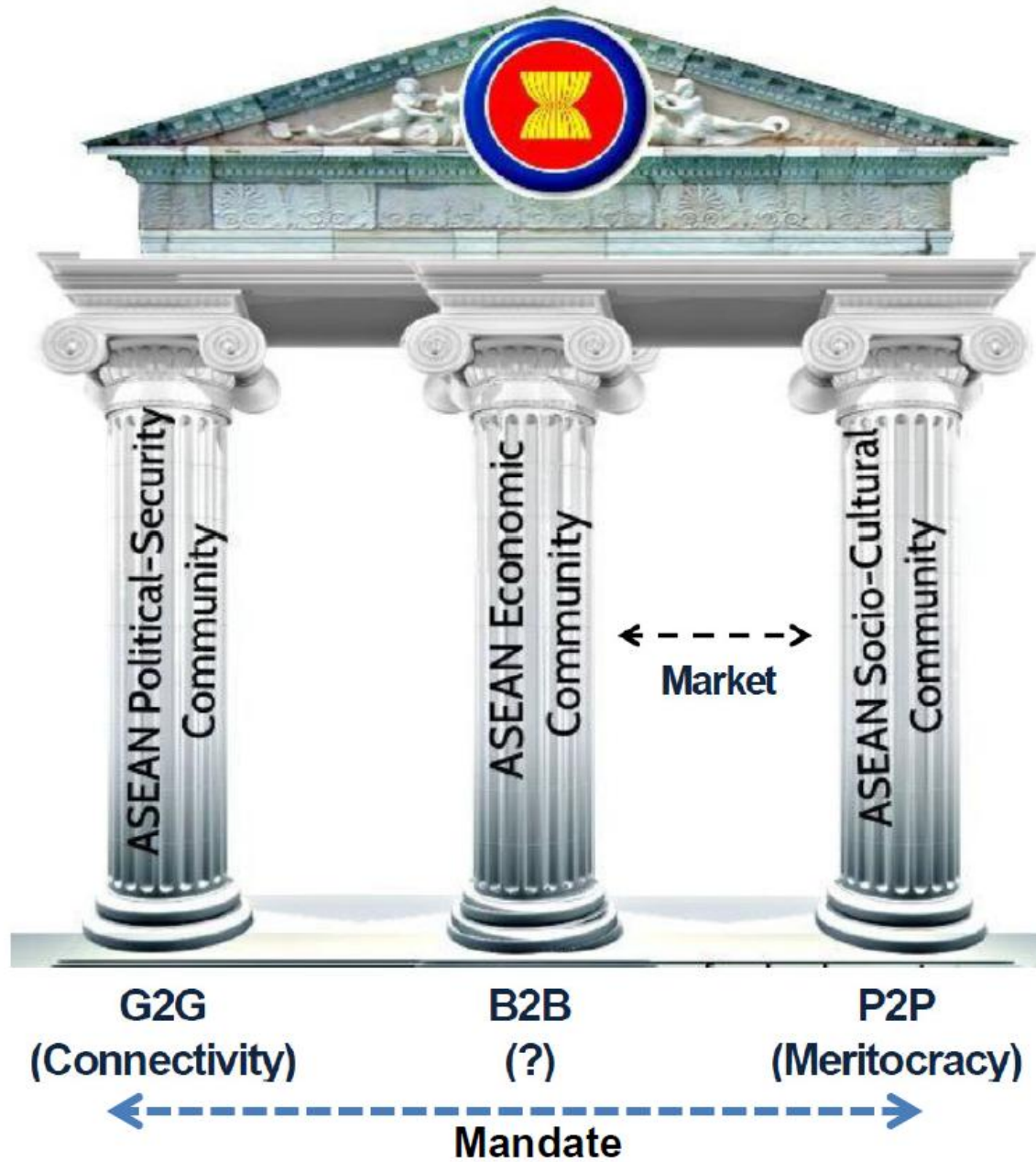
The Horizontal Stream of Change



The Vertical Stream of Change



ASEAN Community



Pillars of Prosperity Index and components

$$PoPi = \frac{S_i + P_i + Y_i}{3}$$

$PoPi$ = Pillars of Prosperity index

S_i = State – Capacity index (institutional capability of state to carry out various policies that deliver benefits and services to HH & firms)

P_i = peacefulness index (conflicting interests can be resolved peacefully; the inverse of political violence)

Y_i = income index (defining qualities of a developed country)

Country	Index Value	Peacefulness	State capacity	Income
Myanmar	0.240	0.032	0.447	n/a
Cambodia	0.340	0.323	0.324	0.372
Vietnam	0.441	0	0.462	0.420
Laos	0.487	0.968	0.162	0.331
China	0.607	0.823	0.435	0.563
Bhutan	0.715	1	0.682	0.464
Thailand	0.724	0.984	0.588	0.600
Malaysia	0.777	1	0.612	0.720
South Korea	0.873	0.935	0.908	0.775
Singapore	0.874	1	0.738	0.884
United States	0.893	0.839	0.950	0.891
Japan	0.918	1	0.926	0.828
Australia	0.918	1	0.901	0.854

Source: Timothy Besley und Torsten Persson , Pillars of Prosperity: The Political Economics of Development Clusters, Princeton University Press (2011)

Efficient Cross-Border Transport Models



การรวมตัวเพื่อให้เกิด
Market Integration



การมี Total Benefit ที่เพิ่มขึ้น
เนื่องจาก

- มี intra trading
- มี inter trading
- ภูมิภาคมี bargaining power



การแบ่งปันผลประโยชน์ร่วมกันระหว่างประเทศเพื่อนบ้าน

การรวมกลุ่มเศรษฐกิจ (Regional Economic Integration)

ความเชื่อมโยงของทิศทางการพัฒนา
ทั้งในประเทศไทยและของประเทศเพื่อนบ้าน

ผลักดันยุทธศาสตร์เชื่อมโยงโครงข่ายคมนาคมที่รองรับการพัฒนาด้านการผลิต
อุตสาหกรรม การท่องเที่ยว การค้าและการลงทุน (อาทิ แผนพัฒนาโครงข่ายทางราง การขนส่งต่อเนื่องหลายรูปแบบ
การพัฒนายุทธศาสตร์เชิงพื้นที่ ระบบบูรณาการด้วยเทคโนโลยีสารสนเทศ)

สร้างมูลค่าเพิ่ม
ตามหลักการ
บริหารห่วงโซ่อุปทาน
(Supply Chain)
และห่วงโซ่คุณค่า
(Value Chain) ตลอด
เส้นทางเศรษฐกิจ
(Economic corridor)

มิติการพัฒนา
ระบบการขนส่งและโลจิสติกส์
การเชื่อมต่อโครงข่าย
(Interconnectivity)
ความสามารถในการทำงานร่วมกัน
(Interoperability)
การเข้าถึงตลาด
(Market Access)

รูปแบบการลงทุน
และ
แผนการดำเนินงาน
(Business Plan)

การแบ่งปัน
ผลประโยชน์ร่วมกัน
(Sharing the
Benefits)
ระหว่างประเทศ
เพื่อนบ้าน

มิติการพัฒนาการขนส่งและโลจิสติกส์ระหว่างประเทศ

Dimensions of Measurement

Interconnectivity

- Single Window Inspection
- Single Stop Inspection
- ASEAN Single Window
- Customs Integration
- Customs Transit System



Interoperability

- Harmonization of Transport Infrastructure
- Transport units
- Certification of transport units / truck drivers
- Standards
- Road Pricing
- Allocation of liabilities (Insurance)



Market Access

- Mode 1: Cross-border supply
- Mode 2: Consumption abroad
- Mode 3: Commercial presence
- Mode 4: Presence of natural persons



Performance

Cost/Time Reduction

- Shorten Door-to-Door routes
- Reduce Door-to-Door Delays
- Reduce Administration
- Reduce Processing Time
- Simplify Handling of Vehicles and Cargo
- Value added
- Reduce Delays

Cost/Time Reduction

- Increase cross border competition and provide economies of scale
- Reduce Equipment exchange

Cost/Time Reduction

- Reduce Equipment Exchange and cargo handling
- Improve Variety and Quality of Services
- Increase Availability of Services
- Introduce Competitive Pricing and Variety of Services

**Increase Trade/ Investment
& Reduce Poverty**

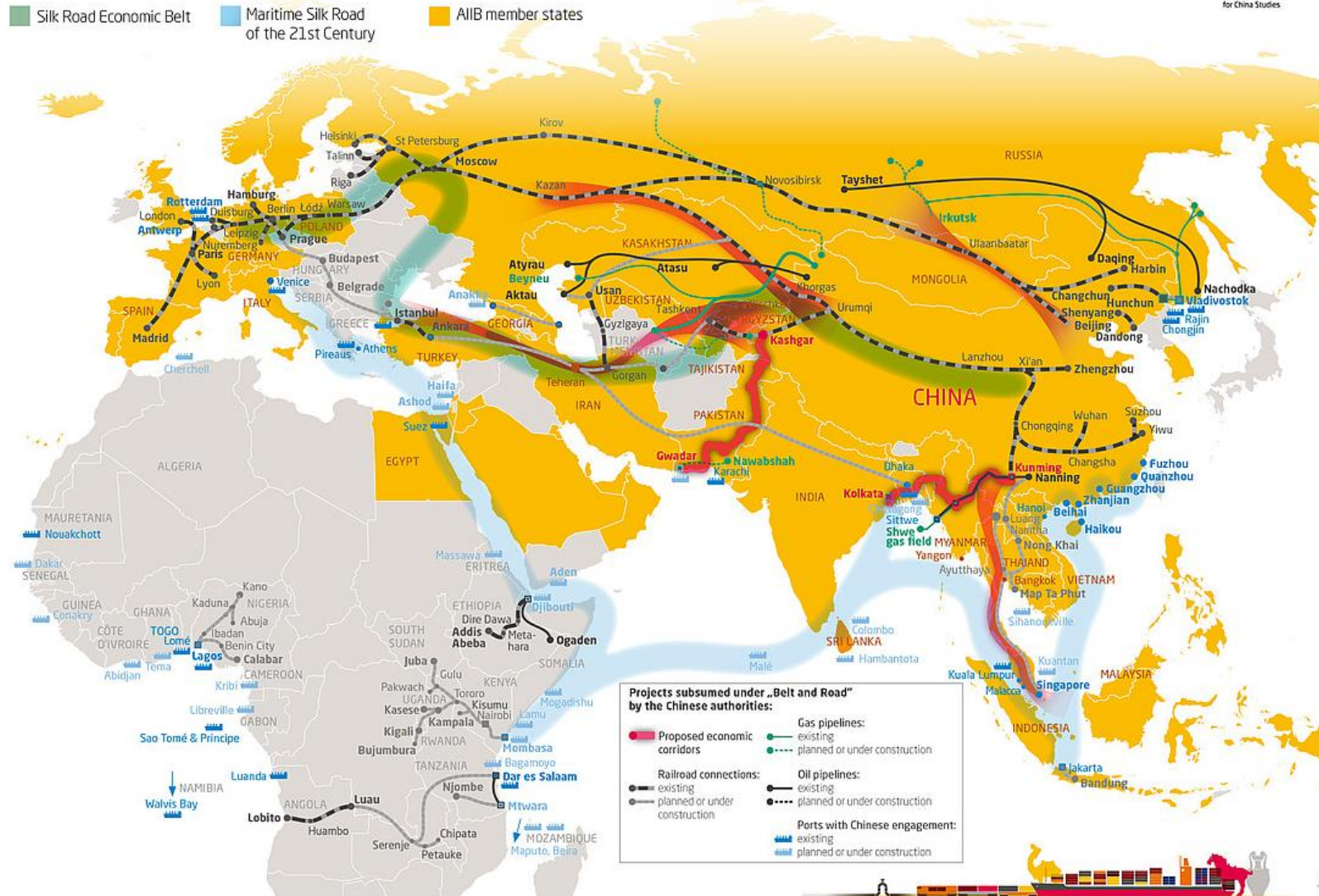
Sharing Total Benefit จะเกิดขึ้นหรือไม่ ขึ้นอยู่กับอะไร



1. Business as Usual (Informal Payment)
2. Supply Chain Redesign
3. Infrastructure Requirement
4. การขนส่งแบบวิ่งทะเล vs วิ่งผลัด
5. Producer Benefit vs Logistics Service Provider Benefit
6. CIQ & NSW
7. Insurance
8. พวงมาลัยซ้าย-ขวา
9. Fleet Size
10. Fuel Station

China Aims to Build a Global Infrastructure Network

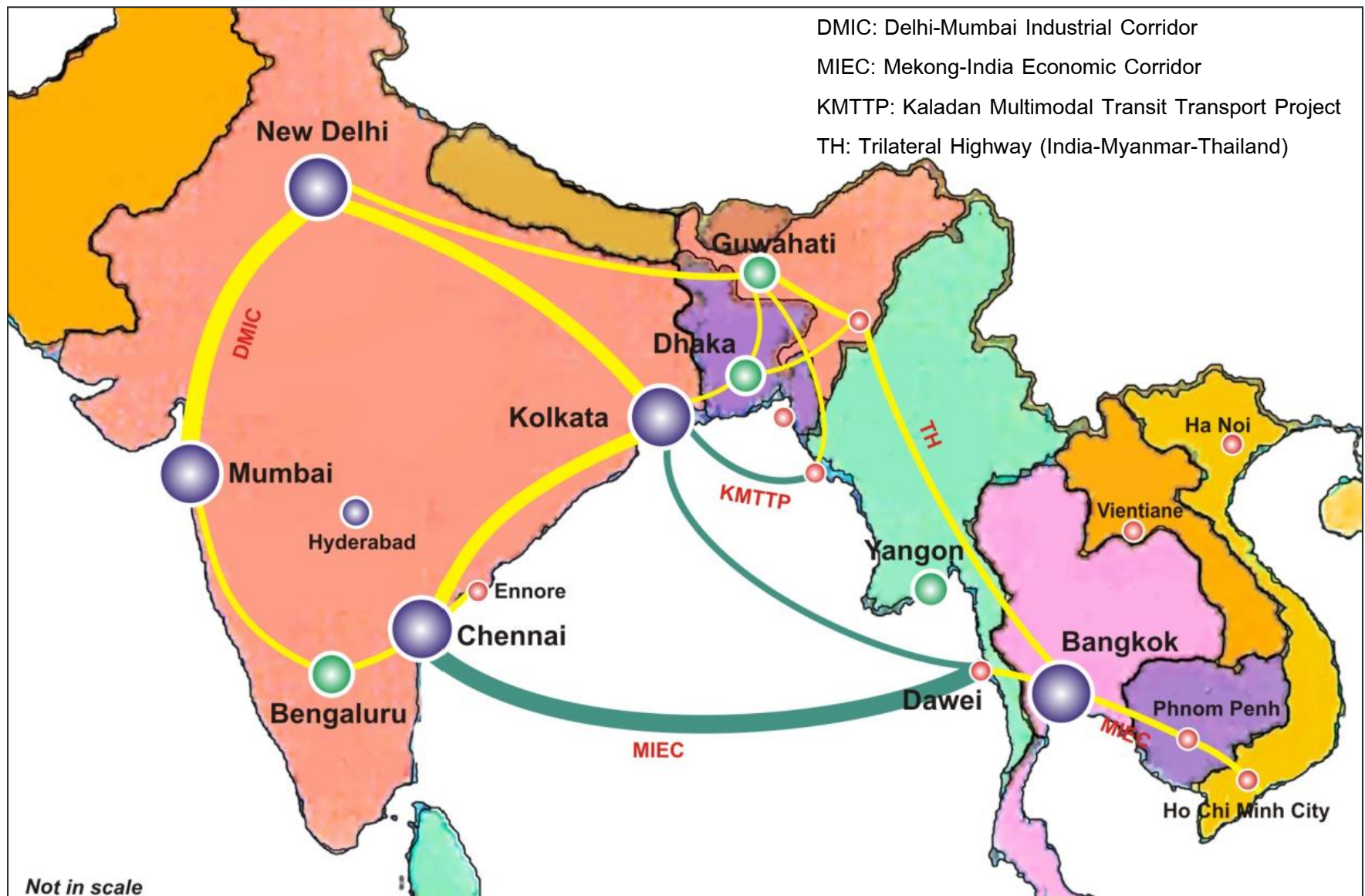
China aims to build a global infrastructure network
 “Belt and Road” infrastructure projects, planned and completed (March 2017)



Source: MERICS research

Source: http://www.steelavailable.com/wp-content/uploads/2017/05/csm_170515_MERICS_China_Mapping_BRI_March_2017_01fad158d1.jpg

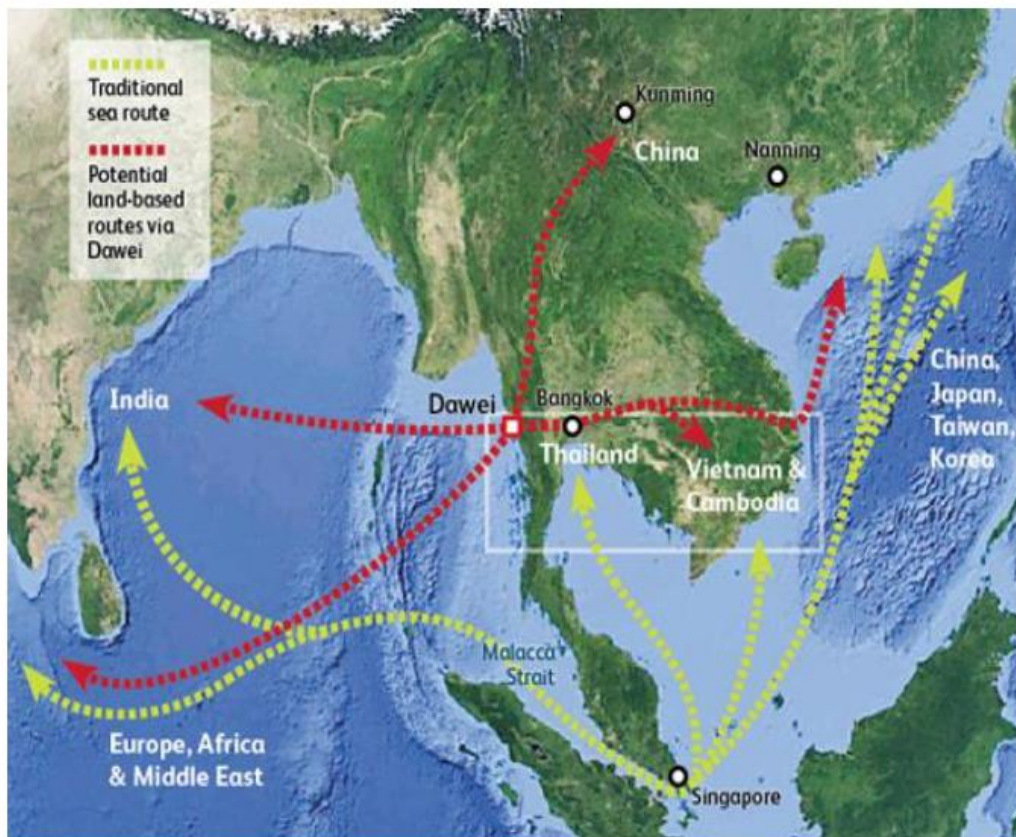
Layout of India's Major Connectivity Projects with ASEAN



Strategic location: New gateway to the West

Dawei SEZ opens a new gateway to the West - linking India, Europe, Africa and Middle East with ASEAN & East Asia nations, ...

