

**THAILAND**  
Focus 2018

August 29-31, 2018, Bangkok, Thailand



# Digital Economy Thailand

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*Smart Cities and Internet of Things*

Pichet Durongkaveroj

Ministry of Digital Economy and Society

# “DIGITAL THAILAND”

## Reduce Disparity (Modernize rural areas)

- Availability
- Accessibility
- Affordability



## Better Income Distribution (Community 4.0)

- Wealth Distribution
- Sustainability

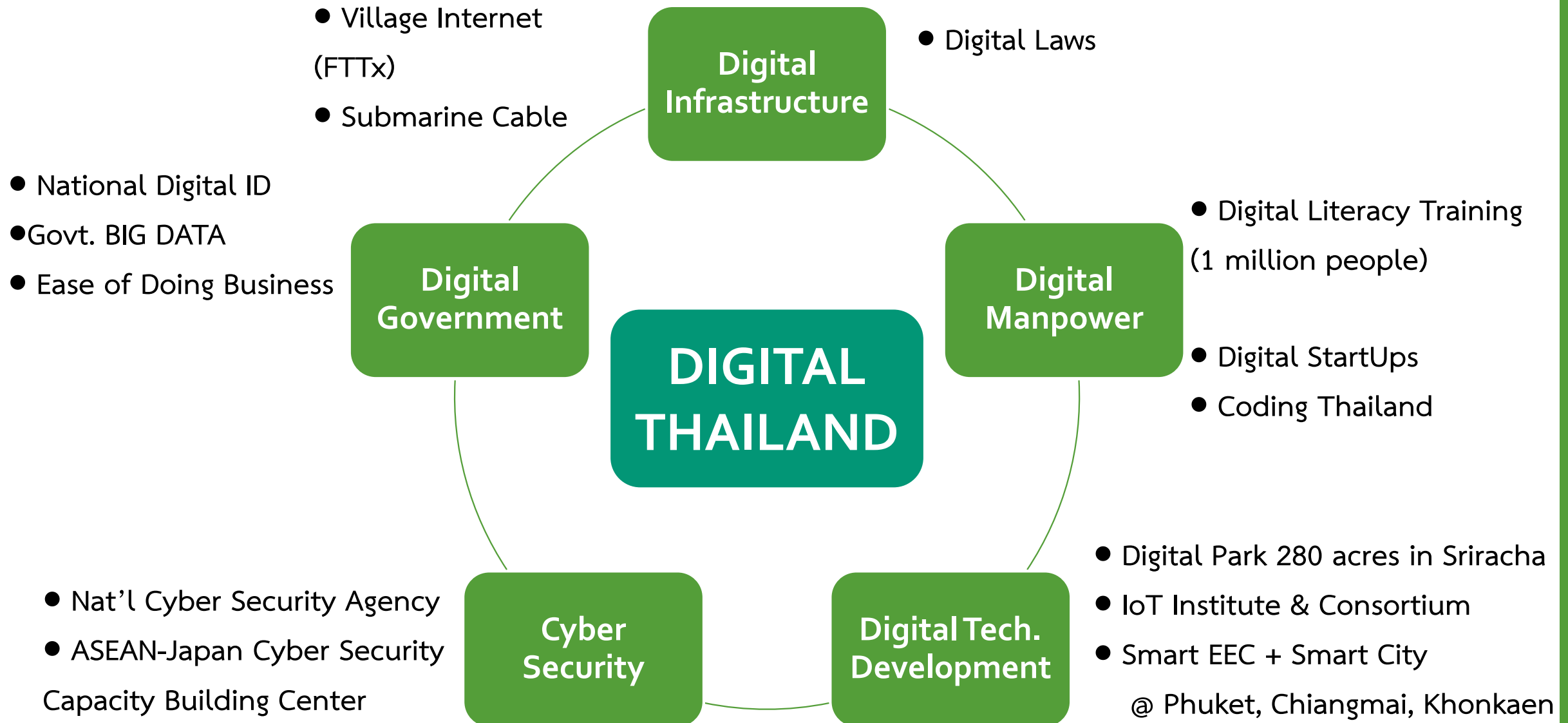


## Capacity Building (for Digital Age)

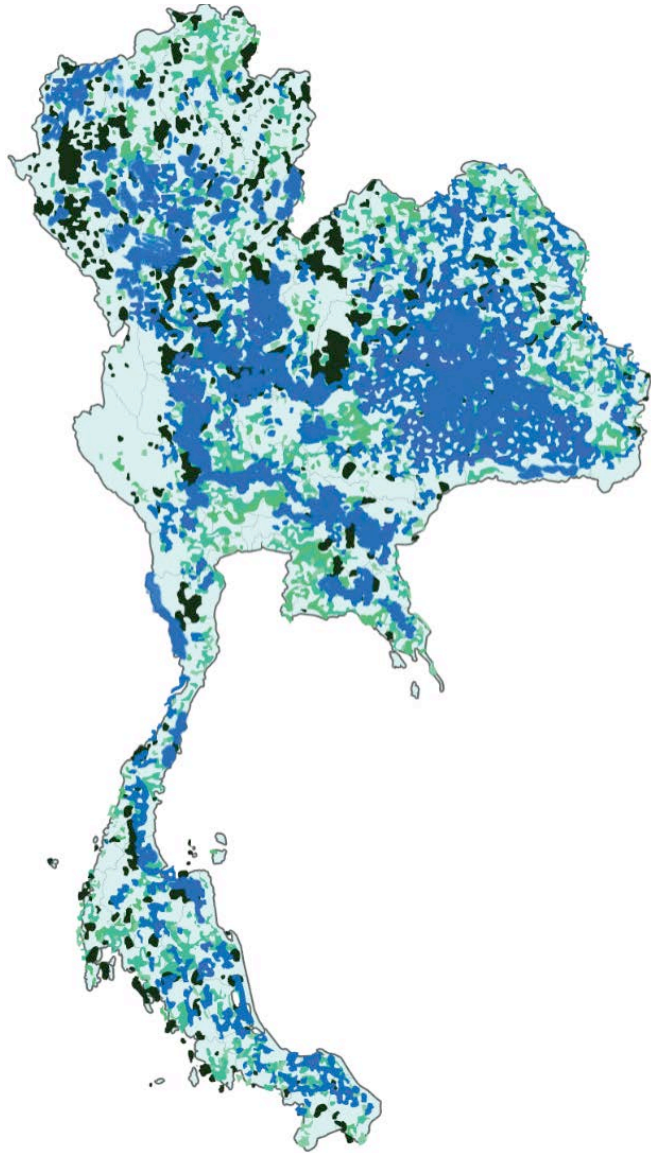
- Digital Workforce
- Citizen in 21<sup>st</sup> Century



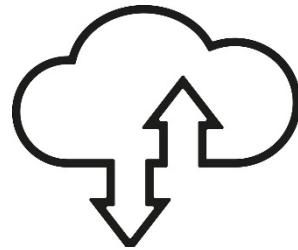
# “DIGITAL AGENDA 2018”



# Digital Infrastructure: Village Internet



Cover all 75,000 villages



1 Free WiFi hotspot in every village at 30 / 10 Mbps

Link to all schools and local hospitals

Provide community digital learning centers

# Digital Infrastructure: Village e-Commerce

THAILAND POSTMART.com  
ของดีทั่วไทย ส่งให้ถึงมือ

ค้นหาสินค้า...

