NRI 野村総合研究所
Nomura Research Institute

SLIDE 01

# Smart Cities:

## How Your Organisation Can Leverage On New Business Opportunities While Contributing To The Development Of Smart Cities

## What We Hope You Will Take Away From This Whitepaper

“Smart City” is a term and concept increasingly used by governments, businesses, and consumers over the last few years. In this whitepaper, Nomura Research Institute (NRI) hopes to give you a clear idea of what exactly a Smart City is, and how your organisation can identify and leverage on new business opportunities while contributing to the development of a Smart City.

## In This Whitepaper, NRI Will Share:

- The definition of a Smart City, components of a Smart City, various business layers and opportunities within a Smart City project.
- Scenarios of how society and the development of Smart Cities may proceed post COVID-19.
- The landscape of Smart City projects in Southeast Asia and key points of focus for various countries.

NRI 野村総合研究所
Nomura Research Institute

# Introduction

## Definitions, Components, Business Layers And Opportunities Of A Smart City Project

野村総合研究所
Nomura Research Institute

# What Is A Smart City?

NRI defines a Smart City as one that **collects, integrates, analyses a wide variety of data** (environmental, equipment operation, consumer attributes, resident behaviour, etc.) through sensors spread across the city.

The aim of a Smart City is to optimise urban infrastructure, facilities, connectivity and operations, to improve convenience and comfort for both residents and businesses.

Recent advances in A.I. technology, wireless communications, data science, and sensor technology have made it possible to realise a truly Smart City.

野村総合研究所
Nomura Research Institute

# Benefits And Features

- A.I. and big data enabling services like autonomous vehicles, cashless society, and administrative efficiency through digital services.
- Reducing urban operating costs, while increasing real estate value and resident comfort.
- Optimising urban activity through a strong digital infrastructure.
- An entry-point for “tech” players like GAFA (Google, Apple, Facebook, Amazon) and BAT (Baidu, Alibaba, Tencent), to expand their business from traditional cyberspace into the physical space.
- An opportunity for traditional hardware or manufacturing companies to leverage its relationships and expand into new businesses.

# Different Components Of A Smart City

A Smart City project may target one or more of these components.

| SC ISSUE AREA | FUNCTION / ASPECTS | PROJECT EXAMPLE |
|---|---|---|
| Mobility | Increase the efficiency and accessibility of public or private transportation, movement of people, or traffic management | • Intelligent Transport System (ITS)<br>• Driverless trains<br>• Bike-sharing infrastructure development |
| Waste & Utilities | Improvement in the aspects of water accessibility, waste management, recycling solutions, through infrastructure or new solutions & services | • Trash bins with measurement sensors<br>• Smart meters<br>• Food recycling systems |
| ICT | Building infrastructure for greater internet connectivity, developing new digital services instead of traditional physical platforms | • Increase public WIFI hotspots<br>• 5G infrastructure & connectivity |
| Digital Services | Leveraging on technology to efficiently complement or even replace the traditional way of doing things | • Tele-health services for minor illnesses<br>• Food and grocery delivery platforms |
| Real Estate | Development of infrastructure, roads, land, buildings | • Replacement of overhead power lines with underground cables<br>• Expansion of railway lines |
| Energy | Development of green/clean energy, reducing carbon emissions, expanding access to electricity, etc. | • Smart grid development<br>• Building energy management systems<br>• EV charging station infrastructure |
| Business Innovation | Building of business/commercial districts of the future to improve the lives of residents in the city, create innovative economic opportunities | • Development of new smart business district<br>• Start-up clusters and innovation hubs |
| Government Services | Improving government services provided to people and businesses to achieve public participation, transparency, public-private partnership, and efficient public and social services | • National Digital Identity<br>• Multifunction digital government portal |

# Business Opportunities Within The Smart City Project Universe

There are 4 layers of business opportunities, from traditional infrastructure development to smart services development.