Dawei's strategic location: New gateway to the West



Key highlights

- > **Strategic location:** New gateway to the West connecting Indian and Pacific Oceans
 - Linking between Southeast Asia and South Asia, the Middle East, Europe and Africa
 - Bypass the Malacca Strait via potential land-based routes
 - Shortening the distance by approximately 50% and reducing 3 days of the shipment time from Bangkok to Chennai, India¹⁾
- > **Connecting GMS Southern Corridor markets to the West:** ~USD 120 Bn total trade flow of Thailand, Cambodia, Vietnam to the Western markets
- > **MIEC²⁾ linkage:** complete linkage to India via Chennai – Dawei's deep sea port

1) from 4,500 km via the Malacca Strait vs 2,500 km via Dawei's deep sea port; 2) Mekong-India Economic Corridor
Source: Globalasia, NESDB

การบูรณาการเชื่อมโยงด้านโครงสร้างพื้นฐานและการดึงดูดนักลงทุน

ฉะเชิงเทรา ชุมชนนำอยู่มาตรฐานโลกรองรับกรุงเทพฯ

ชลบุรี-ศรีราชา

เมือง/ศูนย์กลางการศึกษา
นานาชาติ รองรับ
อุตสาหกรรมรถยนต์/อากาศยาน/อิเล็กทรอนิกส์

ท่าเรือแหลมฉบัง

ท่าเรือระดับโลก
เชื่อม AEC จีน-อินเดีย

พิกษา-สัตหีบ-ระยอง

เขตท่องเที่ยวภาคตะวันออก
(เชิงธุรกิจ-ครอบครัว-สุขภาพ)
นำโดยสนามบินพิกษาอู่ตะเภา

ระยอง

เมืองนานาชาติมาตรฐานโลก
นำอยู่ที่สุดในอาเซียนธุรกิจ
ทันสมัยวิจัยด้านอาหาร
และไบโอเทคโนโลยี

สนามบินอู่ตะเภา ท่าเรือจุลสมิต

ศูนย์กลางคมนาคม
ถนน-เรือ-เครื่องบิน-รถไฟความเร็วสูง
ศูนย์ธุรกิจการบิน
(ซ่อม-ส่งสินค้า-พัฒนาคน)

การเชื่อมโยงพื้นที่

ชายฝั่งทะเลตะวันออกกับอนุภูมิภาค



- เชื่อมโยงท่าอากาศยาน 3 แห่ง (สุวรรณภูมิ ดอนเมือง และอู่ตะเภา)
- เชื่อมโยงการคมนาคมขนส่งทางถนน ทางราง ทางเรือ และทางอากาศ
- พัฒนากำแพง
- เพิ่มศักยภาพการท่องเที่ยวทางทะเลการเชื่อมโยงกับท่าเรือท่องเที่ยว 2 แห่ง (อ่าวไทยและอันดามัน)

ที่มา : กระทรวงอุตสาหกรรม

Eastern Economic Corridor: EEC

EASTERN ECONOMIC CORRIDOR (EEC)

4 Core Areas 15 Projects and
5 High Priority Projects

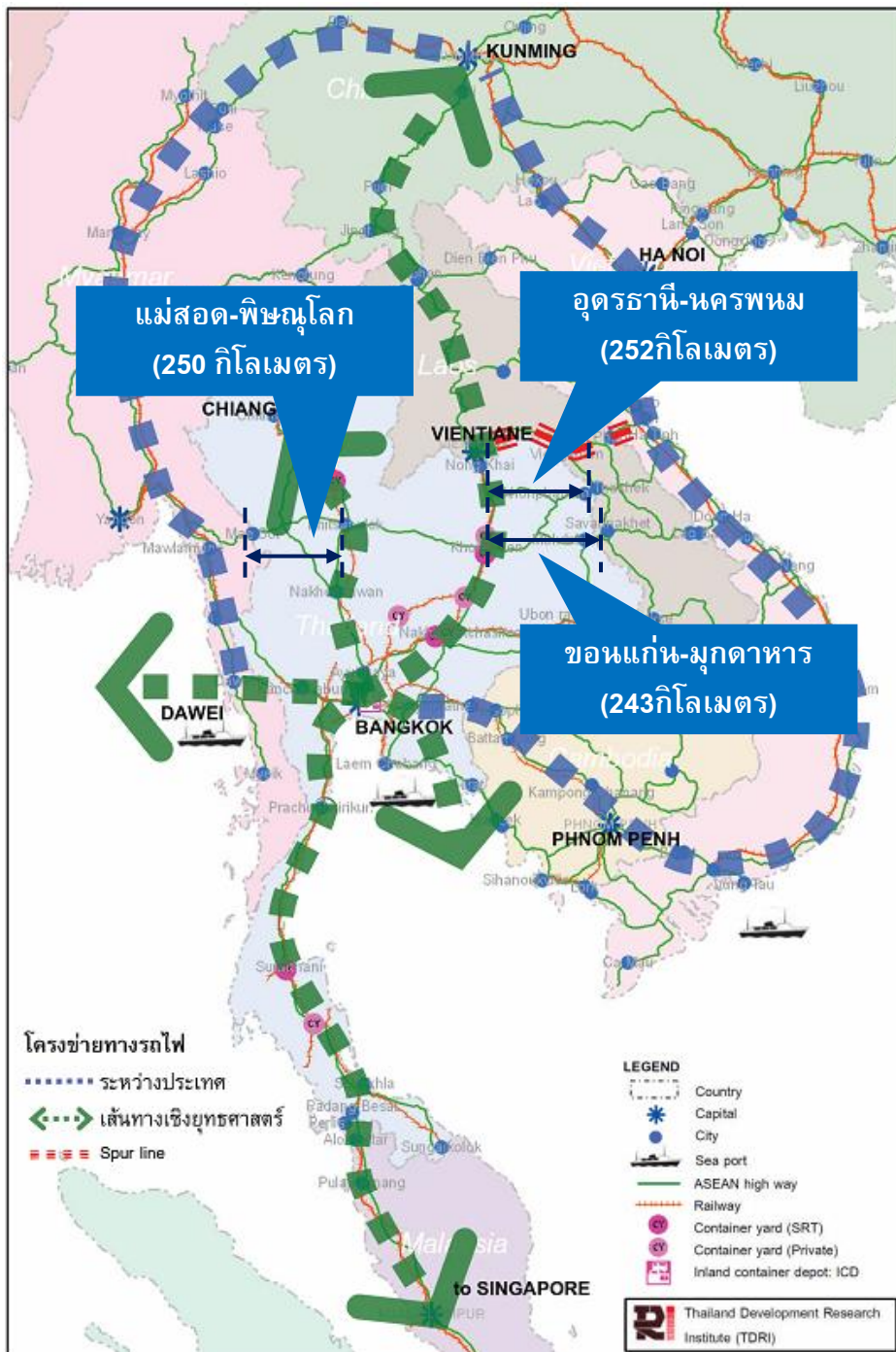


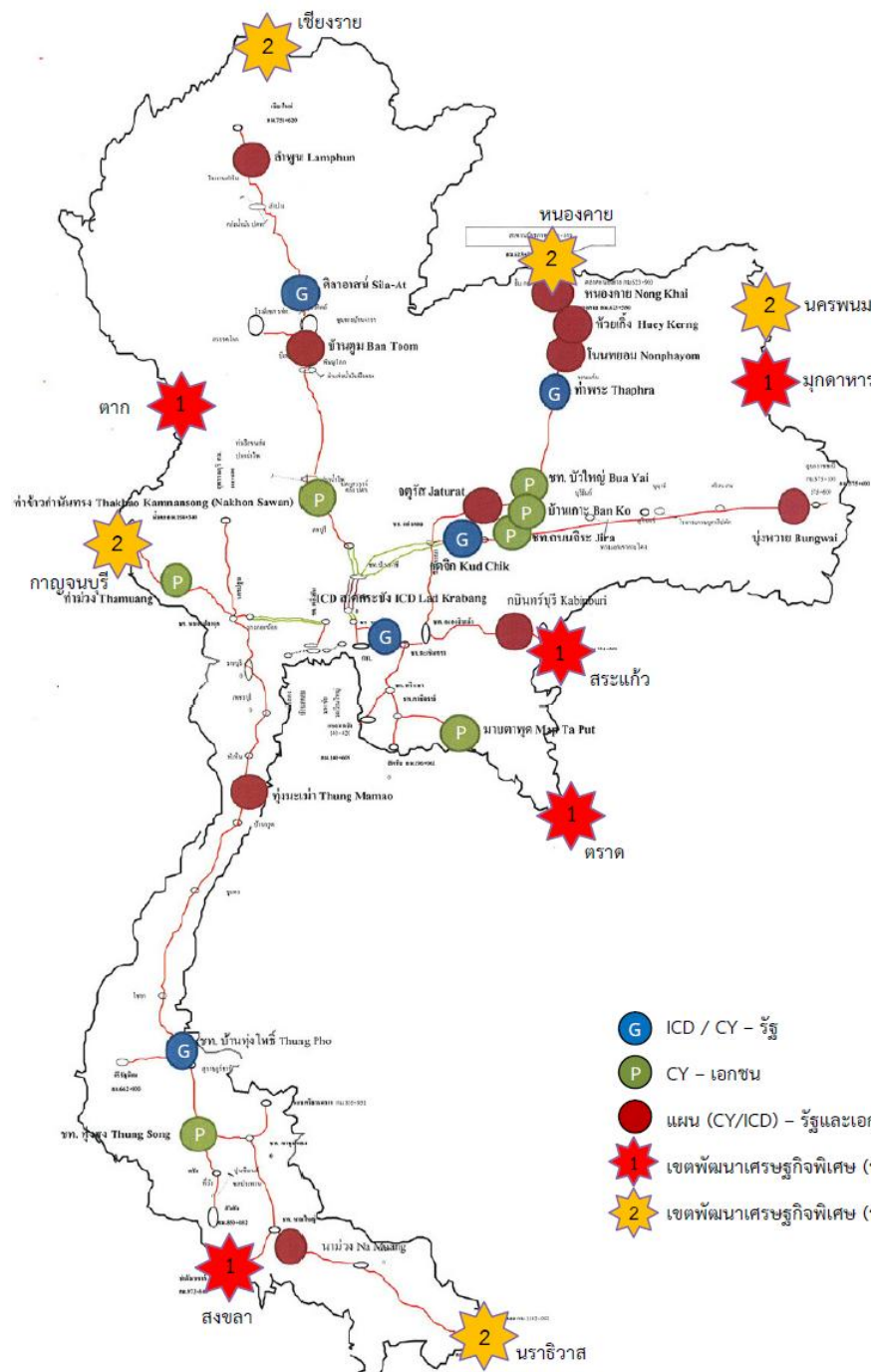
1	U-Tapao Airport and Aircraft Maintenance
2	Sattahip Commercial Seaport
3	Laem Chabang Port Phase 3
4	Map Ta Phut Port Phase 3
5	High Speed Rail – Eastern Route
6	Double Track Railway
7	Highways & Motorway
8	Next Generation Automotive (EV/AV)
9	Aviation Industry, Robotics, Smart Electronics
10	Advanced Petrochemical and Bioeconomy
11	Medical Hub
12	Tourism
13	Global Business Hub / Free Economic Zone
14	New Cities, Inclusive Growth
15	Public Utilities
5 High Priority Projects	



แนวแกนหลักการขนส่งทางรถไฟ (Backbone)

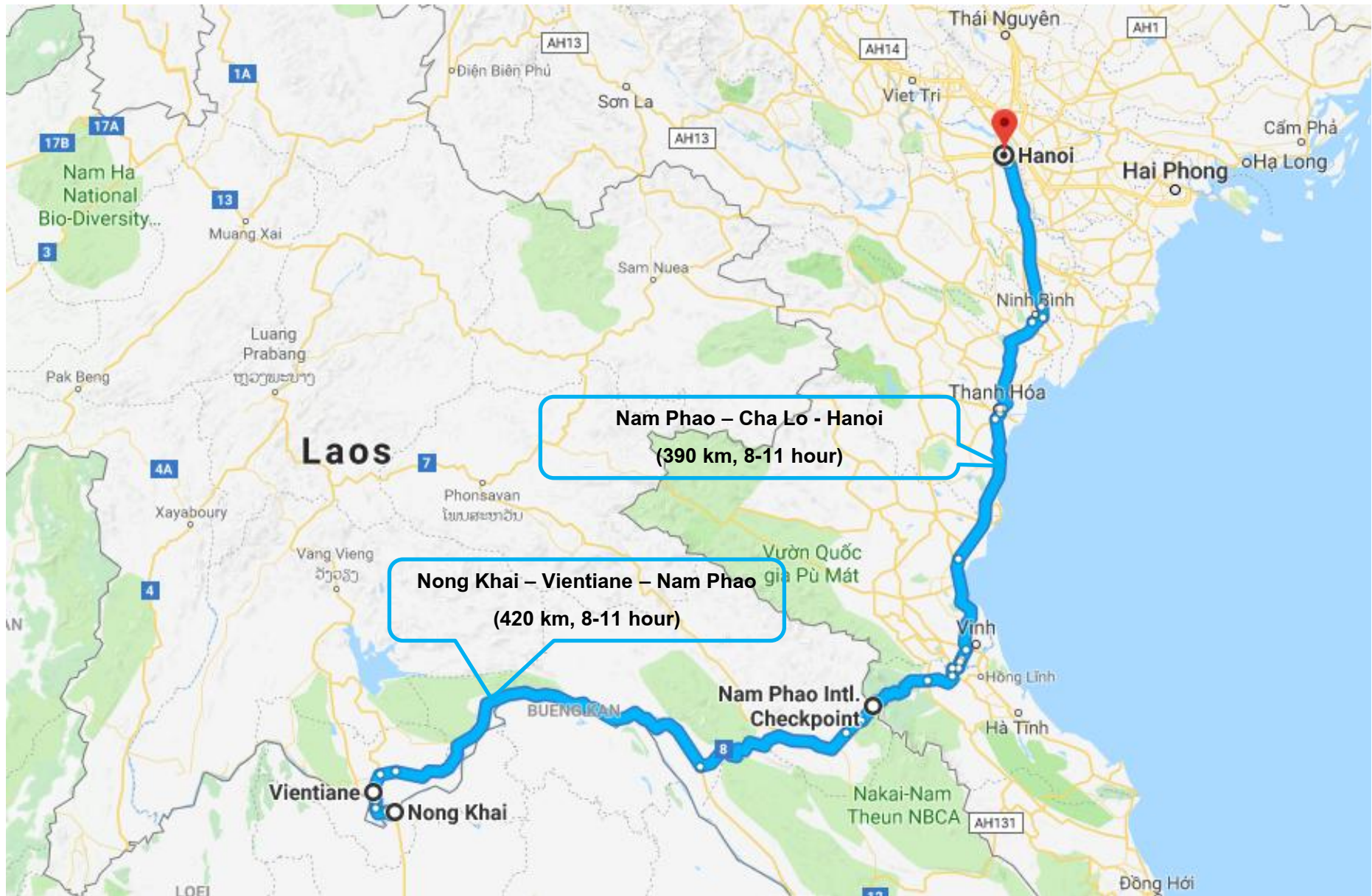
- การพัฒนาการเชื่อมต่อทางรถไฟเส้นหลัก (Trunk line) ในแนวเหนือ-ใต้ ถือเป็นก้าวสำคัญของการเชื่อมโยงโครงข่ายการขนส่งทางรถไฟระหว่างประเทศ
- การขนส่งทางรถไฟเป็นแกนหลักของการขนส่งโดยมีการขนส่งทางถนนสนับสนุน (Feeder) การกระจายสินค้า ในลักษณะของการขนส่งแบบวิ้งผลัด
- ระยะทางการขนส่งจากแนวรถไฟเส้นหลักไปยังด้านชายแดนมีระยะทางที่ไม่ไกลมากนัก (ประมาณ 250 กิโลเมตร)