ตะกร้าสินค้า 0 | สินค้าโปรด | สมาชิกสมาชิก | เข้าสู่ระบบ

อร่อยทั่วไทย | ของดีประจำจังหวัด | สินค้าพรีเมียม | สุขภาพและความงาม | บ้านและสวน | ยานยนต์ | สินค้าชุมชน | หนังสือ



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## สินค้าที่คุณสนใจ Your Interest Products

<b>฿380.00</b>	<b>฿380.00</b>	<b>฿260.00</b>	<b>฿260.00</b>	<b>฿4,600.00</b>
แดงเหนมเนือง อาหารเวียดนาม ดินดำรับขวัญ (ชุดใหญ่) ร้านแดงเหนมเนือง (ป่องหนองคาย)	วิที้เหนมเนือง อาหารสุขภาพรสชาติถูกปาก ดันโรดด้วยสมุนไพร (ชุดใหญ่) ร้านวิที้เหนมเนือง (ป่องอุดรธานี)	วิที้เหนมเนือง อาหารสุขภาพรสชาติถูกปาก ดันโรดด้วยสมุนไพร (ชุดเล็ก) ร้านวิที้เหนมเนือง (ป่องอุดรธานี)	แดงเหนมเนือง อาหารเวียดนาม ดินดำรับขวัญ (ชุดเล็ก) ร้านแดงเหนมเนือง (ป่องหนองคาย)	ทุเรียนหลงลับแล หลงทุกลูก อร่อยทุกคำ ( 8 กิโลกรัม ) ชมรมชาวสวน ต.แม่พูล จังหวัดอุตรดิตถ์

## สินค้าแนะนำ Recommend by Thailandpost

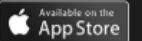
<b>฿130</b>	<b>฿4,600</b>	<b>฿4,600</b>

## Best Seller Top 10 of The Week

1	วิที้เหนมเนือง อาหารสุขภาพรสชาติถูกปาก ดันโรดด้วยสมุนไพร (ชุดเล็ก) ร้านวิที้เหนมเนือง (ป่องอุดรธานี) อาหารดาว	<b>฿260</b>
2	แดงเหนมเนือง อาหารเวียดนาม ดินดำรับขวัญ (ชุดเล็ก) ร้านแดงเหนมเนือง (ป่องหนองคาย) อาหารดาว	<b>฿260</b>
3	ราชาเต้าหู้ยี้ เหนียว ฟู	<b>฿200</b>



แอปพลิเคชัน  
ThailandPostmart.com  
ดาวน์โหลดได้แล้ววันนี้



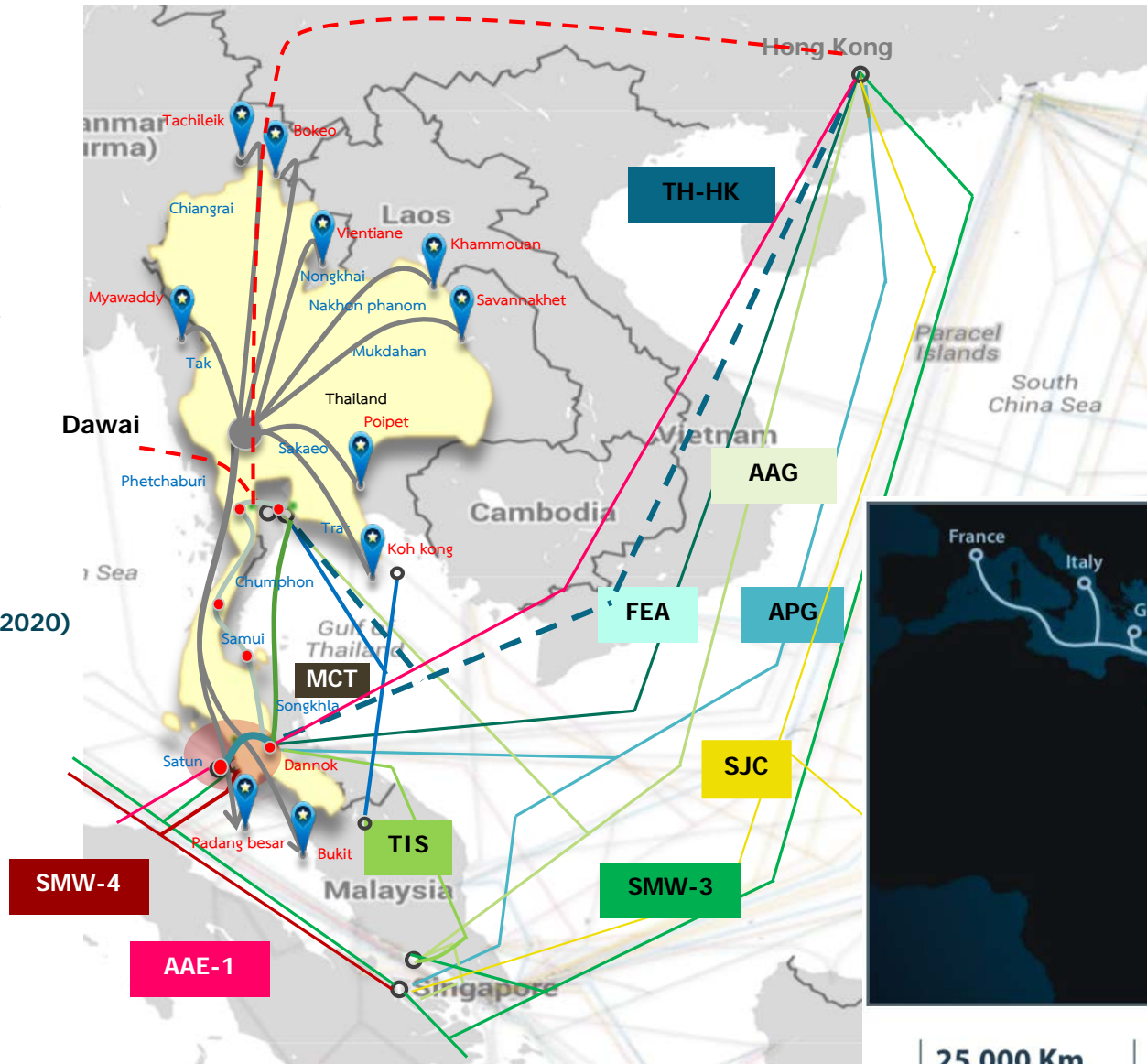
# Digital Infrastructure: International Submarine Cable Expansion

## NGDC's Existing Submarines

- 1 FEA
- 2 SeaMeWe-3
- 3 TIS
- 4 SeaMeWe-4
- 5 AAG
- 6 SJC<sup>1/</sup>
- 7 APG
- 8 AAE-1
- 9 TH-HK (by 2020)

## Private Sector's Submarine

- 1 MCT



<b>25.000 Km.</b> Submarine cable	<b>4/5</b> Number of Fiber Pair	<b>100Gbps</b> Wavelength Technology	<b>80 λ</b> Initial Design WL per FP	<b>40 Tbps</b> Initial System Design Capacity
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# Digital Infrastructure: Digital Laws & Regulations

- Electronic Transactions Law
- Data Protection Law
- Cyber Security Law
- Spectrum Allocation Law
- Space Economy Development Law
- Digital Council Establishment

# Digital Manpower: Digital Literacy Training





# Digital Manpower: Coding Thailand

The screenshot shows the Coding Thailand website with a navigation bar containing: Learn, Thaicode Hour, FAQs, About, and Contact. Below the navigation is a large banner image of smiling children. The main content area features four cards:

- หลักสูตรการเรียน (Learning Courses):** Includes a list of courses: คอร์ส ก (ป.1), คอร์ส ข (ป.2), คอร์ส ค (ป.3), and คอร์ส ง (ป.4).
- Thai Code HOUR:** Describes a weekly 1-hour coding session for Thai CODE HOUR.
- Coding Thailand Tournament:** Announces a nationwide competition for Coders and Makers.
- Newsroom:** Lists news items such as "กระทรวงดีอี" and "พนัก "ดีป้า" เดินหน้าพัฒนา".