| | GOVERNANCE | PROFIT BUSINESSES | | LIVING LAB, SMART ECONOMY & INDUSTRY | |
|---|---|---|---|---|---|
| Services & Applications | Smart Community | Mobility | Sharing Economy Model | **Enterprise Support** | **Lab Mgt** |
| | Public Area Management | Digital Signage | Smart Healthcare | Collaboration with Industrial Parks | Support for Proof-of-Concepts |
| | Digital Govt. Services | Energy Management | Smart Grid | Investment | Data Sharing |
| | Other Areas of Governance... | Education/Senior Care | Others... | Co-working Spaces | Communication with Residents |

| | | | | | |
|---|---|---|---|---|---|
| Digital Infra. | Data Lake & Analytics | Sensor Network (e.g. Smart Meters) | Infrastructure OS and Platform (e.g. Traffic Data Platform, Energy Data Platform, etc.) | | |
| Basic Infra. | Network (Optic Fiber Cables) | Utility Supply (Electricity, Water) | Waste & Sewage Management | Traffic Control (Roads, Parking) | Energy Management |
| Real Estate | Real Estate Development | | | | |

野村総合研究所
Nomura Research Institute

# Impact Of COVID-19

---

## How Will A Global Crisis Like COVID-19 Affect Development In Societies & Smart Cities?

# Changes Brought By COVID-19

In the short to medium term, key factors such as economic changes and ways of communication should be considered during scenario planning. Here, we look at the impact of COVID-19 for societies.

Impact of COVID-19 and Key factors for scenario planning

COVID-19

**IMPACT OF COVID-19**

## A. Impact on economic activity

- Productivity continues to drop after lockdown and suspension of some corporate activities
- Supply chain disruption, outage
- Corporate cash flow deterioration
- Increases unemployment rate, reduces salary
- Delay in mid to large scale projects

## B. Impact on values for real/virtual communication

- Keep social/personal distance
- Experience of remote working like work from home
- Penetration of digital tools across generations
- Shift in information collection and purchases from offline to online
- More personal time due to flexible working style

**KEY FACTORS**

**Economy**

Recovery

Economic recession

**Preferred way of communication**

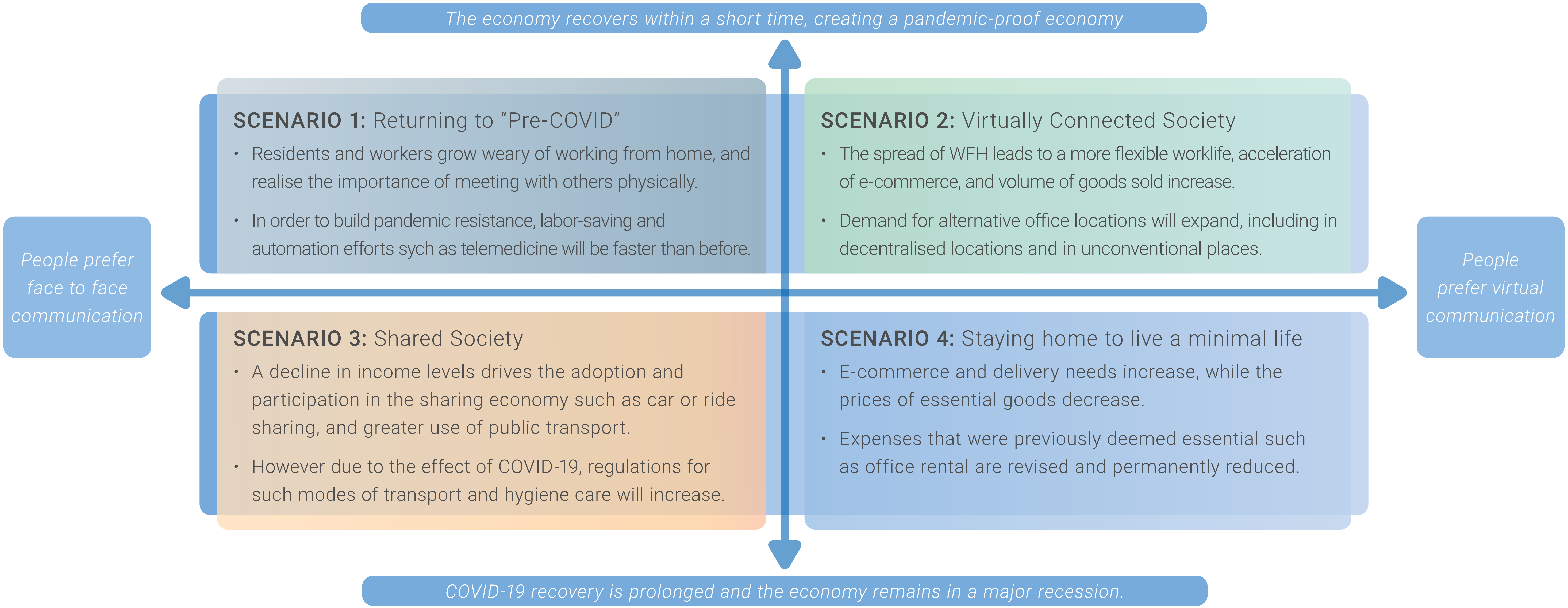
Real

Virtual

# Smart Cities In The COVID-19 Pandemic

While the COVID-19 pandemic has affected all areas of society, the concept of Smart Cities remains.