เขตพัฒนา
เศรษฐกิจพิเศษและ
ย่านเก็บกอง
และขนถ่ายตู้สินค้า

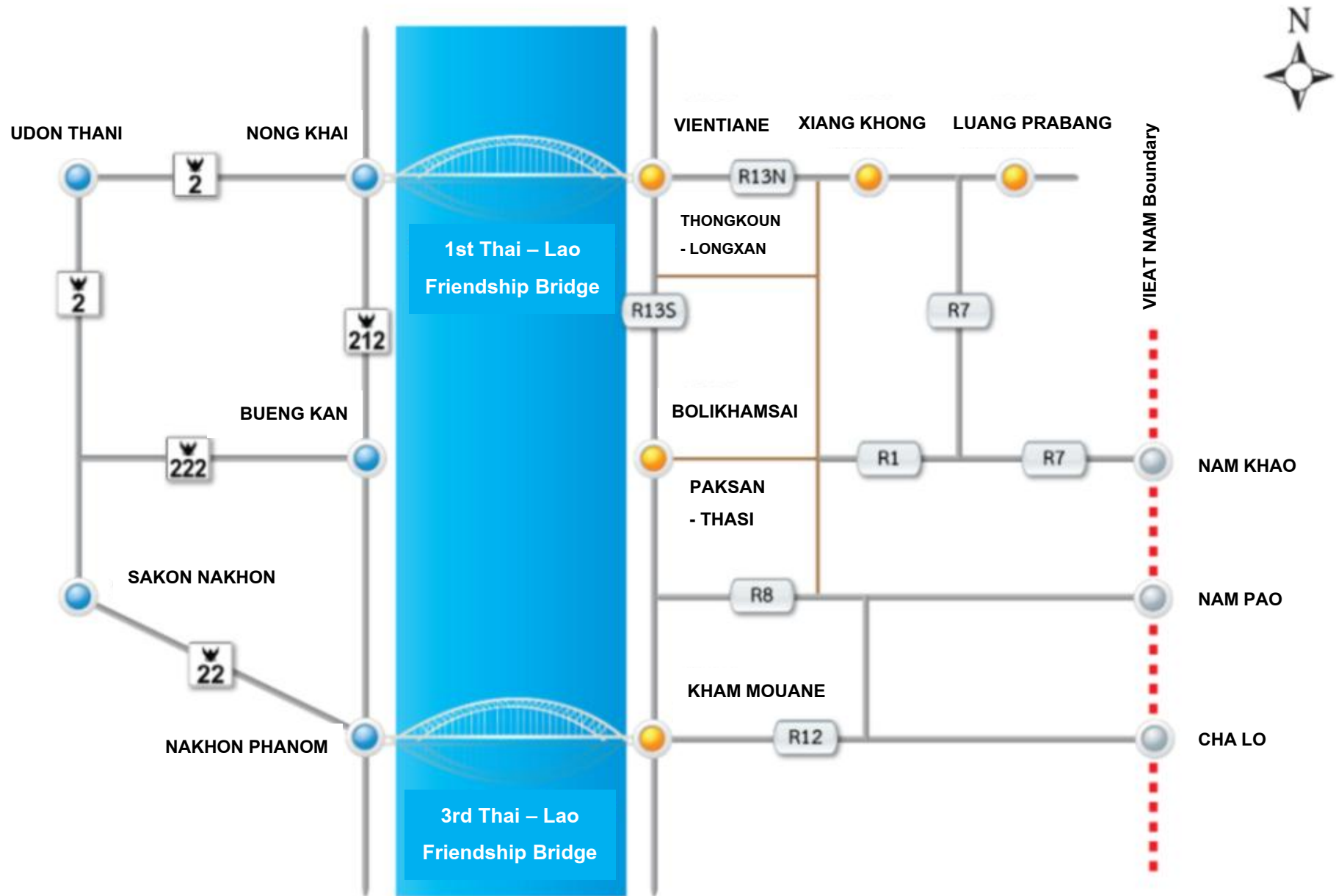
The Hanoi-Vientiane Expressway Development Project



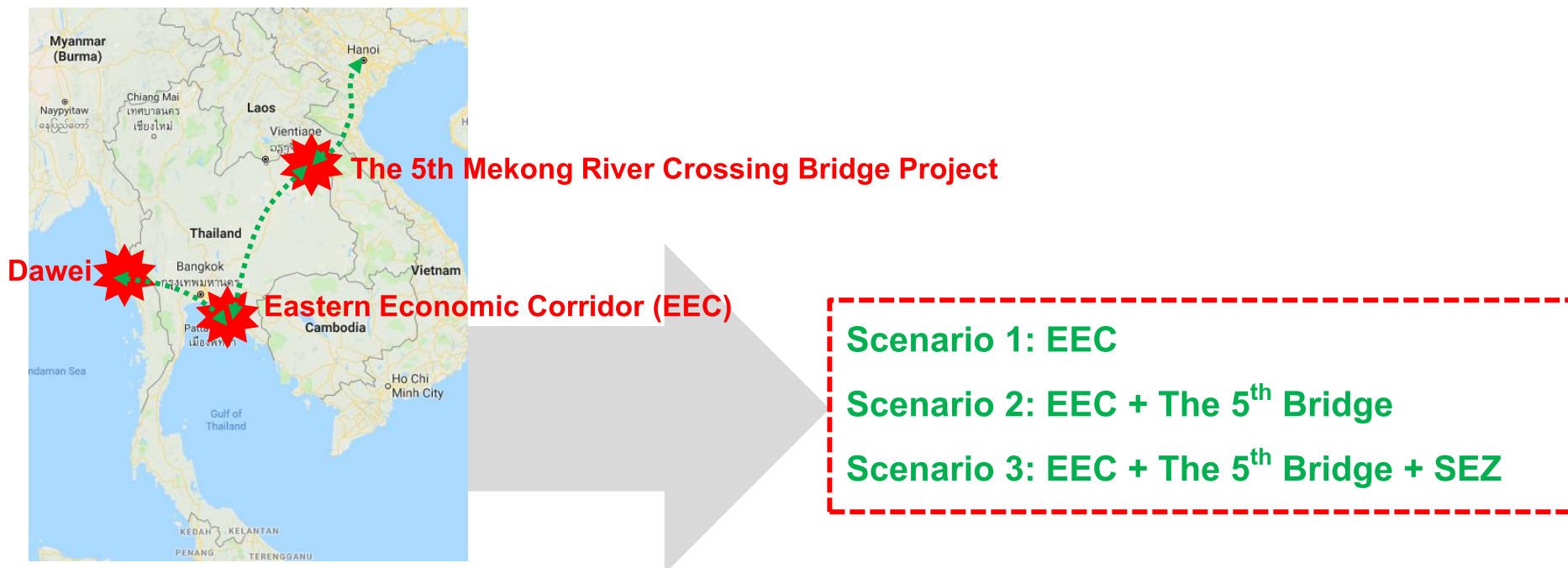
Location of the 5th Mekong River Crossing Bridge Project



Thailand - Lao PDR - Vietnam Road Network



Thailand's Economic Impact Assessment

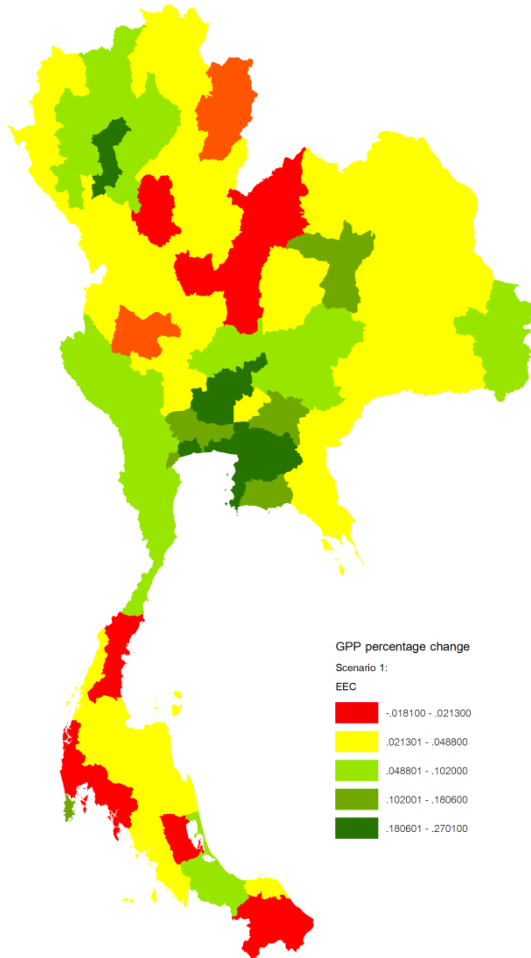


Variable	Percentage Change		
	Scenario 1	Scenario 2	Scenario 3
Consumer Price Index	0.031001	0.031395	0.031677
Demand on Labor	0.177153	0.180874	0.183796
Total Value of Exports	0.350214	0.354074	0.354261
Total Value of Imports	0.338177	0.341928	0.342383
Nominal GDP	0.190142	0.192873	0.194793
Real GDP	0.164418	0.166817	0.168404

Spatial Economic Impacts of Thailand's Investment Plan

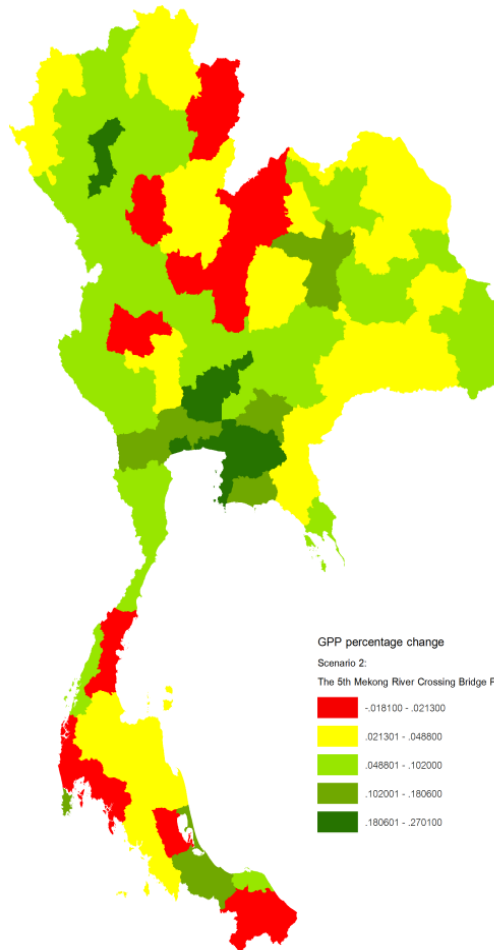
Scenario 1:

EEC



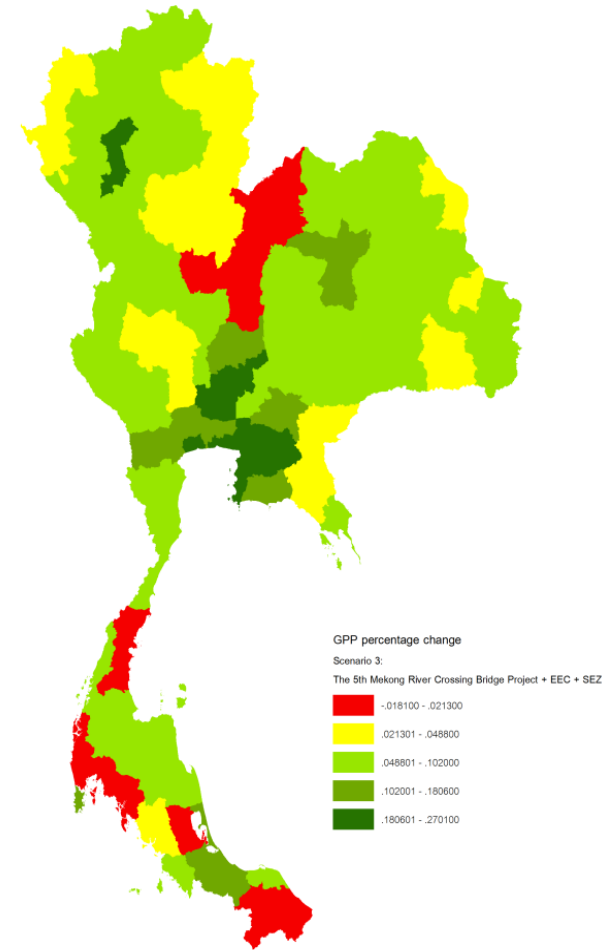
Scenario 2:

EEC + The 5th Bridge



Scenario 3:

EEC + The 5th Bridge + SEZ

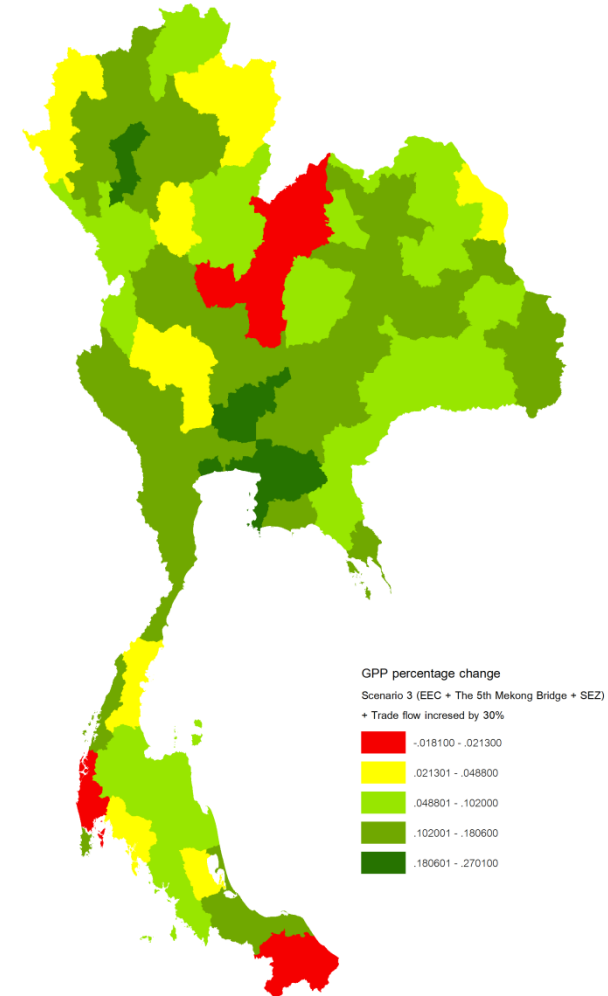
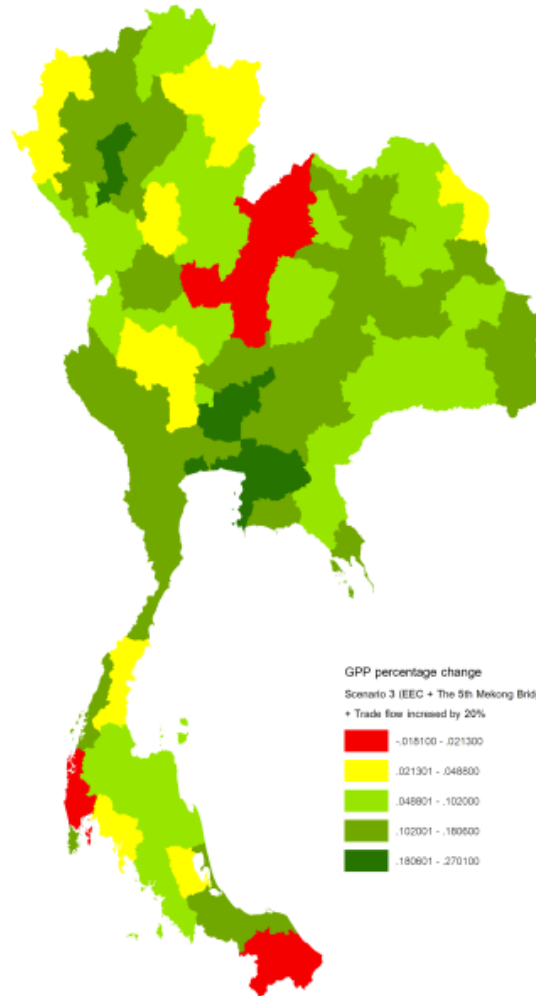
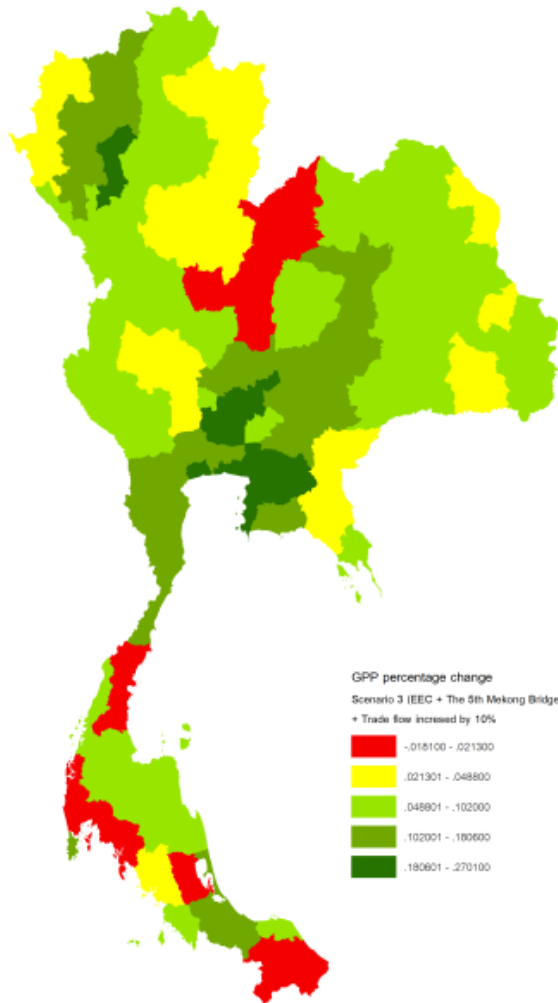