At the bottom right, there are logos for depa (Department of Digital Economy and Society) and Code.org International Partner.

# Digital Manpower: EEC Startup Hub

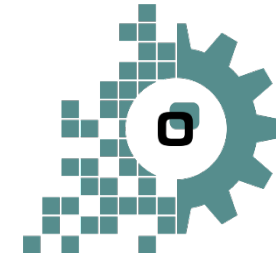
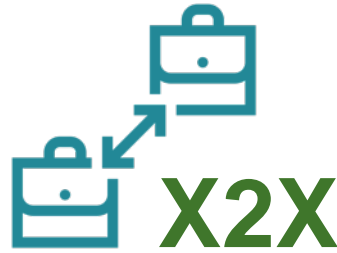


depa  
Digital  
Startup  
Programs

Focus  
area

Focus tech  
platforms

Key  
mechanism



Digital  
transformation



depa funds  
(idea, launch,  
growth)



depa  
accelerators  
& incubators

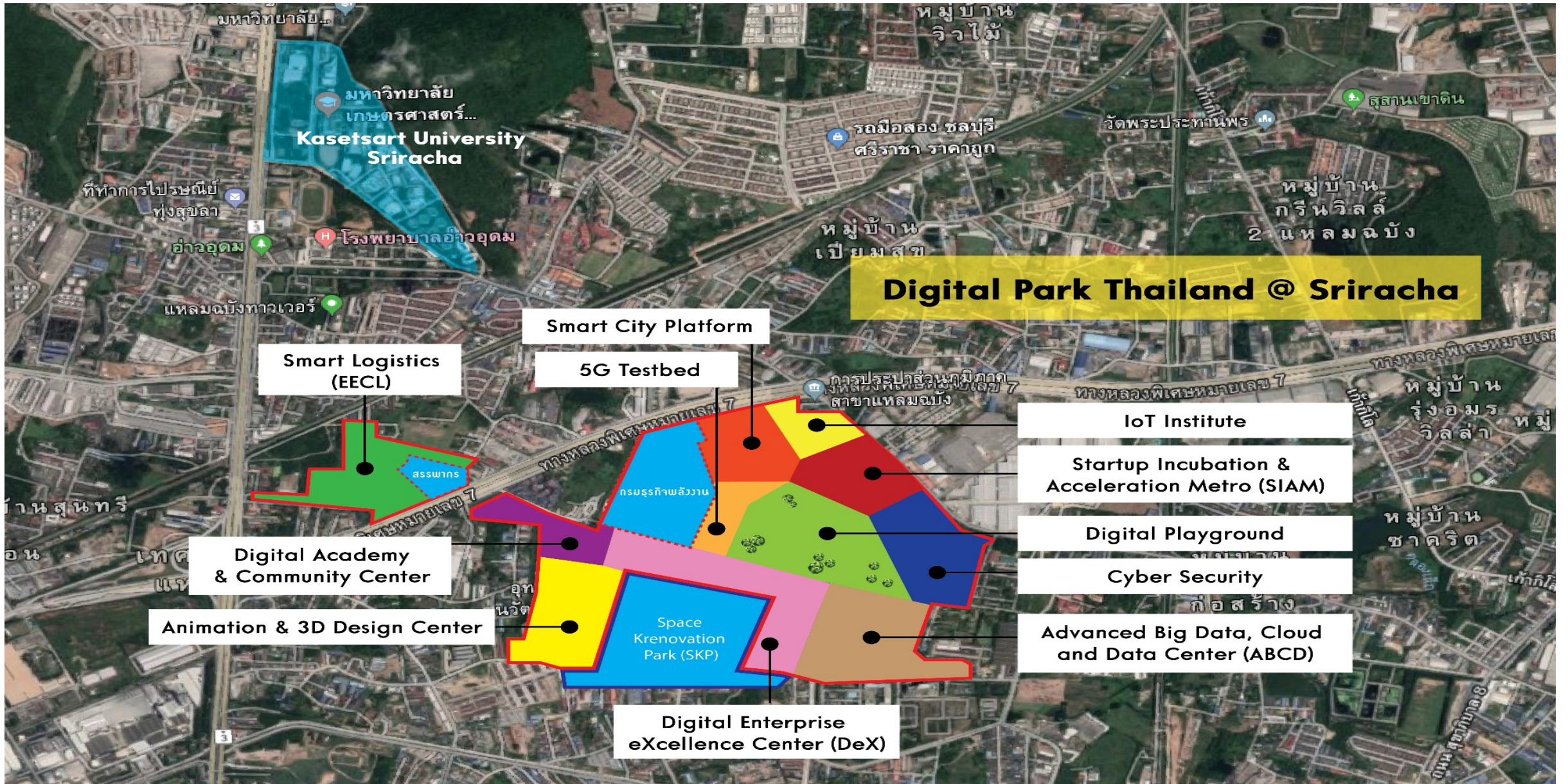


Digital  
startup  
network



Global  
market  
access

# Digital Applications: Digital Park Thailand @ Srirachag



# Digital Applications: IoT Institute

## Overview

- IoT Institute 80,000 sqm
- A1 40,000 sqm, A2 20,000 sqm
- A3 20,000 sqm
- Budget 3,500 M THB

## Objective

- IoT Open Platform
- Networking IoT Talent
- Design Based
- Private-Led

## Facilities

- Industrial Mathematic Lab
- AI Lab
- VR & AR Lab
- Testing Lab
- IoT Center
- Cloud Innovation Lab
- Device Lab
- 5G Lab
- Design Center
- IoT Center
- Demonstration Space
- Maker Space





PERSPECTIVE

IOT INSTITUTE  
DIGITAL PARK CENTER



# Cyber Security

- National Cyber Security Committee
- National Cyber Security Agency
- 6 Critical Information Infrastructures
  - Financial
  - Telecommunications
  - Transportations and Logistics
  - Energy and Public Utility
  - Public Health
  - National and Government Security
- ASEAN-Japan Cyber Security Training Center



# Digital Government: Towards Paperless & Cashless Society

## Ease of Doing Business Ranking

ECONOMY	2017	2018
New Zealand	1	1
Singapore	2	2
Denmark	3	3
South Korea	5	4 ↑
Hong Kong	4	5
Taiwan	11	15
Malaysia	23	24
▶ Thailand	46	26 ↑
Japan	34	34
Vietnam	82	68 ↑
Indonesia	91	72 ↑
China	78	78
India	130	100 ↑
Philippines	99	113