**The economy recovers within a short time, creating a pandemic-proof economy**



*The economy recovers within a short time, creating a pandemic-proof economy*

*People prefer face to face communication*

*People prefer virtual communication*

**SCENARIO 1:** Returning to "Pre-COVID"

- Residents and workers grow weary of working from home, and realise the importance of meeting with others physically.
- In order to build pandemic resistance, labor-saving and automation efforts sych as telemedicine will be faster than before.

**SCENARIO 2:** Virtually Connected Society

- The spread of WFH leads to a more flexible worklife, acceleration of e-commerce, and volume of goods sold increase.
- Demand for alternative office locations will expand, including in decentralised locations and in unconventional places.

**SCENARIO 3:** Shared Society

- A decline in income levels drives the adoption and participation in the sharing economy such as car or ride sharing, and greater use of public transport.
- However due to the effect of COVID-19, regulations for such modes of transport and hygiene care will increase.

**SCENARIO 4:** Staying home to live a minimal life

- E-commerce and delivery needs increase, while the prices of essential goods decrease.
- Expenses that were previously deemed essential such as office rental are revised and permanently reduced.

*COVID-19 recovery is prolonged and the economy remains in a major recession.*

野村総合研究所
Nomura Research Institute

# The Landscape Of Smart City Projects In Southeast Asia

---

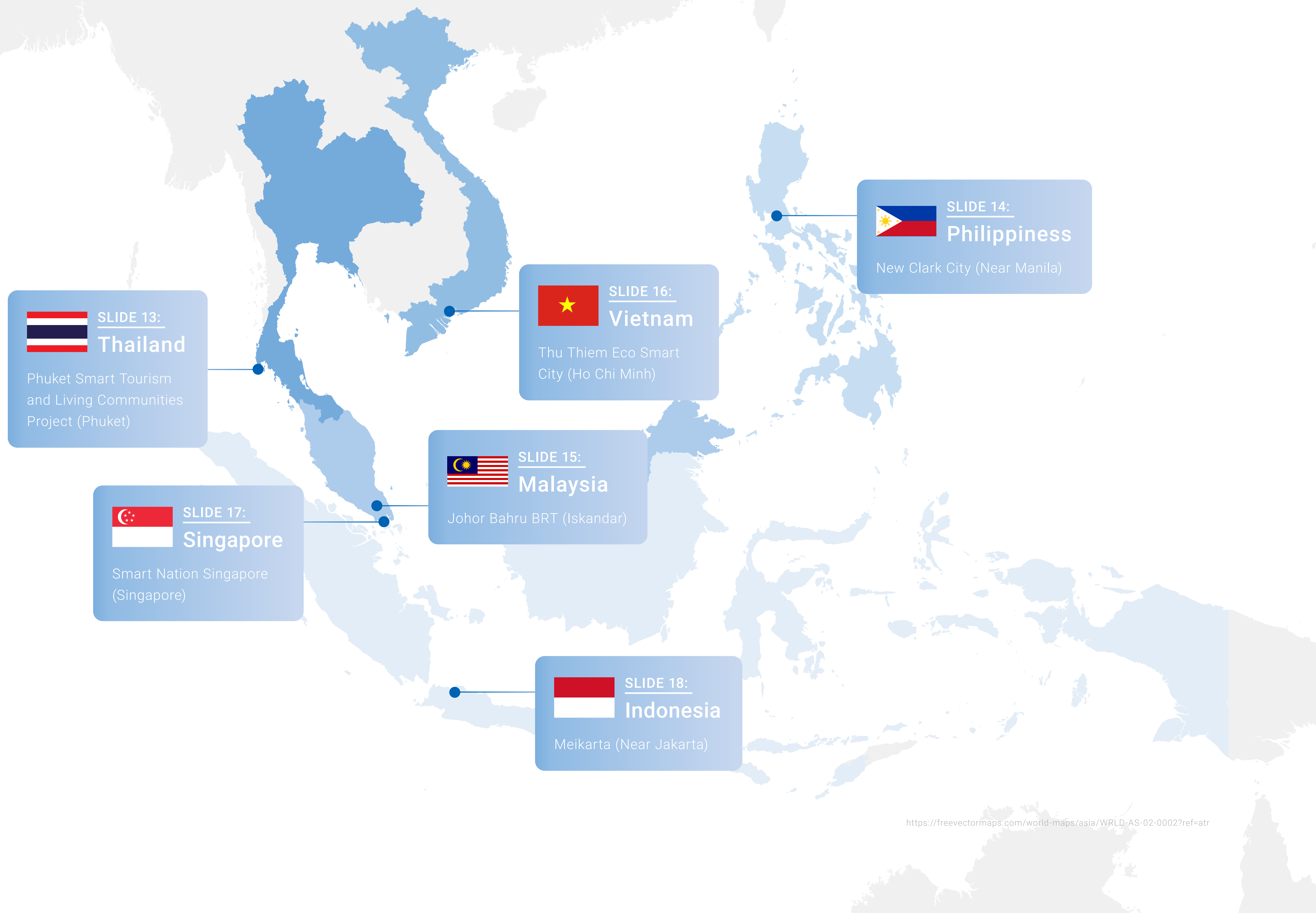
## The Main Projects, Statistics And Key Points Of Focus For Each Country