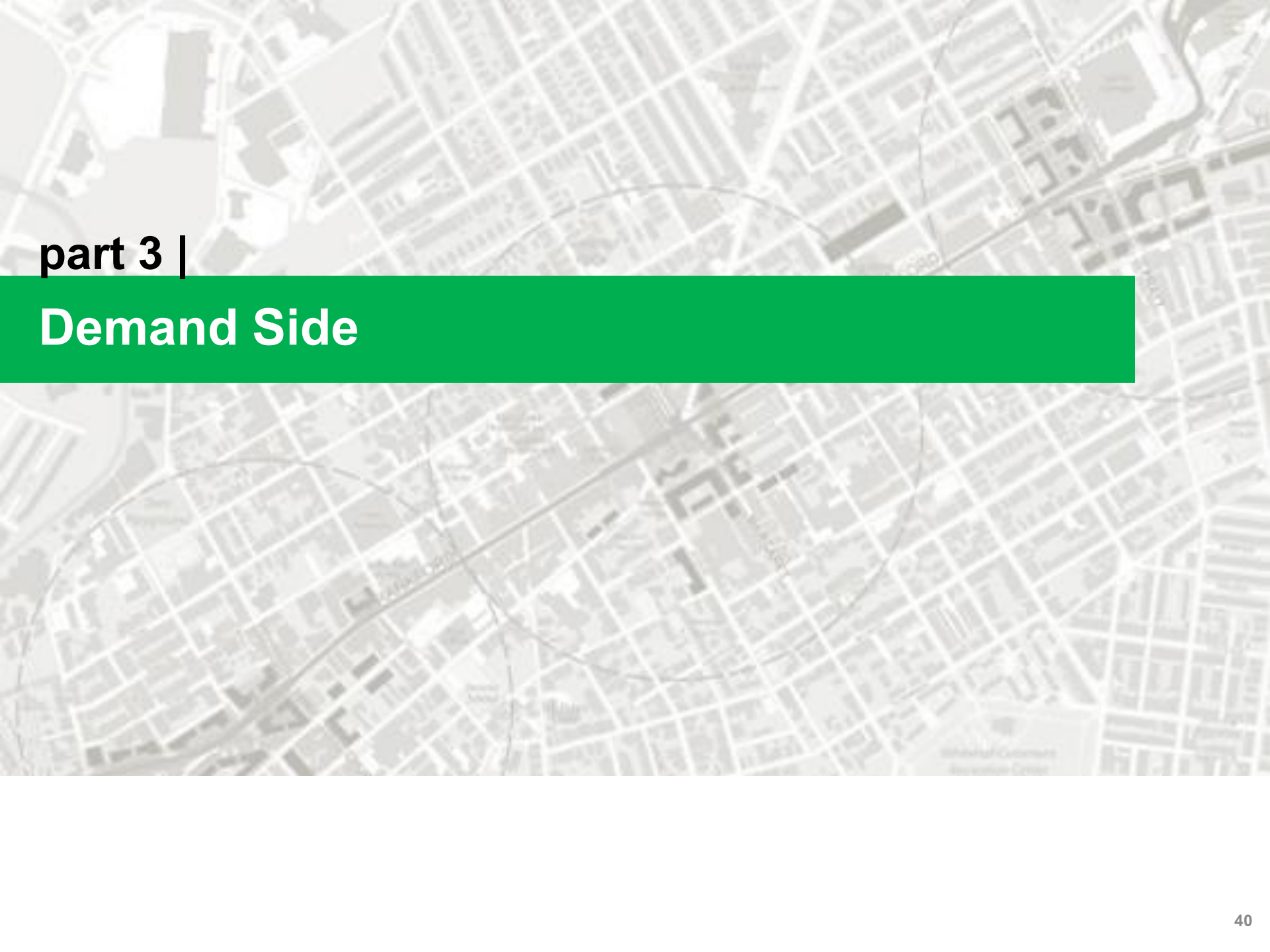
Spatial Economic Impacts from Trade Flow

Trade Flow increased by 10%

Trade Flow increased by 20%

Trade Flow increased by 30%

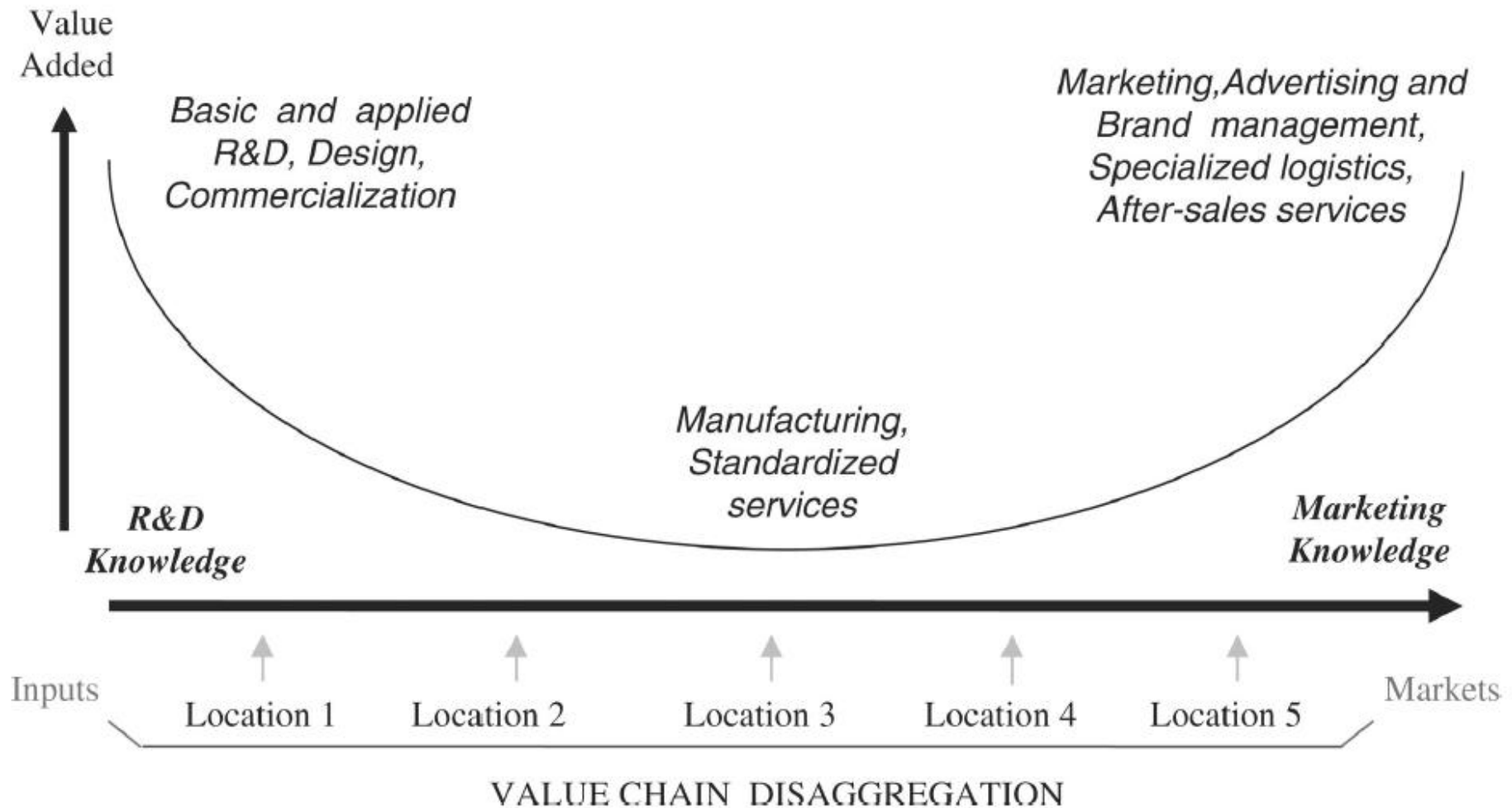


An aerial photograph of a city grid, likely New York City, showing streets, buildings, and parks. A green horizontal bar is overlaid on the image, containing the text 'part 3 | Demand Side'.