Source: World Bank



## Big Data/ Analytics

ข้อมูลเกี่ยวกับ **ผู้มีรายได้น้อย** จากการสำรวจปี พ.ศ.2560

สามารถเลือกภาคที่ต้องการแสดงผล

สามารถเลือกตามจังหวัดจากแผนที่

แสดงข้อมูล อาชีพ ในภาค : All จังหวัด : All

จำนวนข้อมูลทั้งหมด: 10.640.888

ร้อยละ: 1.74 - 37.32

สามารถเลือกข้อมูลที่ต้องการแสดงผล

อาชีพ:

เกษตรกร	31.69%
รับจ้างทั่วไป	26.73%
อยู่บ้านเฉยๆ	21.58%
ว่างงาน	9.69%
ประกอบธุรกิจส่วนตัว	4.09%
นักเรียน นิสิต นักศึกษา	2.75%
ลูกจ้างเอกชน	1.55%
อื่นๆ	0.59%
รับจ้างขับรถโดยสาร/คนขับ	0.46%
ข้าราชการ พนักงาน เจ้าหน้าที่รัฐ	0.36%
ลูกจ้างรัฐวิสาหกิจ	0.23%
ช่วยธุรกิจของครัวเรือน	0.20%
ไม่ตอบ	0.07%
ข้าราชการบำนาญ	0.02%

# SMART CITIES ROADMAP 5 YEARS

TOWARD A BETTER LIVING WITH DIGITAL TECHNOLOGIES



WHAT

LIVABLE + EFFICIENT MANAGEMENT + SUSTAINABILITY



HOW

CREATE KNOWLEDGE AND AWARENESS + FORM THE GOVERNMENT STRUCTURE OF SMART CITY DRIVER + REVISE LAWS, REGULATIONS AND STANDARDS + COLLECT AND SHARE DATA + FACILITATE RESEARCH DEVELOPMENT AND INNOVATION + EXPAND THE SUCCESS MODELS TO OTHER AREAS



AVAILABLE

GOALS 77 PRE SMART CITIES

USABLE

GOALS 3 SMART EEC



SOLVABLE (PROBLEMS)

GOALS 7 SMART CITIES



INNOVATIVE & SUSTAINABLE





**1** NO POVERTY



**2** ZERO HUNGER



**3** GOOD HEALTH AND WELL-BEING



**4** QUALITY EDUCATION



**5** GENDER EQUALITY




**6** CLEAN WATER AND SANITATION



**7** AFFORDABLE AND CLEAN ENERGY



**8** DECENT WORK AND ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**10** REDUCED INEQUALITIES



**11** SUSTAINABLE CITIES AND COMMUNITIES



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**13** CLIMATE ACTION



**14** LIFE BELOW WATER



**15** LIFE ON LAND



**16** PEACE AND JUSTICE STRONG INSTITUTIONS



**THE GLOBAL GOALS**  
For Sustainable Development

**17** PARTNERSHIPS FOR THE GOALS



## 8 mega-trends will affect urbanisation in ASEAN

Mega-trend	Description
1 Growth of urbanisation	<ul style="list-style-type: none"><li>▪ <b>70 million</b> more people in urban areas by 2025</li><li>▪ Middleweight regions (0.5 - 5 million inhabitants) are growing fastest at <b>5.8-6.9 percent</b> annually</li></ul>
2 Increasing city autonomy	<ul style="list-style-type: none"><li>▪ <b>Decentralisation</b> reforms have shifted the delivery of public services to local governments</li></ul>
3 Emergence of digital technologies to transform cities	<ul style="list-style-type: none"><li>▪ Disruptive technologies valued at up to <b>US\$625 billion</b> in ASEAN</li></ul>
4 Inequality and non-inclusive growth	<ul style="list-style-type: none"><li>▪ <b>50% financial inclusion in ASEAN</b> – much lower than the Asia Pacific average of 70%</li><li>▪ Up to <b>55% living in slums</b> in some countries</li></ul>
5 Congestion driven by urban sprawl	<ul style="list-style-type: none"><li>▪ <b>8% growth in car sales</b> – outpacing all other regions in the world</li><li>▪ Congestion costs as much as <b>5% of GDP</b> in some countries</li></ul>
6 Increasing resource footprint of cities	<ul style="list-style-type: none"><li>▪ Carbon dioxide emissions has increased <b>6.1% annually</b></li><li>▪ <b>25cm per year</b>; the rate which Jakarta is sinking annually</li></ul>
7 New priorities surrounding crime and the rule of law	<ul style="list-style-type: none"><li>▪ The encounter rate for malware in ASEAN is <b>2 times higher</b> than the global average</li></ul>
8 Emergence of non-communicable diseases	<ul style="list-style-type: none"><li>▪ Incidence of obesity is up to <b>3 times higher</b> in urban areas</li><li>▪ Highest urban air pollution levels in the world; <b>5-10 times</b> higher than WHO limits</li></ul>