# Key Southeast Asian Countries For Smart Cities

野村総合研究所
Nomura Research Institute

Across ASEAN, hundreds of Smart City projects are planned and each of these projects represent opportunities for businesses to participate and add value.

Circumstances and social problems may vary considerably from project to project. Hence, it is important to determine the affinity of each project with your company's product and services.



**SLIDE 13:**
**Thailand**
Phuket Smart Tourism and Living Communities Project (Phuket)

**SLIDE 14:**
**Philippiness**
New Clark City (Near Manila)

**SLIDE 15:**
**Malaysia**
Johor Bahru BRT (Iskandar)

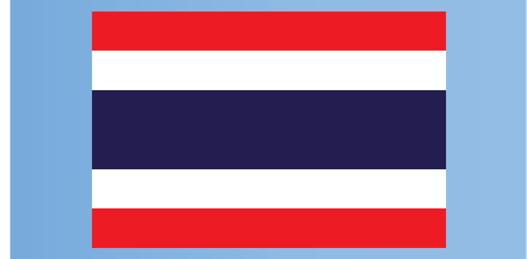
**SLIDE 16:**
**Vietnam**
Thu Thiem Eco Smart City (Ho Chi Minh)

**SLIDE 17:**
**Singapore**
Smart Nation Singapore (Singapore)

**SLIDE 18:**
**Indonesia**
Meikarta (Near Jakarta)

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

# Thailand



**Thailand**

### THEMES OF INTEREST

- EEC area is the key region for SC development and projects
- All areas are welcome, but particular support for “Smart Industrial Estates” and “Smart City Systems”

### GOVERNMENT POLICY, SUPPORT, AND ISSUES

- Govt. has a clear SC framework and roadmap
- However, some regulations are not fully mature yet (e.g. cooperation with gov. agencies)
- Tax incentives exist for companies involved with SC projects

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| >100 | Thailand 4.0<br>(Thailand Smart City Master plan) | ✓ Bang Sue Central Station development plan<br>✓ Phuket Smart City |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| Phuket Smart Tourism and Living Communities Project (Phuket) | 543 km² | USD 11 mn (2013–2017) | Phuket City Development Co., Ltd. (PKCD) | Existing |