part 3 |

Demand Side

Conceptual Framework of the Smile Curve

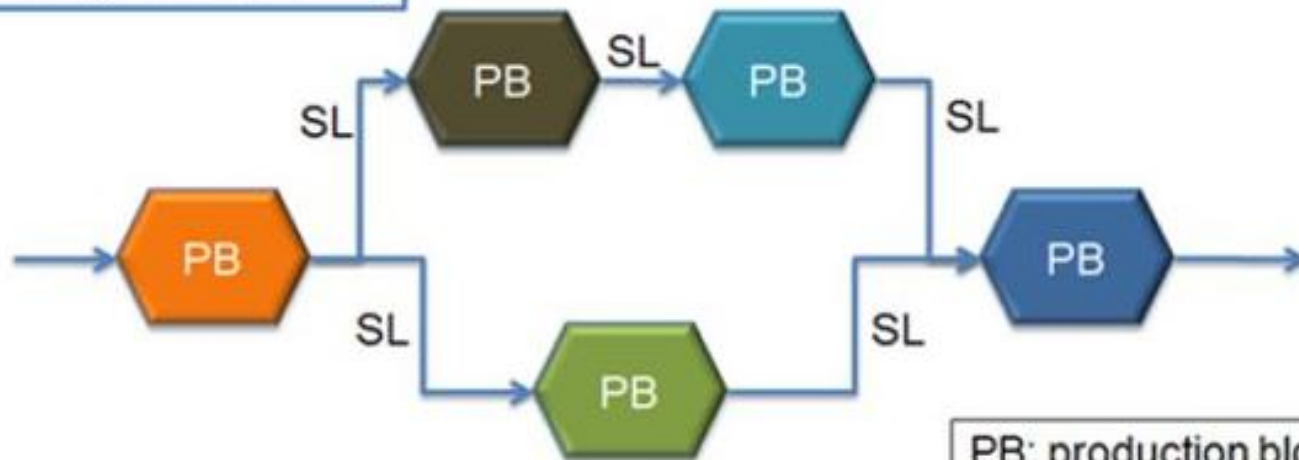


The Fragmentation Theory: Production Blocks and Service Links

Before fragmentation

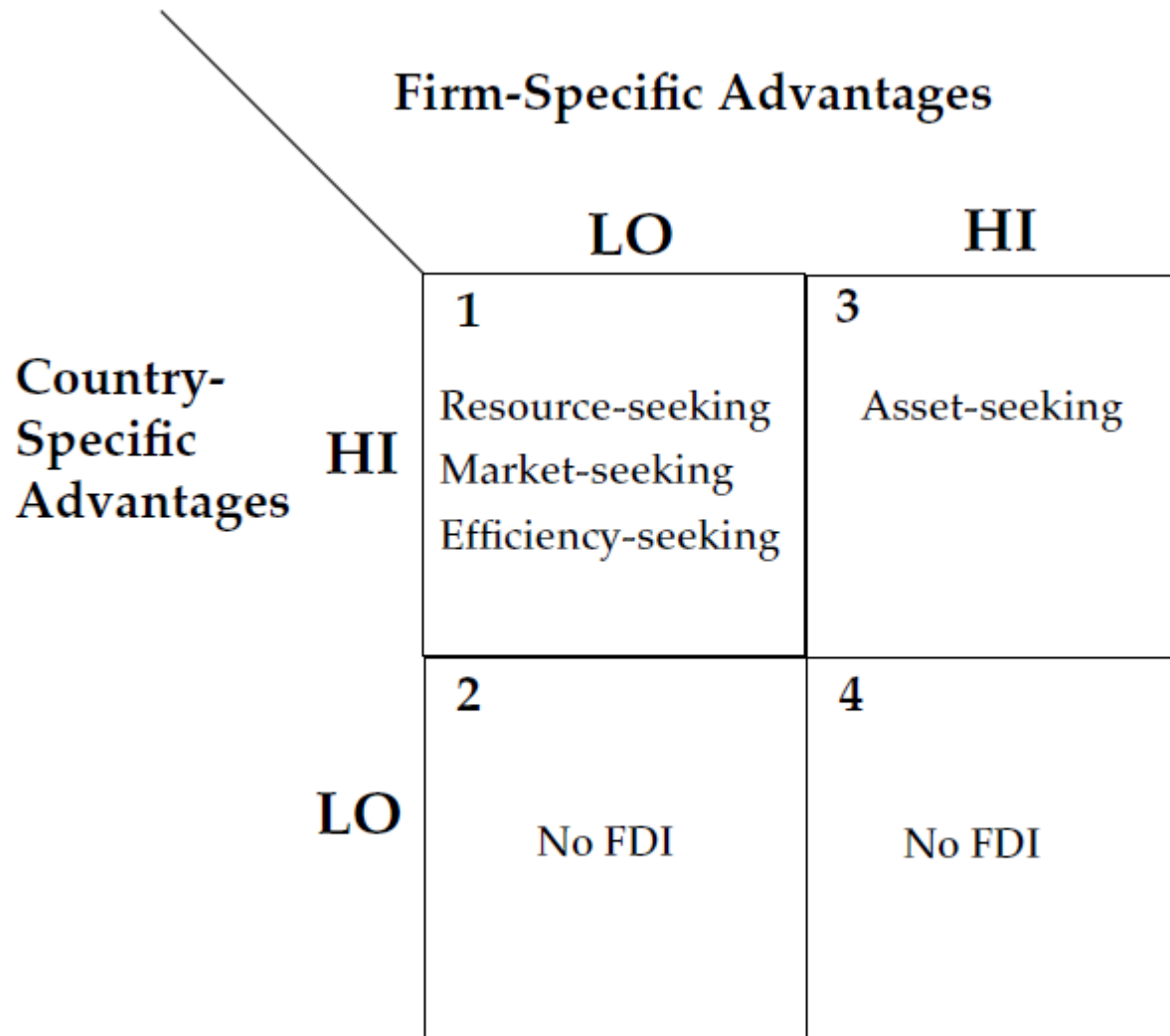


After fragmentation



PB: production blocks
SL: service links

The Eclectic Paradigm's Motives for FDI in the FSA/CSA Matrix

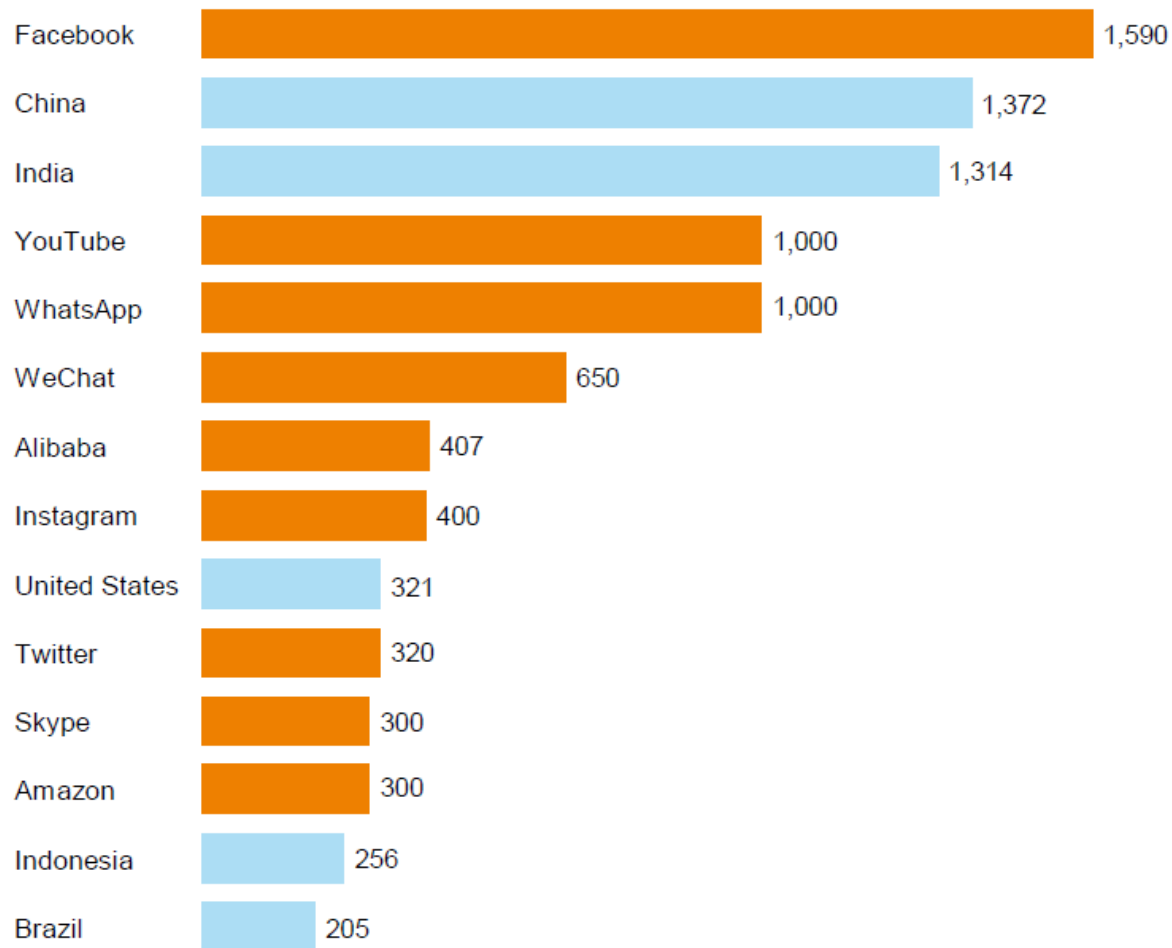


Source: Alan M. Rugman, Reconciling Internalization Theory and the Eclectic Paradigm, 2010.

Active Users of Online Platforms vs. Country Population

Active users of online platforms vs. country population
Million

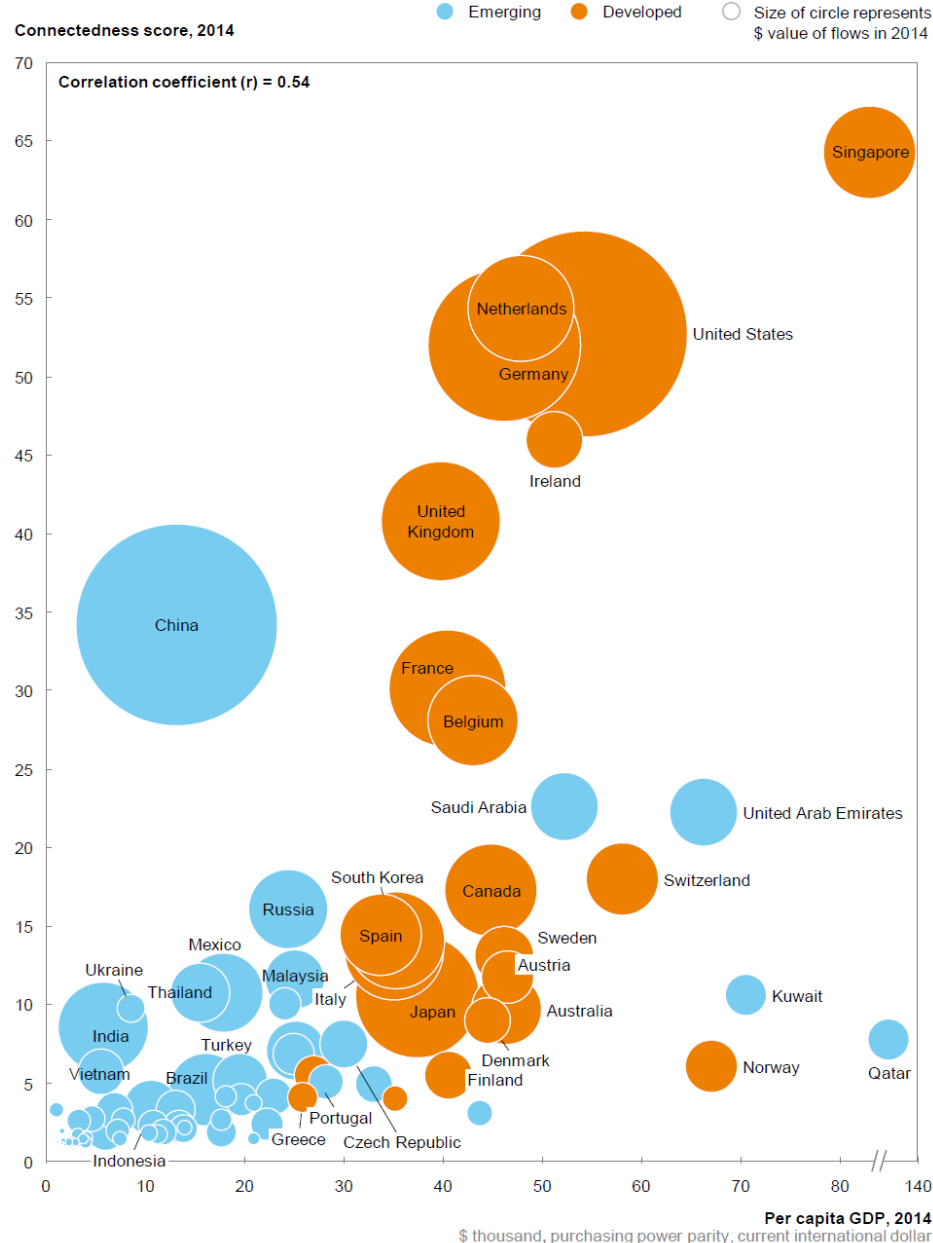
Online platforms¹
Countries²



1 4Q15 or latest available.

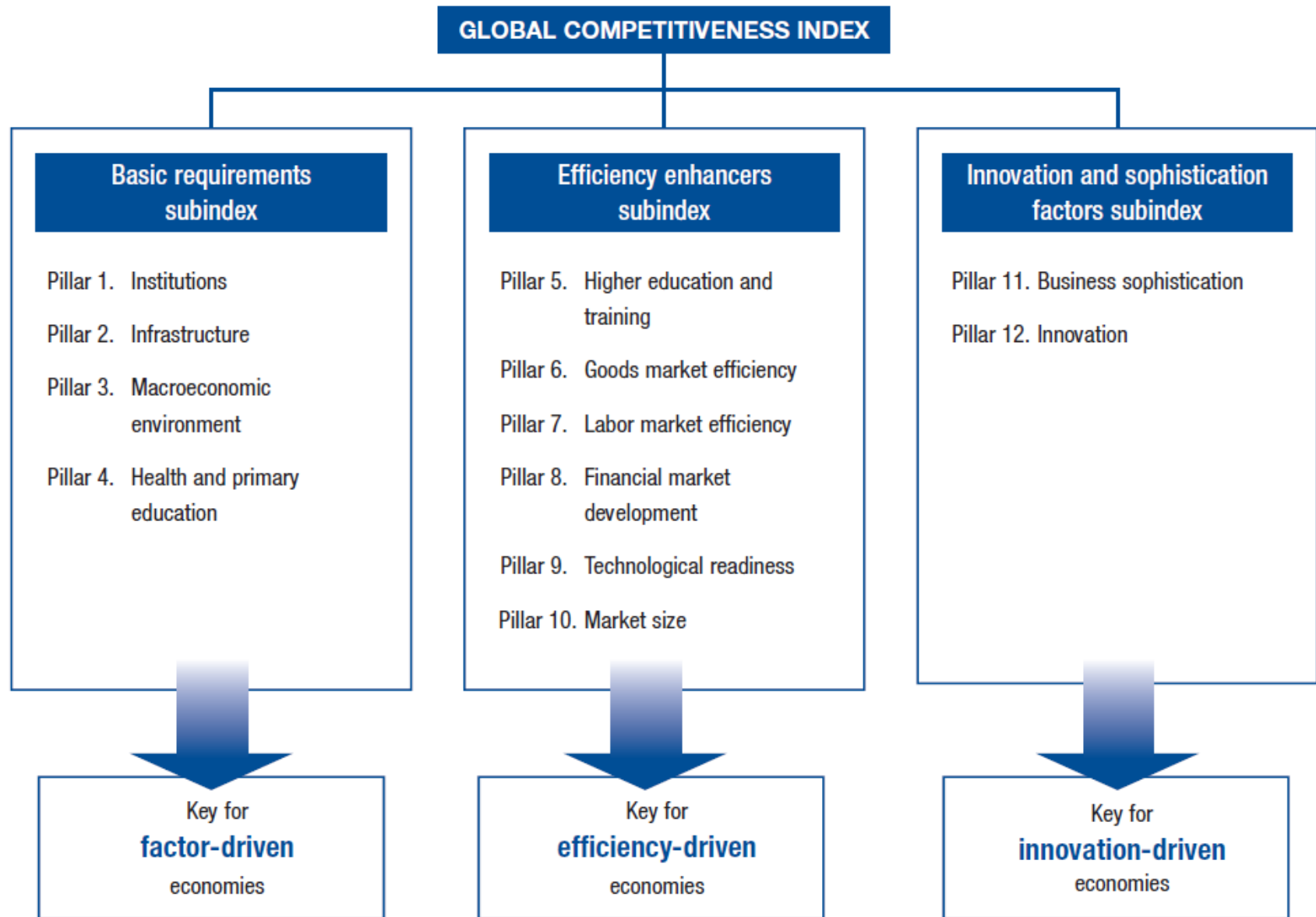
2 2015 population.

Connectedness Score 2014



Source: McKinsey & Company. 2016. DIGITAL
GLOBALIZATION: THE NEW ERA OF GLOBAL FLOWS.

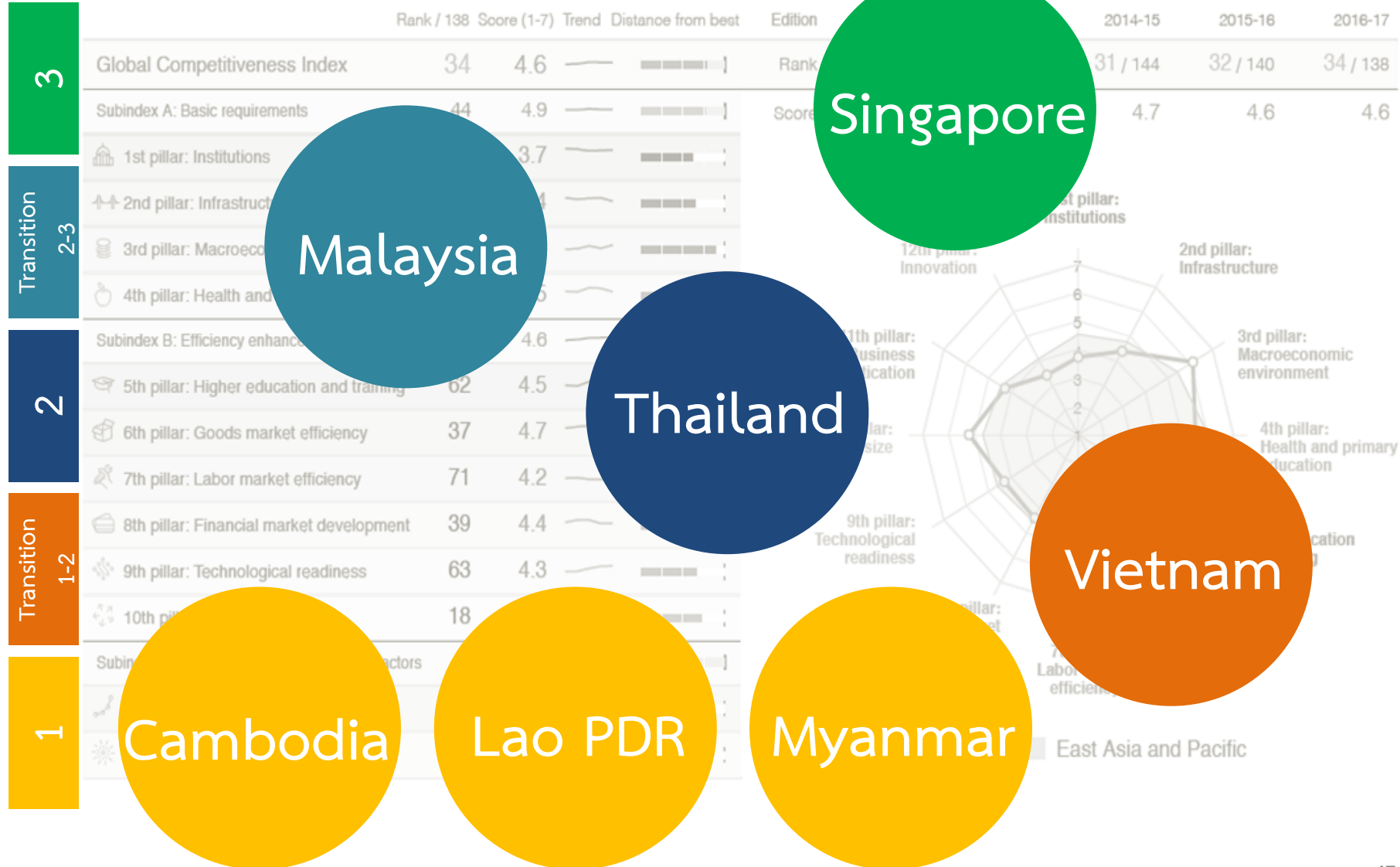
The Global Competitiveness Index (GCI)



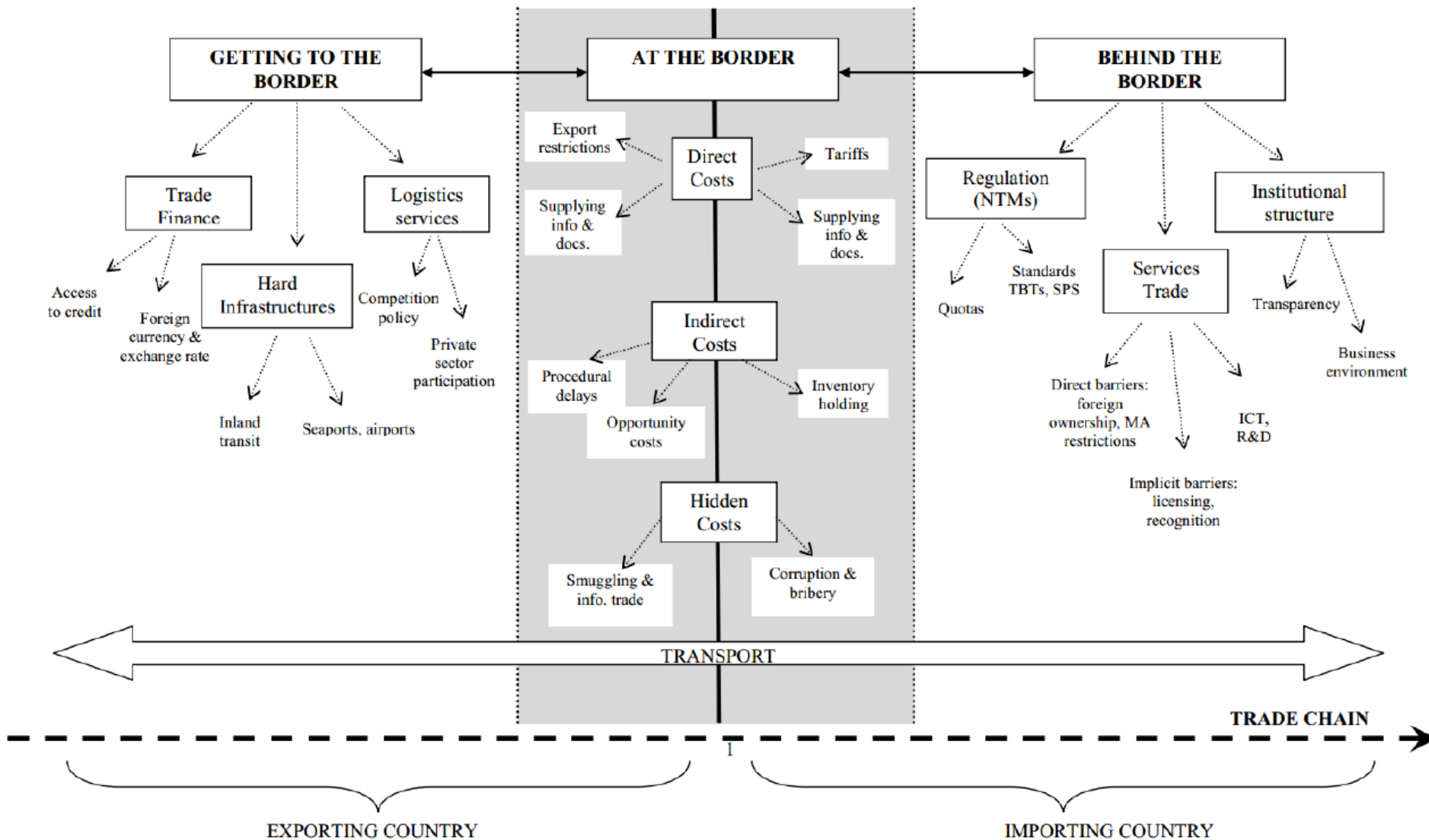
The Global Competitiveness Index

Performance overview

State of Development



Trade Cost Diagnostic Approach



Source: OECD Trade Policy Paper No. 150, 2013 - TRADE COSTS: WHAT HAVE WE LEARNED? A SYNTHESIS REPORT