# ASEAN

## SMART CITIES NETWORK

Pilot Cities



# 6 Smart city domains

## Safe and accessible

Accessibility, convenience, and safety

## Efficient

Efficient transportation and logistics management

## Sharing

Ride sharing and green mobility

## Efficient

Efficient energy consumption

## Green

Alternative green energy

## Environmentally friendly

Effective waste management and environmental monitoring

## Accessible

Government services accessibility

## Citizen centric

Citizen participation

## Transparent

Transparency



## Smart Mobility

Transport and green vehicles



## Smart Energy and Environment

Natural resources



## Smart Economy

Competitiveness



## Smart Governance

Participation



## Smart Living

Quality of life



## Smart People

Social and human capital

Thailand  
Smart city

## Ease of doing business

Business agility

## Networking

Business connectivity

## Innovating

Business innovation and transformation

## Healthcare services

Healthy people

## Public safety

Public safety

## Living comfort

Intelligent living facilities

## Digital awareness

Knowledgeable and digital citizen

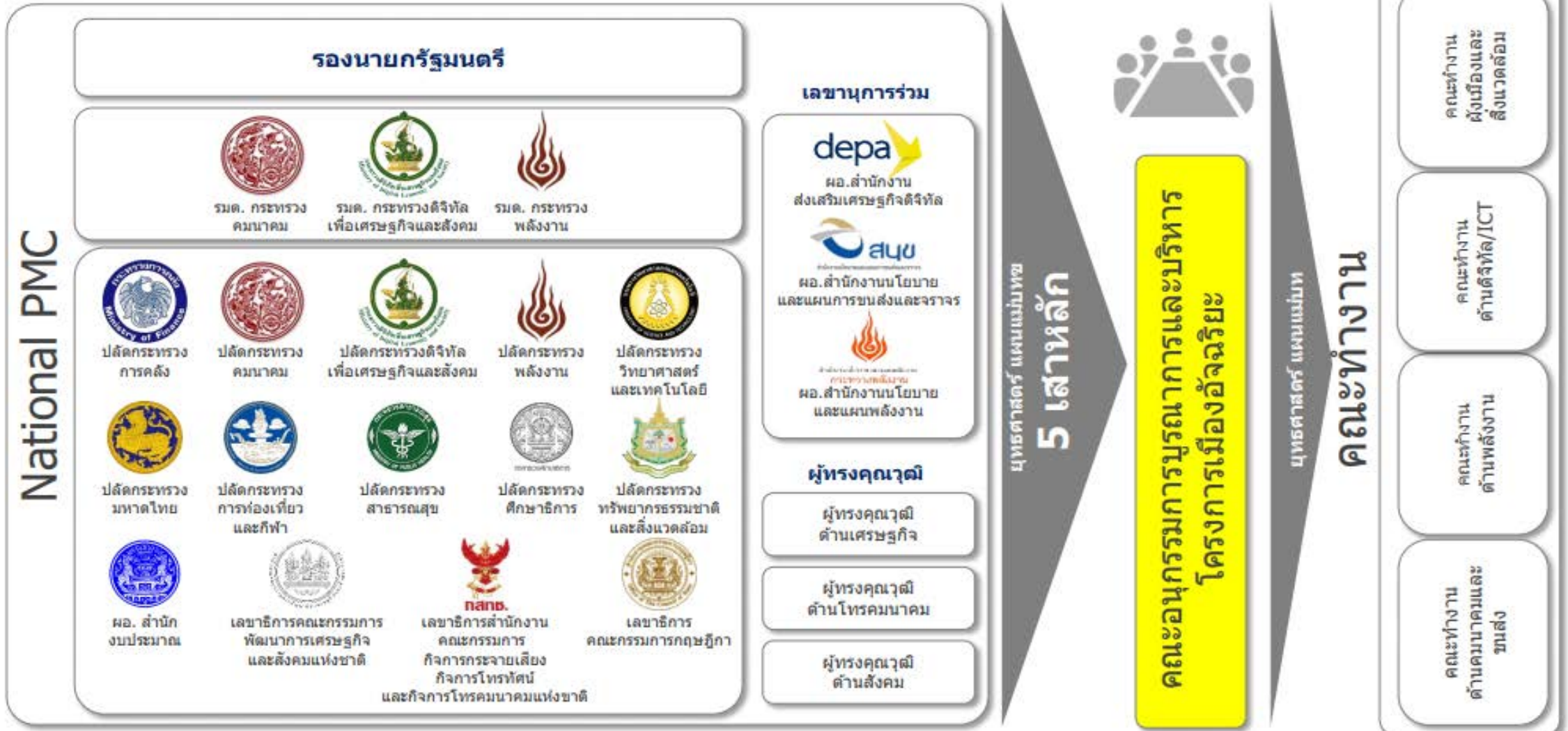
## Life long learning

Creative learning environments

## Citizen centric

Inclusive society

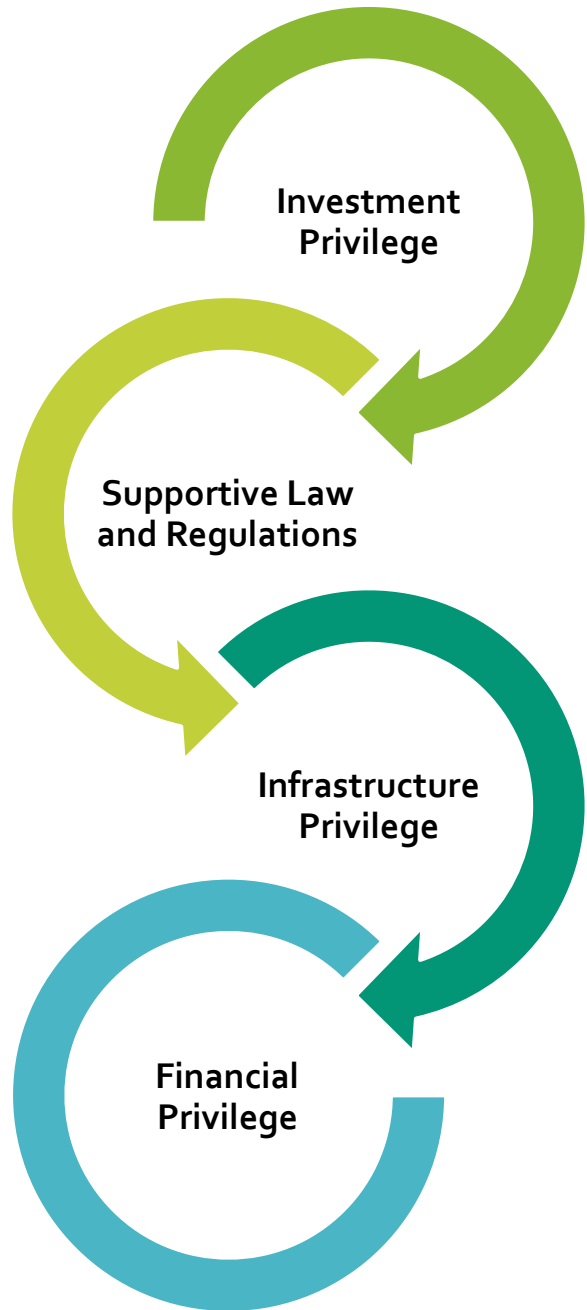
# โครงสร้างคณะกรรมการขับเคลื่อนการพัฒนาเมืองอัจฉริยะ National Smart City Steering Committee



# Possible PPP for Infrastructure Development in Smart City Initiative



<p>รัฐลงทุน โครงสร้างพื้นฐานหลัก</p> <p><b>Public</b></p>	<ul style="list-style-type: none"> <li>▪ Power Grid</li> <li>▪ Demand Response Control Center (DRCC)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Road Infrastructure</li> <li>▪ Public Transportation</li> <li>▪ Electronic Pass</li> <li>▪ Electronic Road Pricing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Broadband Infrastructure</li> <li>▪ Free Wi-Fi</li> <li>▪ Government Services</li> </ul>
<p>รัฐและเอกชน ร่วมลงทุน (PPP) โครงสร้างพื้นฐาน และแพลตฟอร์มข้อมูล</p>	<ul style="list-style-type: none"> <li>▪ Smart Grid</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rail System</li> <li>▪ Common Tickets</li> <li>▪ Smart Bus</li> </ul>	<ul style="list-style-type: none"> <li>▪ City Data Platform</li> <li>▪ Data Center</li> <li>▪ CCTV System</li> <li>▪ IoT Networks (NbloT/ LoRa)</li> <li>▪ Smart Pole</li> </ul>
<p>เอกชนลงทุน บริการและแอปพลิเคชัน</p> <p><b>Private</b></p>	<ul style="list-style-type: none"> <li>▪ Smart Meter</li> <li>▪ Renewable Energy</li> <li>▪ Smart Device (Heating, Cooling, Lighting, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Smart Bus</li> <li>▪ Car Sharing</li> <li>▪ Bike Sharing</li> <li>▪ Smart Parking</li> </ul>	<ul style="list-style-type: none"> <li>▪ Smart Economy (Manufacturing, Farm, Tourism, etc.)</li> <li>▪ Smart Living (Safety, Health, Parking, etc.)</li> <li>▪ Smart Environment</li> </ul>



## Investment Privilege

- 8 years corporate income tax waiver plus 50% reduction for another 5 year
- Potential 15 years corporate income tax waiver plus grants for strategic projects (Thailand Competitive Fund)
- Potential maximum 17% personal income tax for management, investors, experts in target industries with HQ and facilities in EEC
- Long-term land lease 50+49 years
- Fast Track PPP/EIA process
- Free Trade Zone
- One Stop Service