Logistics Costs as a Percentage of Sales Turnover

Main Company Business	Cost as Percentage of Turnover				
	Transport Cost	Warehouse/ Depot Cost	Inventory Investment/ Holding Cost	Administration Cost	Overall Logistics Cost
	%	%	%	%	%
Office equipment	3.20	10.70	0.87		14.77
Health supplies	1.36	9.77	0.66	0.19	11.98
Soft drinks	2.53	2.71	0.44		5.68
Beer (food and drink)	8.16	2.82	0.56	2.19	13.74
Spirits distribution	0.37	0.27	0.07	0.10	0.81
Cement	25.20	9.10	7.10	4.60	46.00
Automotive parts	2.07	6.35	1.53		9.96

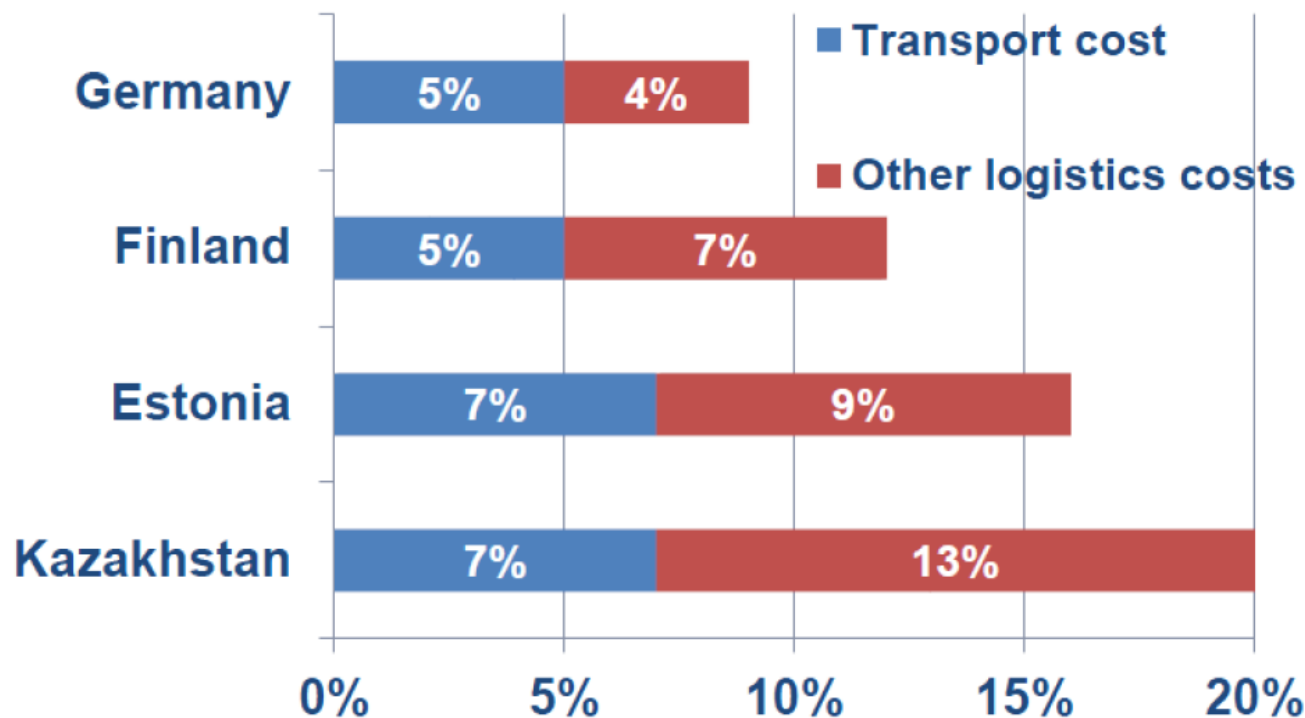
Logistics Costs as a Percentage of Sales Turnover (cont.)

Main Company Business	Cost as Percentage of Turnover				
	Transport Cost (%)	Warehouse/ Depot Cost (%)	Inventory Investment/ Holding Cost (%)	Administration Cost (%)	Overall Logistics Cost (%)
Gas supply (non-bulk)	9.41	2.45	0.02		11.98
Computer maintenance	0.45	0.10	0.29	0.05	0.88
Computer supply	0.65	0.78	0.09		1.52
Healthcare	0.96	1.08	1.21		3.25
Specialist Chemicals	7.23	1.95	0.20	0.49	9.87
Fashion	0.38	1.31	0.33		2.02
Food packaging	3.14	3.73	0.85		7.72

Source: Benchmark survey of UK companies by Dialog Consultants Ltd

Logistics Costs Impact Productivity

Firm-level logistics expenditures as % of sales in 2011-2012



Reliability is often more important than freight costs

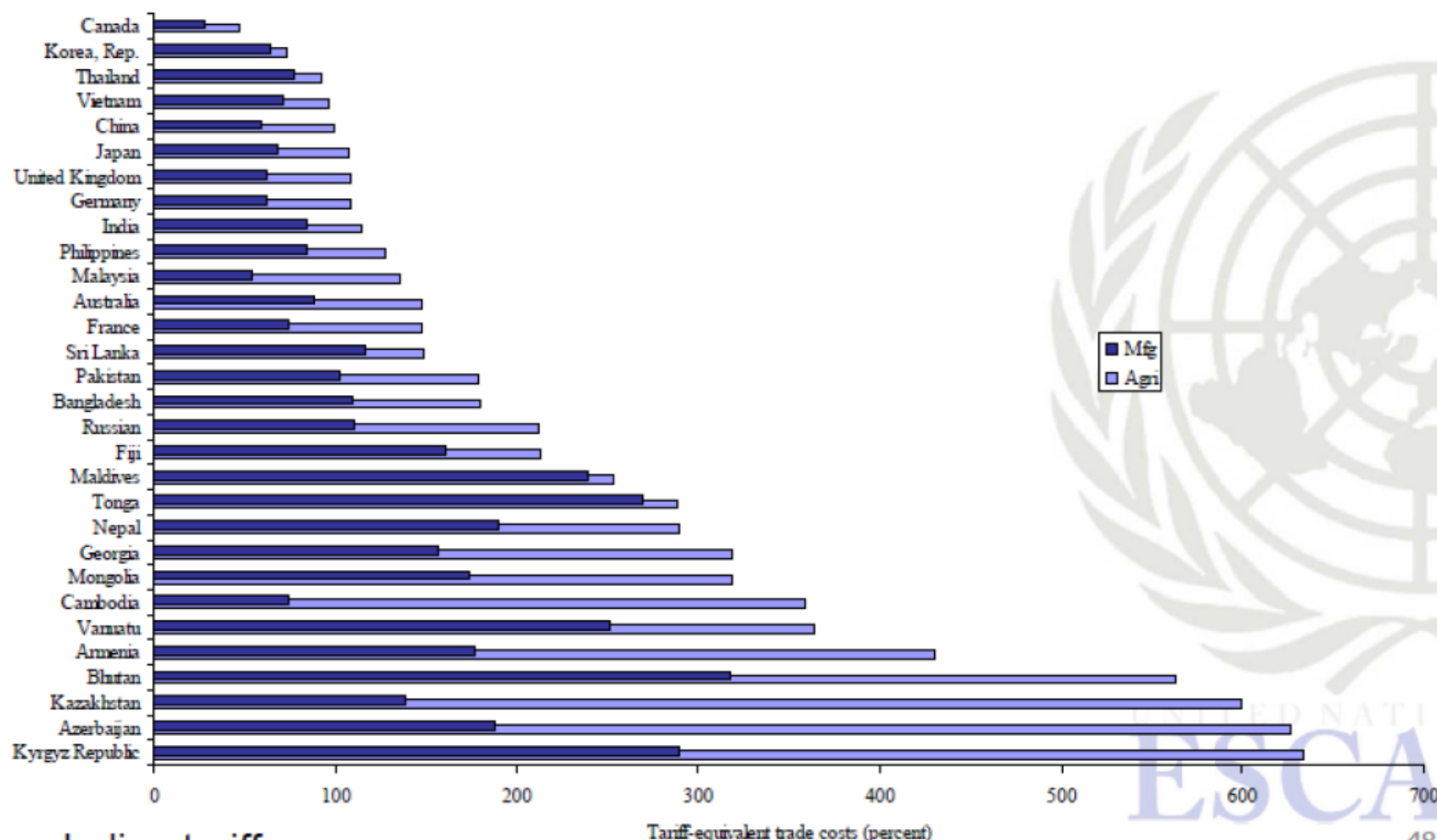
Logistics costs increase with decreasing logistics performance. Most of this increase comes from lower reliability and the need to increase inventory (“other costs”).

Sources: Authors, for Germany: TU Berlin, for Brazil: ILOS, for Finland: Turku School of Economics

World Bank LPI, Transport Business Summit 2014, Brussels

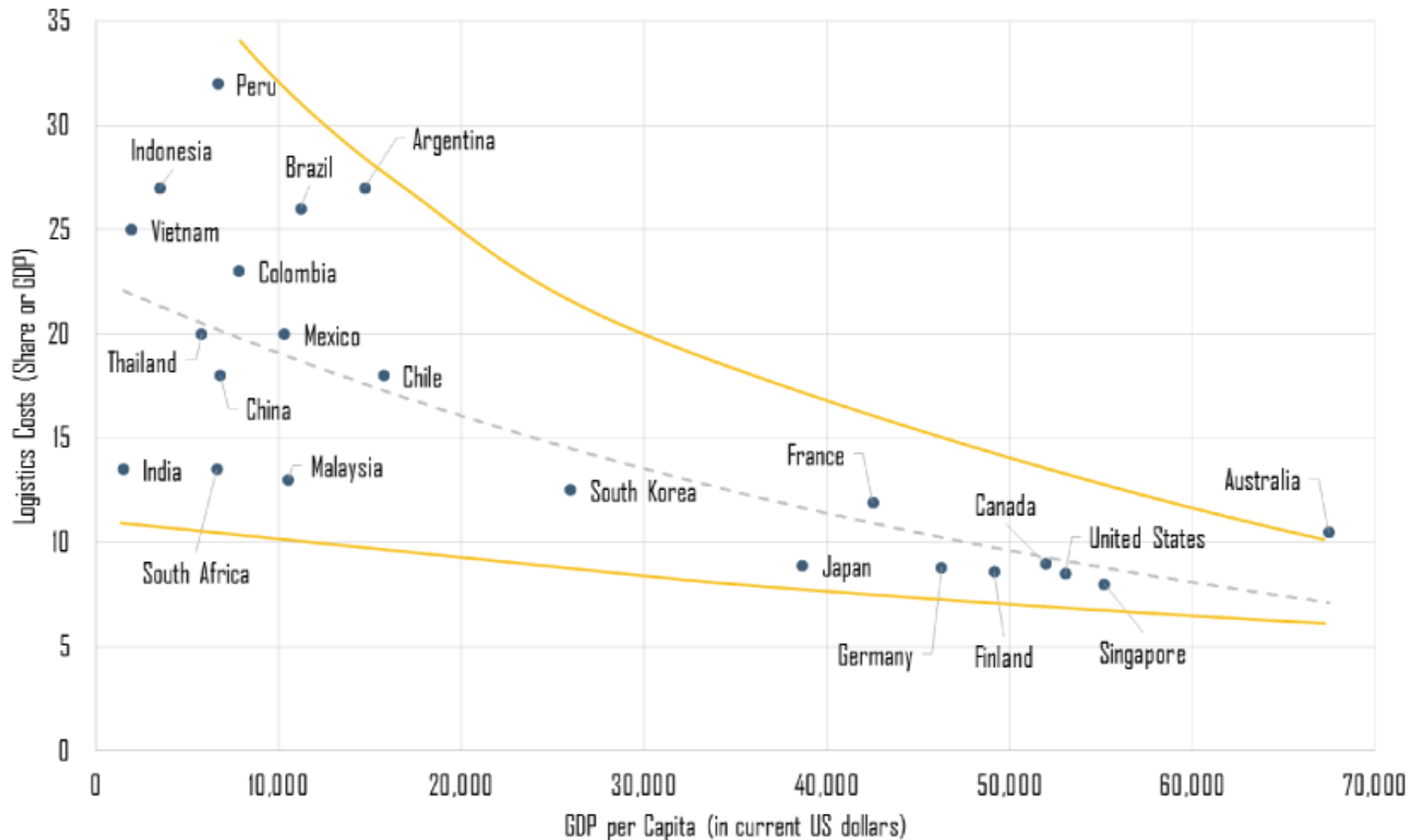
Trade costs in Developing Countries: Findings – Asia-Pacific Perspective: TC and NTC

Agricultural and Manufacturing trade costs* between Selected Economies and the USA

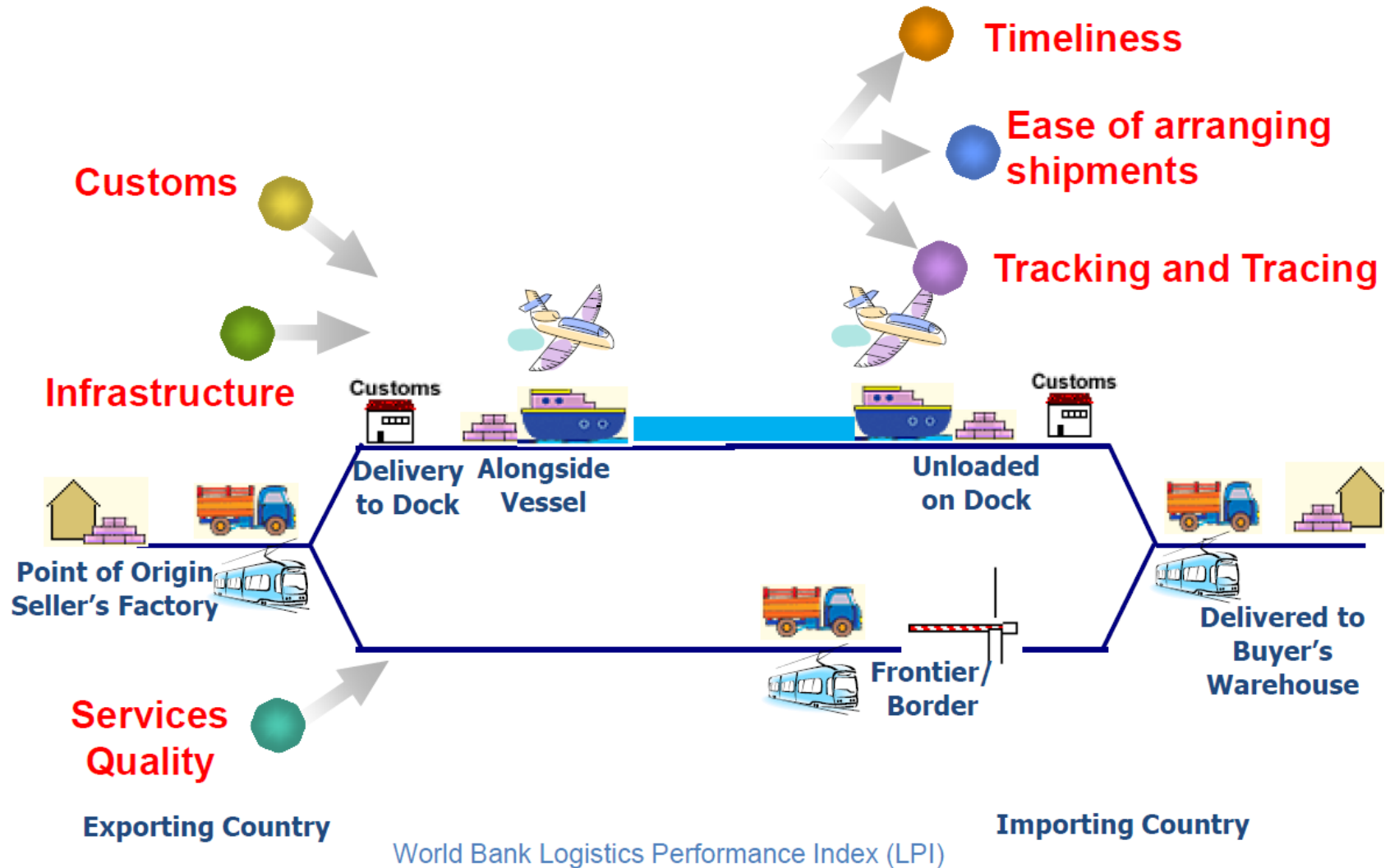


*excluding tariff

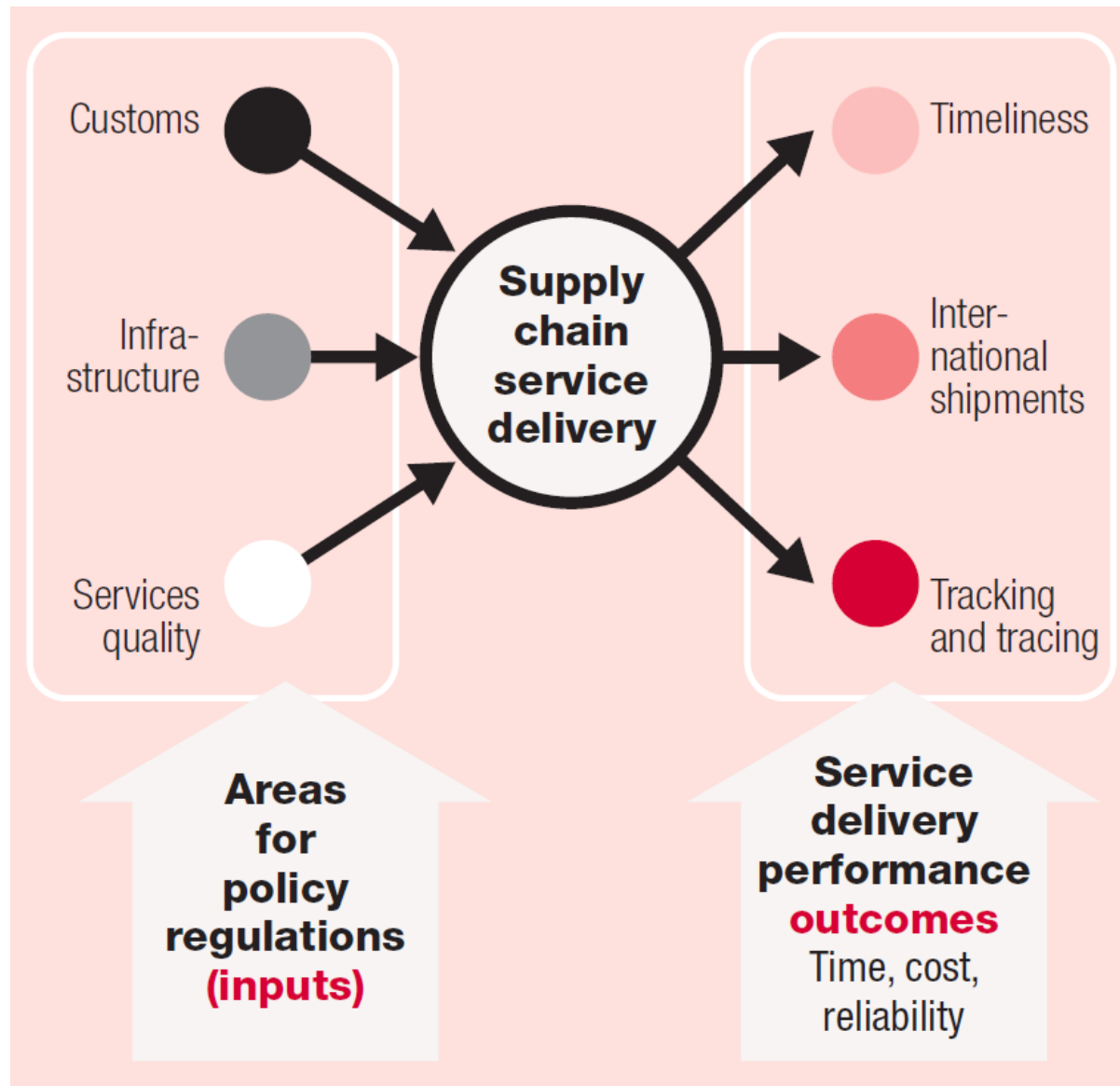
Logistics Costs and Economic Development

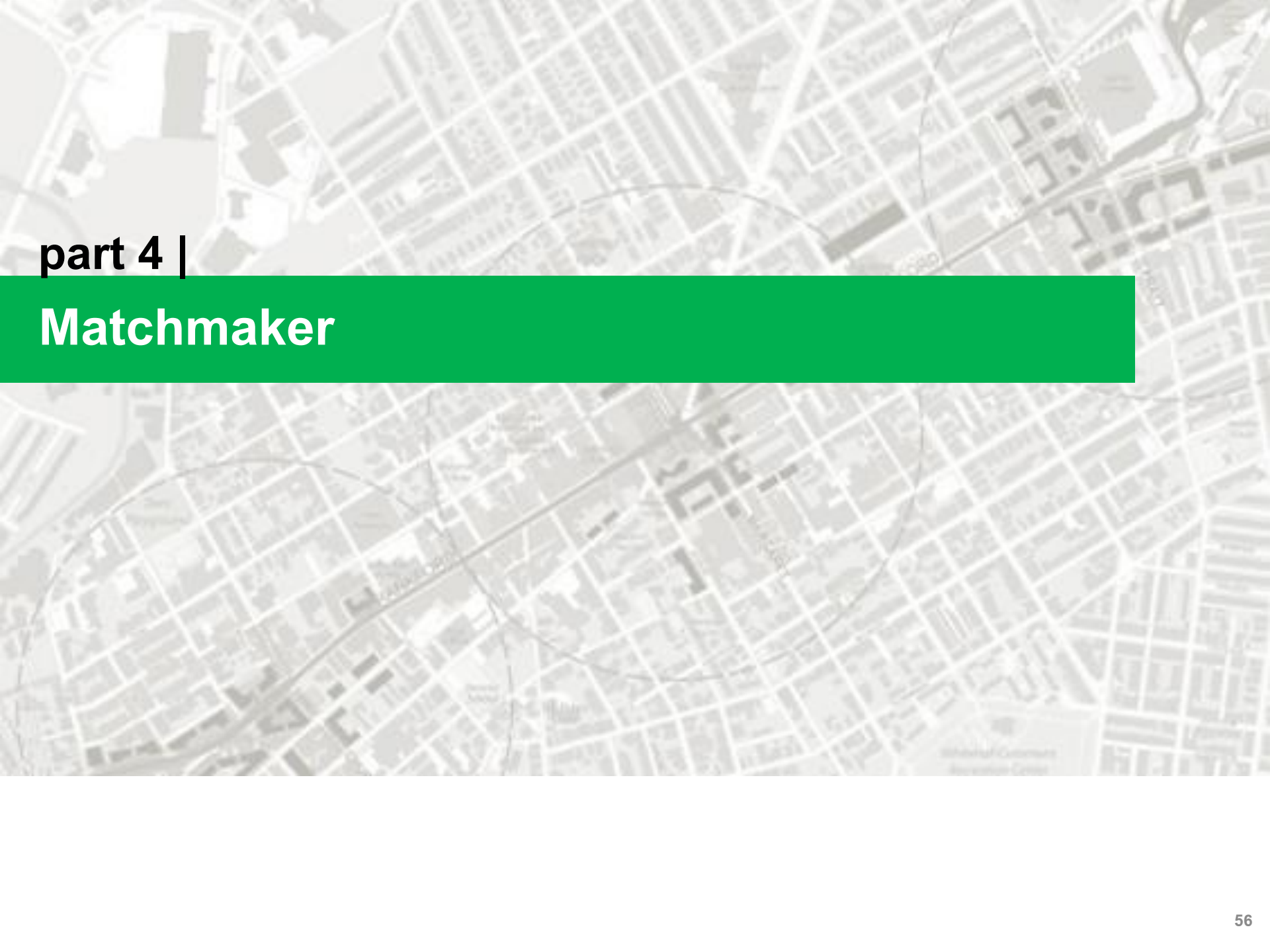


The Six LPI Dimensions Along the Supply Chain Framework



Input and Outcome LPI Indicators



The background of the slide is a grayscale aerial photograph of a city street grid. A solid green horizontal bar spans the width of the slide, positioned behind the title text. Faint, thin white lines are drawn over the map, forming a series of overlapping circles and arcs that intersect at various points across the city grid.

part 4 |

Matchmaker

Business Model Canvas

KEY PARTNERS

Who are our key partners?
Who are our key suppliers?
Which key resources are we acquiring from our partners?
Which key activities do partners perform?

KEY ACTIVITIES

What key activities do our value propositions require?
Our distribution channels?
Customer relationships?
Revenue streams?

KEY RESOURCES

What key resources do our value propositions require?
Our distribution channels?
Customer relationships?
Revenue streams?

VALUE PROPOSITIONS

What value do we deliver to the customer?
Which one of our customers' problems are we helping to solve?
What bundles of products and services are we offering to each segment?
Which customer needs are we satisfying?
What is the minimum viable product?

CUSTOMER RELATIONSHIPS

How do we get, keep, and grow customers?
Which customer relationships have we established?
How are they integrated with the rest of our business model?
How costly are they?

CHANNELS

Through which channels do our customer segments want to be reached?
How do other companies reach them now?
Which ones work best?
Which ones are most cost-efficient?
How are we integrating them with customer routines?

CUSTOMER SEGMENTS

For whom are we creating value?
Who are our most important customers?
What are the customer archetypes?

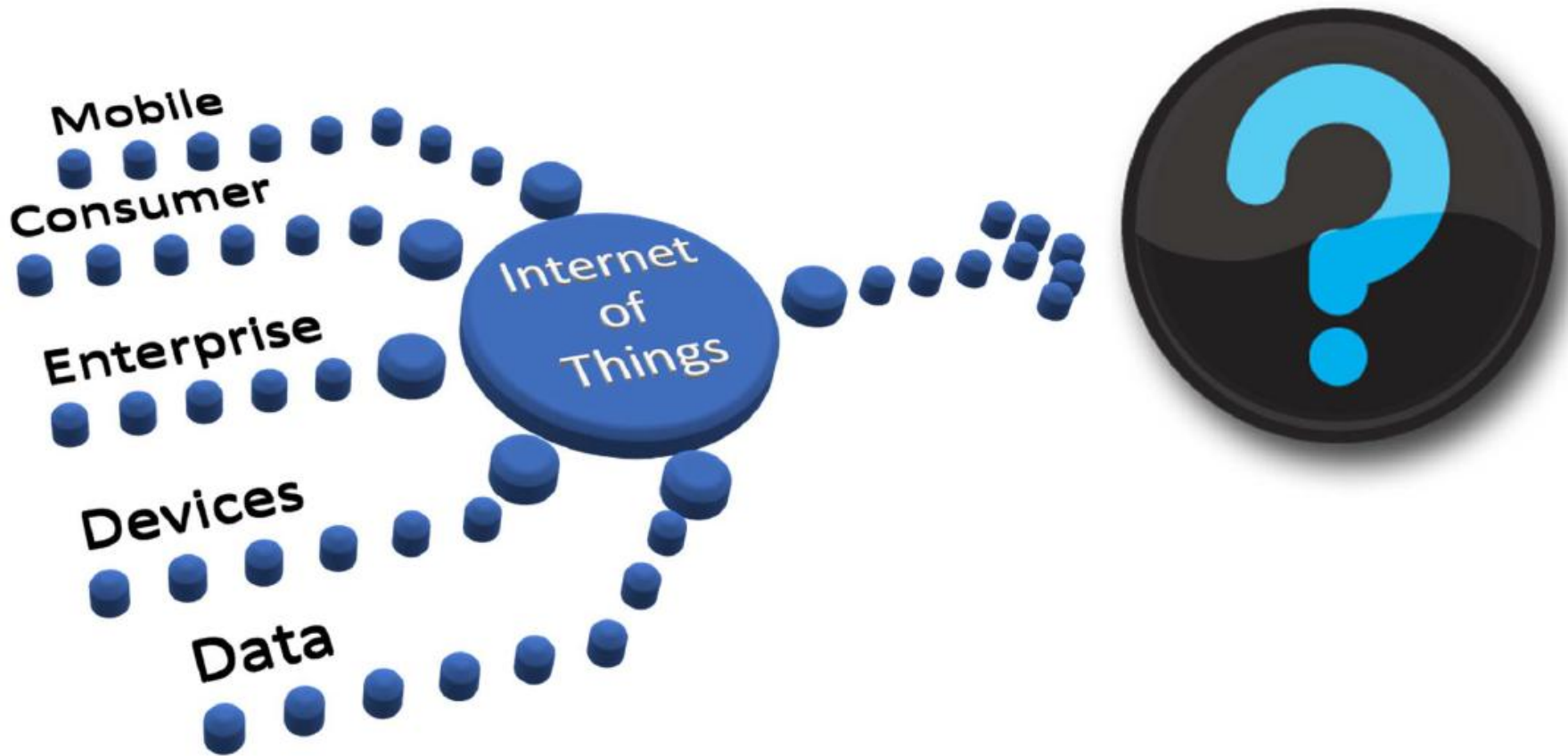
COST STRUCTURE

What are the most important costs inherent to our business model?
Which key resources are most expensive?
Which key activities are most expensive?

REVENUE STREAMS

For what value are our customers really willing to pay?
For what do they currently pay?
What is the revenue model?
What are the pricing tactics?

Internet of Things (IoT)



IoT Applications and Benefits across the Manufacturing Value Chain

IoT Enablers


Intelligent
sensors


RFID, QR


Smart devices


M2M
interface


Enterprise
apps


Big data
analytics

Value Chain


● R&D


● Sourcing


● Production


● Outbound logistics


● Marketing & sales

Benefits



Complex automation: Rapid, real-time sensing of unpredictable conditions and instantaneous responses.



Connected supply chain: Stakeholders can understand interdependencies, flow of materials and manufacturing cycle times.



Tracking: Movement of products.



Factory visibility: Production line information provided to decision-makers.



Proactive maintenance



Safety and efficiency.

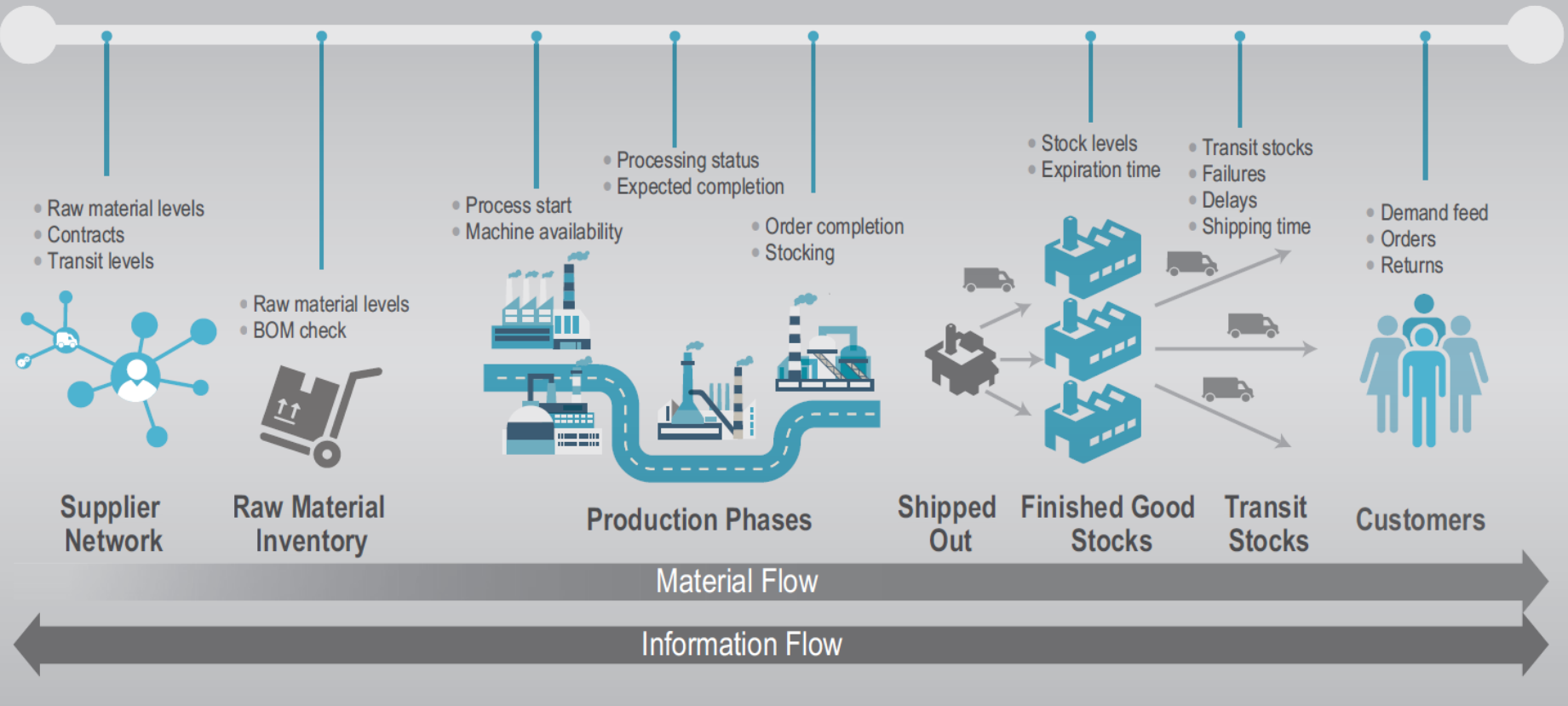


Self-controlled machines.