## Supportive Law and Regulations

- Regulatory Sandbox
- Smart Visa for workers and family

## Infrastructure Privilege

- Fast track for infrastructure investment: digital, transportation, energy

## Financial Privilege

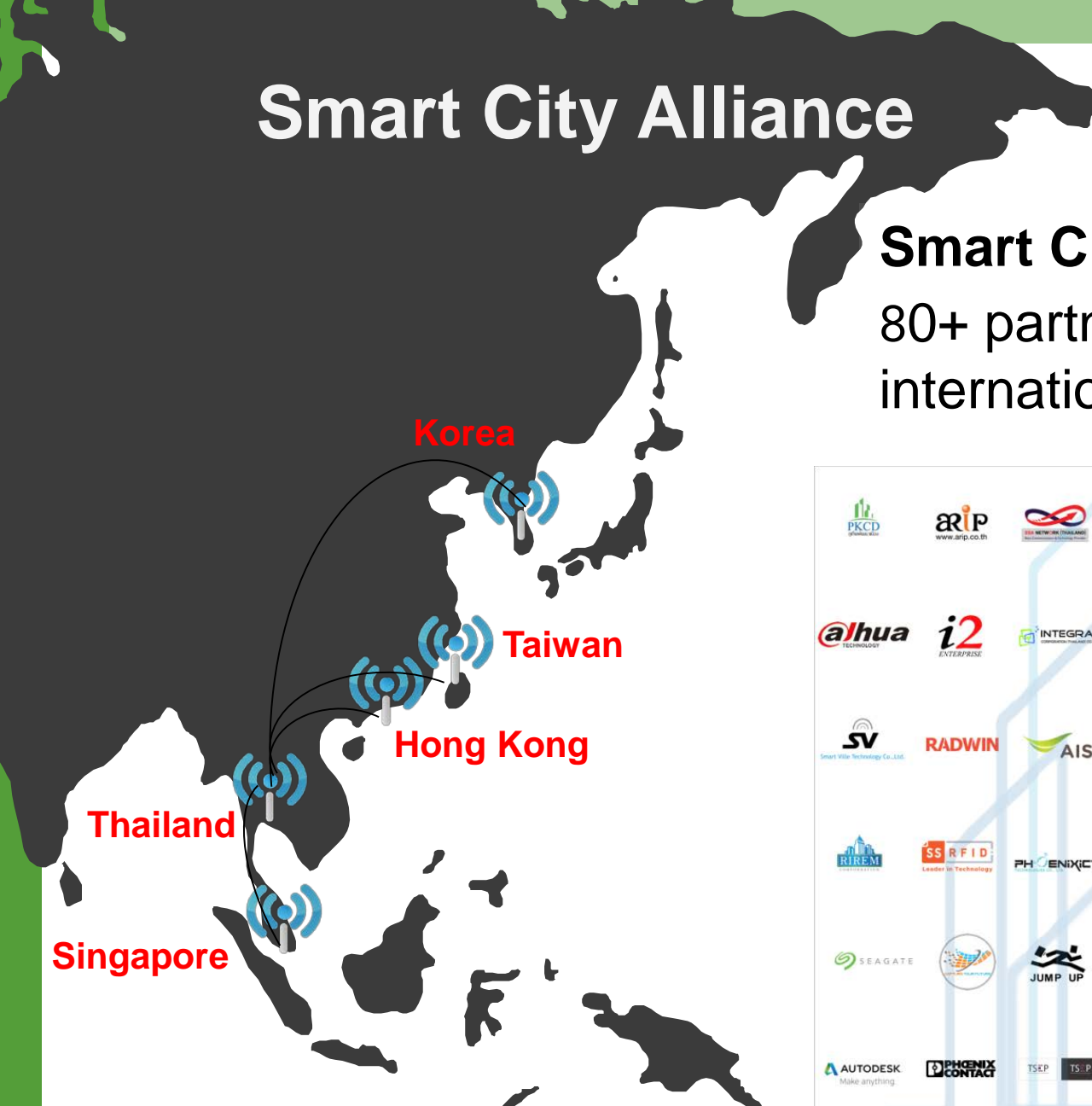
- Digital Transformation Fund
- Digital Manpower Fund
- Digital Startup Fund
- Smart City Research Fund
- Smart City Infrastructure Fund

# Smart City Alliance



## Smart City Alliance

80+ partners, 6 municipalities, 4 projects, 5+ international partners





# PHUKET SMART CITY



depa

## Smart City Data Platform

### 3 Intelligent

Tourism IoT Env. Sensors + Safety Real Estate



### 2 Interconnected

Data Integration + Analytic → Services



Gov. Open Data



Social Analytic



Data from Instrumental (Near Real time)

### 1 Instrumental (Near Real time)



City Application



Wast lot



Public WiFi



City + Marine Safety



Env. Sensors



Transport

#### Smart Safety

**Now** :- CCTV Integration 700 of 1,300 cameras

- LPR (8 Installation point, 37 cameras, Detected > 59.38 M plate)
- Face recognition (3 Fixed cameras, 8 Smartphone Detected > 1.49 M)
- Traffic law enforcement (5 Installation point, 41 cameras, Detected > 41 M, 620 K Offenders)
- CCTV Command Centre
- Vessel Tracking and Monitoring System (23 Radar + AIS Stations)
- Maritime Safety (1 Pier UAT, 4 Piers expend)
- Guide / Job order System

**New** :- Integrate data with Smart City Data Platform

- 3,500 cameras for Complete CCTV

#### Smart Healthcare

**Now** :- Project plan

#### Smart Economy

**Now** :- Smart City Innovation Park (IoT Lab, Co Creation Space, Investment OSSC)

- 200 SMEs participated Digital transform Courses
- 28 BOI Digital Cluster, 156 M Invest
- 5 x 500 K Fund for Smart City Startups

**New** :- Digital OSS for Startups + SMEs

- 200 SMEs to Digital transform
- 50 Startups

#### Smart Environment

**Now** :- 10 IoT sensors stations (CO, DO, Water levels, etc.)

- 16 IoT sensors stations (Rain, Temperature, Humidity)
- Traffic Waste Platform (10 Installation point in Patong)

**New** :- 5 IoT sensors station on NB-IoT

- Integrate data with other sensors platforms
- Integrate data with Smart City Data Platform



#### Smart Education

**Now** :- Project plan

#### Smart Governance

**Now** :- Smart City Data Platform

**New** :- Phuket Intelligent Command Center

#### Smart Tourism

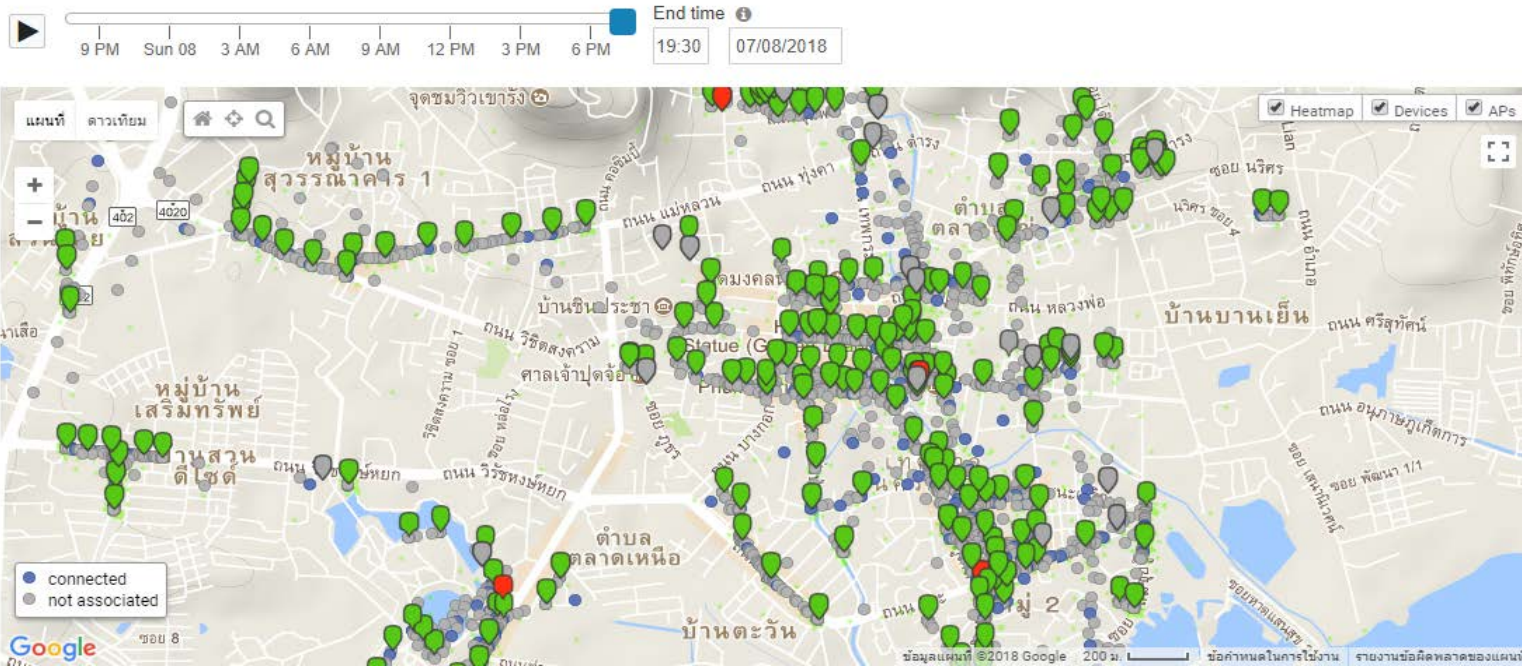
**Now** :- PHUKET App. for FIT

- Support Tourism Startups
- Public free WiFi (1,000 AP / >1.3 M Accounts > 40 K Connected per day)
- LoraWAN Network (35 base, > 500 sq.km)

**New** :- Collaborate PRSThailand for content + PR on PHUKET App.

- Integrate data with Smart City Data Platform

## Location heatmap



# Free WiFi Tourist Behavior analytics

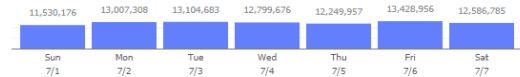
### Clients with high usage

1 clients used more than 100.00 GB  
"DESKTOP-LVN60EJ"

### Usage stats

TOTAL DATA TRANSFERRED: 25.56 TB  
TOTAL DATA DOWNLOADED: 23.33 TB  
TOTAL DATA UPLOADED: 2.23 TB

### Number of sessions over time



### Top SSIDs by usage

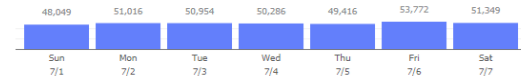
Name	Encryption	# Clients	Usage	% Usage
@ SmartCity-Free-WiFi-by-CAT	Unknown	68640	21.16 TB	82.78%
@TH Wi-Fi-Phuket by MDES	Unknown	65349	4.4 TB	17.22%

### Top devices

### Client stats

TOTAL UNIQUE CLIENTS: 111179  
AVERAGE # OF CLIENTS PER DAY: 50691  
AVERAGE USAGE PER CLIENT: 241.1 MB

### Clients per day



### Splash page

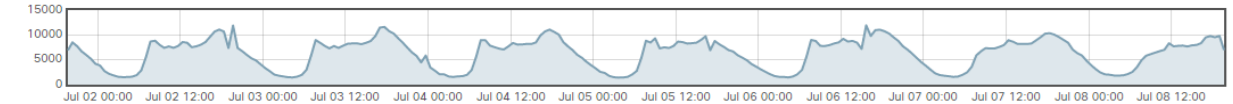
NUMBER OF CLIENTS TO REQUEST PAGE: 51621  
NUMBER OF CLIENTS GRANTED ACCESS: 15897

### Top clients by usage

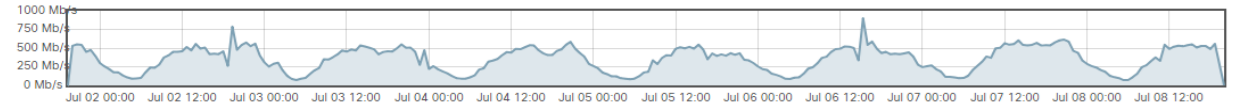
Description	Usage	% Usage
DESKTOP-LVN60EJ	122.07 GB	0.47%
DESKTOP-GVTOE3E	71.69 GB	0.27%
SCSCB3KPCORMF8Y	69.97 GB	0.27%
DESKTOP-TRNDVVR	64.62 GB	0.25%

### Traffic analytics for the last week on all SSIDs

#### Client counts approximately 120104 unique clients



#### Usage 25.6 TB (+23.36 TB, +2.24 TB)



Application	Destination	Protocol	Port	% Usage	Usage	Sent	Received	Flows	Active time	# clients
YouTube	-	-	-	33.1%	8.46 TB	139.42 GB	8.33 TB	3924240	36 months	25828
Facebook	-	-	-	28.4%	7.28 TB	280.36 GB	7.00 TB	9933476	111 months	51607
Google HTTPS	-	-	-	2.3%	605.16 GB	374.92 GB	230.24 GB	6381975	72 months	54035
Line	-	-	-	1.7%	451.23 GB	29.69 GB	421.54 GB	1602692	24 months	27770
iTunes	-	-	-	1.3%	334.67 GB	5.36 GB	329.32 GB	223589	3.3 months	10095
iCloud	-	-	-	1.1%	285.30 GB	234.40 GB	50.90 GB	463760	3.1 months	9249
Miscellaneous secure web	tv.line.pstatic.net	TCP	443	0.9%	234.08 GB	3.07 GB	231.01 GB	24942	11 days	352
Netflix	-	-	-	0.9%	232.48 GB	3.25 GB	229.23 GB	42845	9 days	632
Miscellaneous web	wifi.getturnstyle.com	TCP	80	0.7%	188.79 GB	12.58 GB	176.21 GB	2677939	21 months	51201
Miscellaneous secure web	obs.line-scdn.net	TCP	443	0.5%	140.28 GB	2.36 GB	137.92 GB	170153	9 weeks	14213