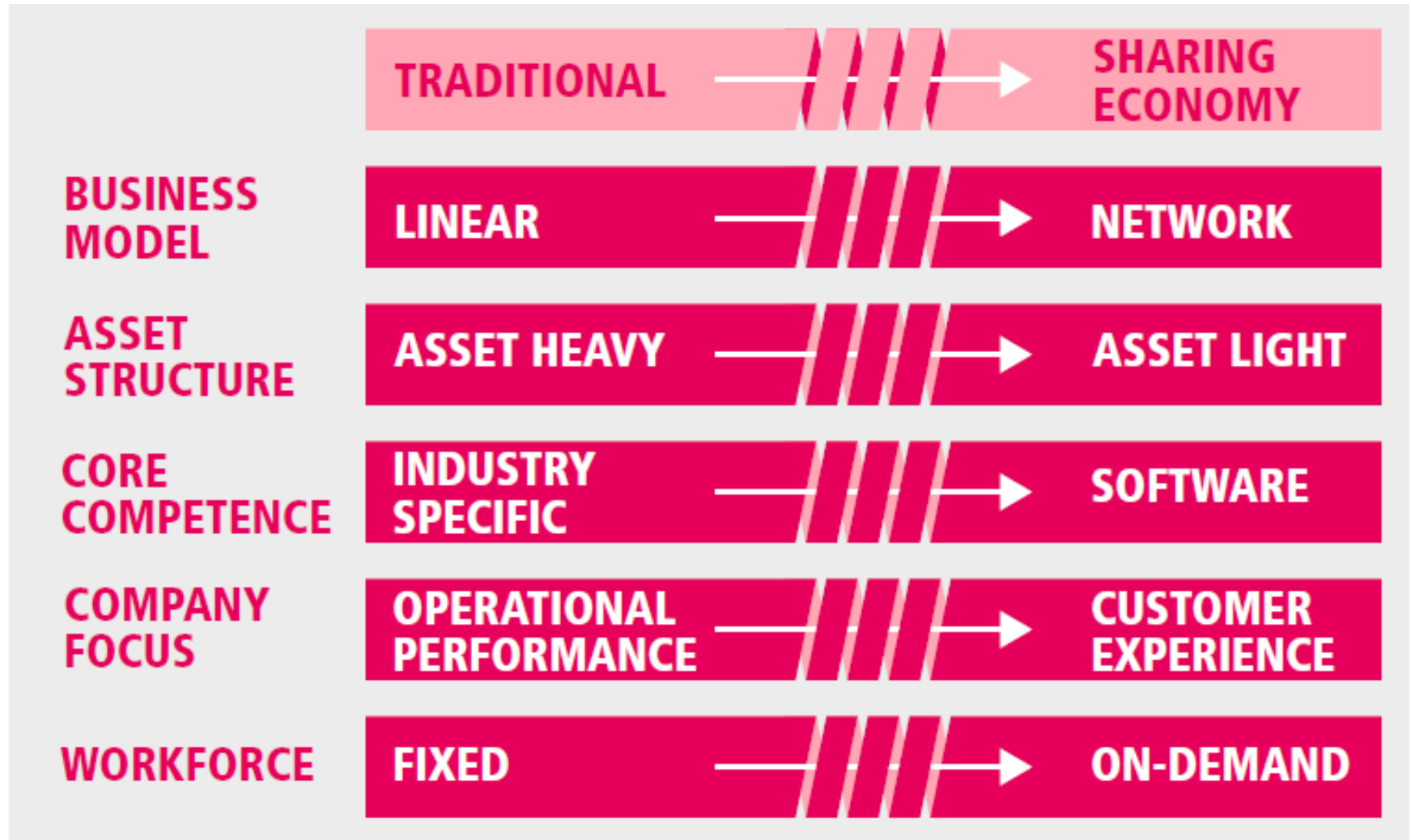


Product design: Features embedded within the physical object or kept in the cloud.

Connected Supply Chain



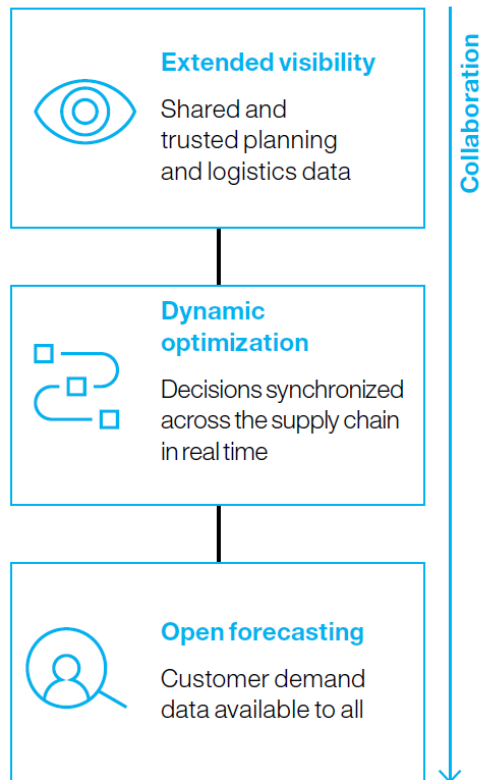
Comparison of Traditional and Sharing Economy Models



Trust in Trade

Figure 1

Data doesn't just follow the goods; it becomes an audit trail that promotes collaboration and trust



Trust in trade

The modern supply chain is long on data and short on trust. Historically, mistrust between organizations, including fear that information might be passed on to a competitor has stopped organizations from sharing data. In turn, even when information is shared, it's often not fully trusted.

Blockchains – distributed ledgers that create a permanent and shared record of every transaction associated with an asset – create an unbroken chain of trust. Each record is time-stamped and appended to the event before it. Blockchains have the potential to generate breakthroughs in three areas: visibility, optimization and demand.

Convergence of Technology and Logistics Trends

IoT is "SENSING & SENSE MAKING" in the world of logistics

Technology push

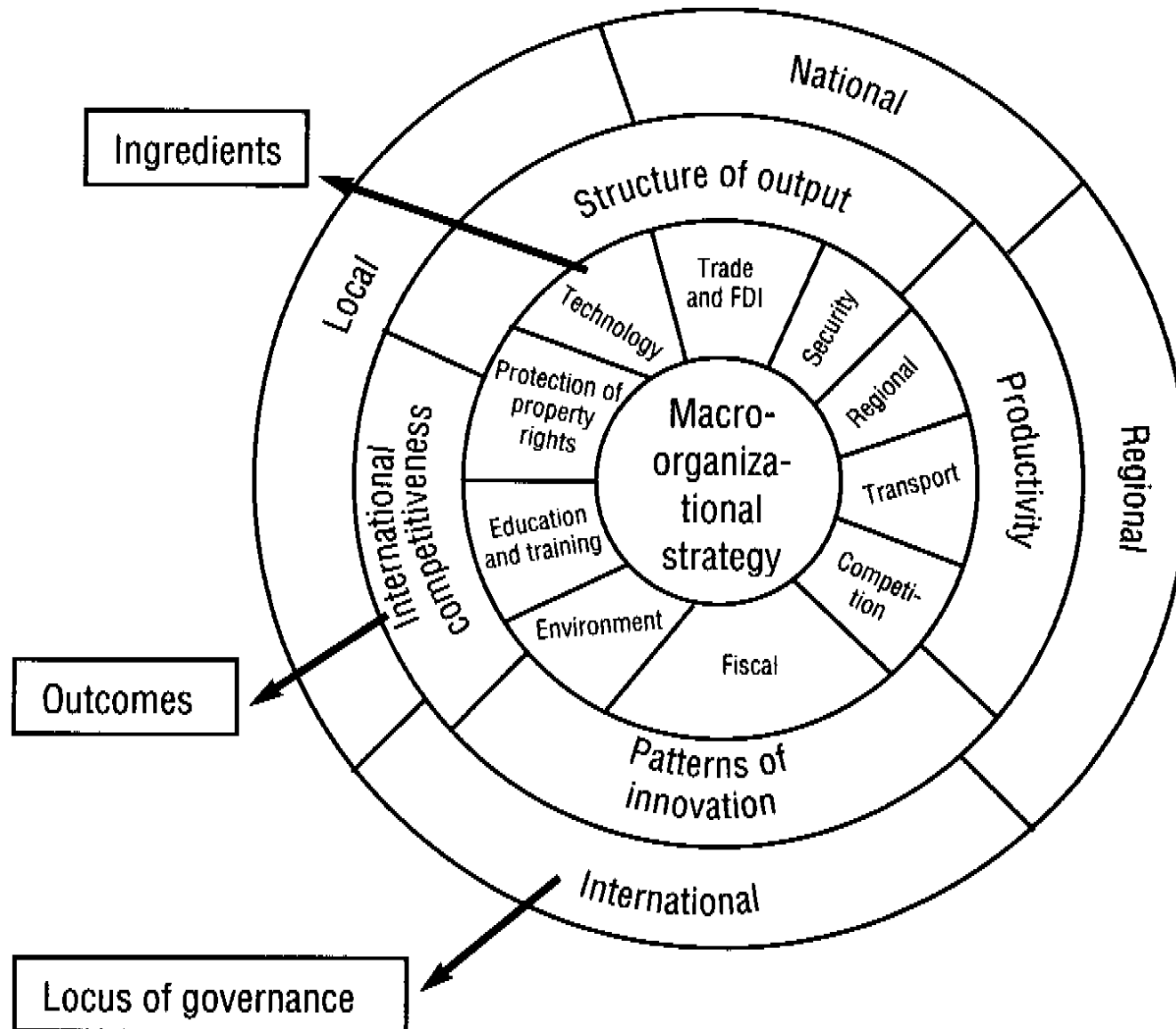
- Mobile computing growing steadily with more mobile phones expected in 2020 than people in the world
- Due to the consumerization of IT, sensor technology has become more mature and affordable to be used for industry purposes in logistics
- With the move towards 5G, wireless communication will reach a new level of maturity connecting everything anytime
- Cloud computing and big data technologies will enable new data-based services



Need for logistics solutions

- High need for transparency and integrity control (right products, at the right time, place, quantity, condition and at the right cost) along the supply chain
- End consumers are asking for detailed shipment tracking to have transparency in real time
- Business customers are asking for integrity control especially for sensitive goods
- Logistics companies need transparency of networks and assets being used for ongoing optimization of efficiency and network utilization

Realms of Economic Governance: Macro-Organizational Strategy



How Nations Become Wealthy?

- Property Rights
- Scientific Rationalism
- Capital Market
- Communications and Transport

Source: William J. Bernstein, "The Birth of Plenty: How the Prosperity of the Modern World Was Created", McGraw-Hill, 2004.

The Law of Dependent Origination

Property Rights: The assurance that a person can keep most of his reward is the right that guarantees all other rights.

Scientific Rationalism: The inventive process requires a supportive intellectual framework- an infrastructure of rational thought with a reliance on empirical observation that support technologic advance.

Capital Market: The large-scale production of new goods and services requires vast amounts of money from others.

Communications and Transport: The fast and efficient advertisement and distribution to buyers hundreds or thousands of miles away.

How Nations Become Wealthy?

- Property Rights
- Scientific Rationalism
- Capital Market
- Communications
and Transport



Prosperity ==> Citizen Empowerment ==> Democracy

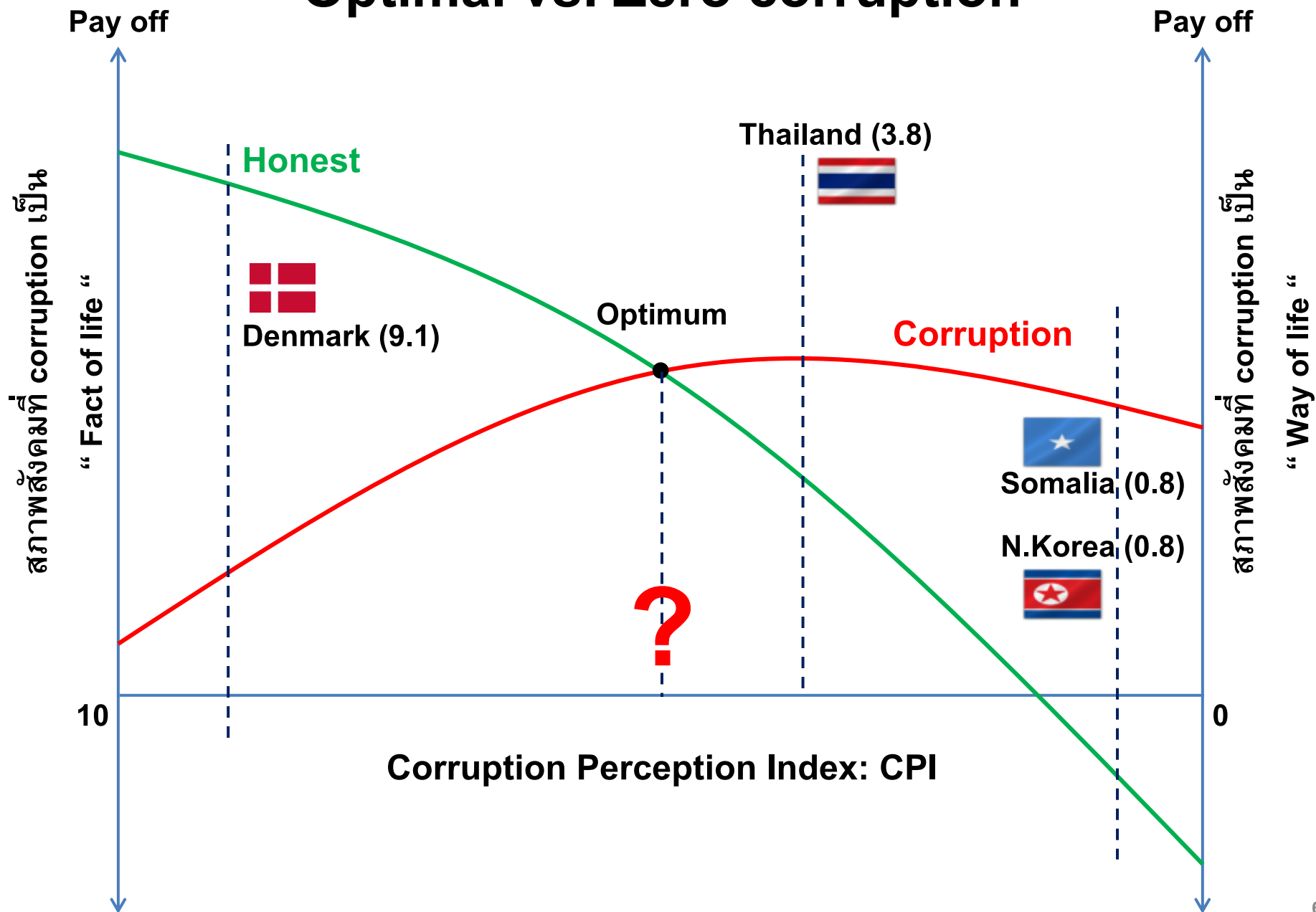
Source: William J. Bernstein, "The Birth of Plenty: How the Prosperity of the Modern World Was Created", McGraw-Hill, 2004.

Why Nations Fail?

- 1) Each society functions with a set of economic and political rules created and enforced by the state and the citizens collectively.
- 2) Economic institutions shape economic incentives: the incentives to become educated, to save and invest, to innovate and adopt new technologies, and so on.
- 3) Political institutions of a nation determine the ability of citizens to control politicians and influence how they behave.

Source: Why Nations Fail: the Origins of Power, Prosperity and Poverty by Daron Acemoglu and James A. Robinson, 2012.

Optimal vs. Zero corruption





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