# Smart City

## 12 Phuket City Development Master Plans

### Smart Transit



Transportations



TOD



Ocean Marina

### Smart Energy



Alternative

Electricity Supply



Water Supply

Management

### Smart Tourism



Application  
Platforms



Premium Tourist

### Smart City



Lighting

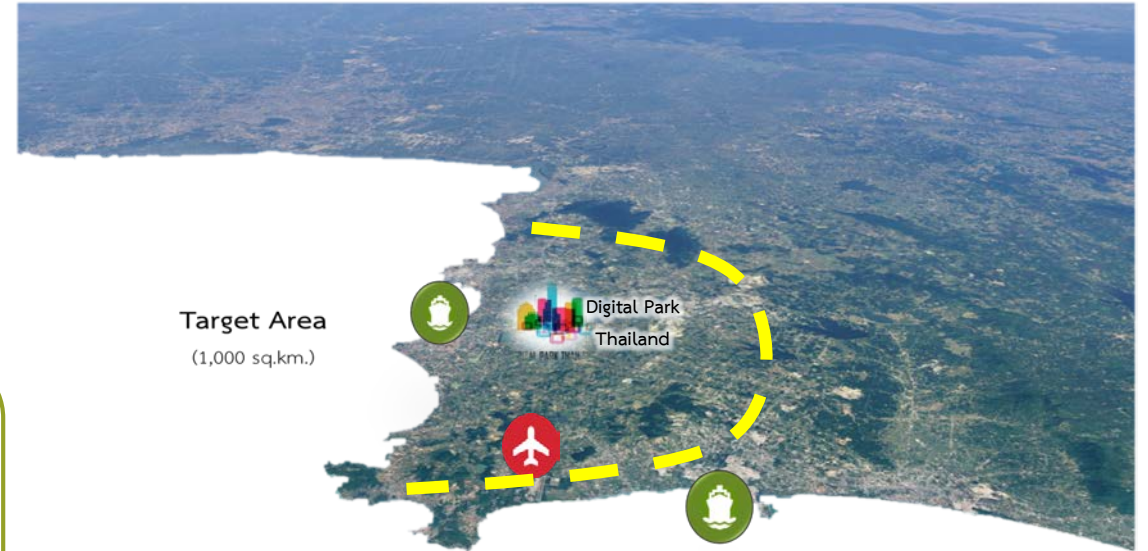


Safety



Knowledge  
Repository

## Smart EEC



Target Area  
(1,000 sq.km.)

Digital Park  
Thailand

Boosting  
Economy

Improving  
Quality of life

Driving  
Sustainability

Ensuring collaborative  
Development

**Network**

- (4) VISA
- (6) UNION Pay
- (5) Master
- (3) JCB



**MERCHANT**



**EDC**



**BIN Sponsor**

Banks  
E-Wallet  
(Online Channels,  
Bill Payment)

**Bin Sponsor  
& E-Wallet  
License**



**Processor**

Thai Smart Card  
(TSC)



**Issuing  
License  
+  
Issuing  
Cards**



**Program Manager**

PKCD

**(PKCD Pay)  
+ Payment  
Facilitator**



**Phuket Sim  
PKCD**

**WiFi  
GPS  
Securities**



**Distributor**

**DISTRIBUTION CHANNELS**

- Off-Line**
- 7-Eleven (approx. 400 branch)
  - All **Telco's** Distributions
  - All Hotels
  - Tour counters
  - Department stores
  - Airlines + Airports
  - **Shareholders Businesses**
  - **Online Channels**
  - **PKCD's and its subsidiary Websites**
  - **Other Websites**

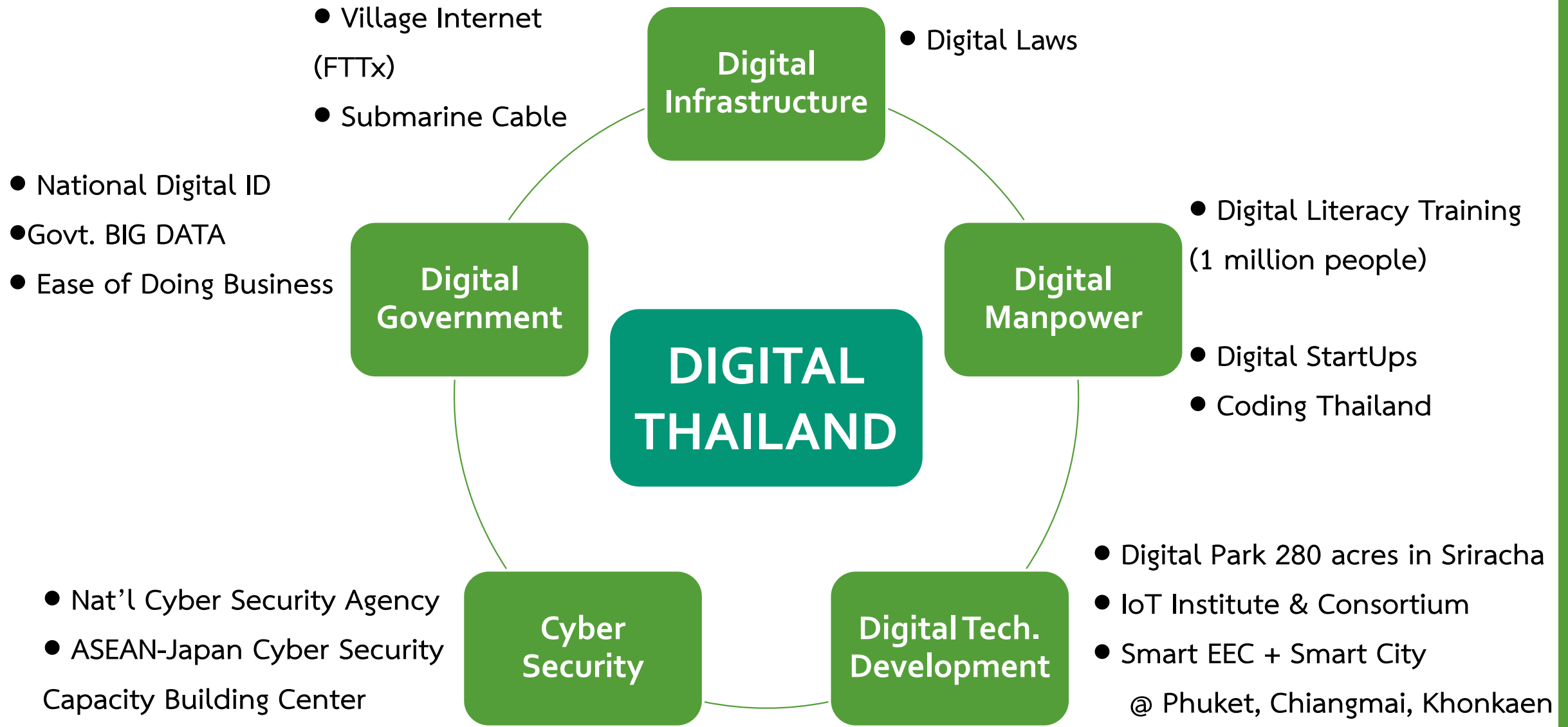


**REWARDS**





# “DIGITAL AGENDA 2018”



**THAILAND**  
Focus 2018

August 29-31, 2018, Bangkok, Thailand



Thank you