### SOCIAL ISSUES TARGETED

| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| | | ✓ | | | ✓ |

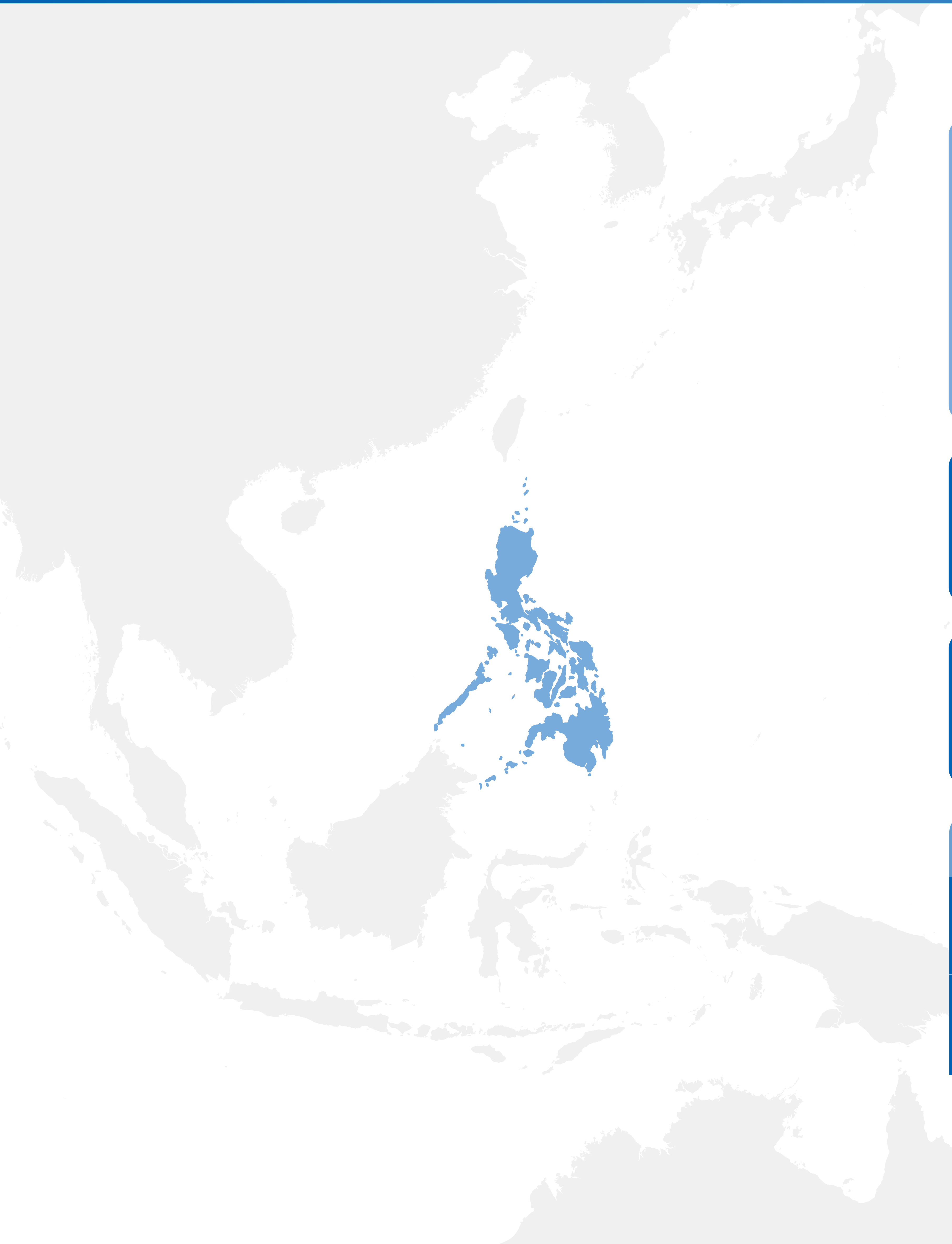
### APPLICATION

- Urban data platform, ensuring security through management analysis of CCTV* information

*CCTV: Closed Circuit Television

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

# Philippines



**Philippines**

**THEMES OF INTEREST**

- SC projects are driven by the city-level, not the national level
- From city master plans in Manila, Cebu, and Davao, “Security”, “Mobility”, “Education”, and “Health” are the key areas for pilot SC projects

**GOVERNMENT POLICY, SUPPORT, AND ISSUES**

- Govt. does not have a clear SC framework and roadmap
- There are some incentives, but it is not specifically created to develop Smart City projects and investments

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| 33 | • Philippines Development Plan (2017—2022)<br>• Build Build Build Program | ✓ New Clark City<br>✓ West Side City |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| New Clark City (Near Manila) | 94.5 ha | USD 14 bn | Bases Conversion and Development Authority (BCDA) | New |

**SOCIAL ISSUES TARGETED**

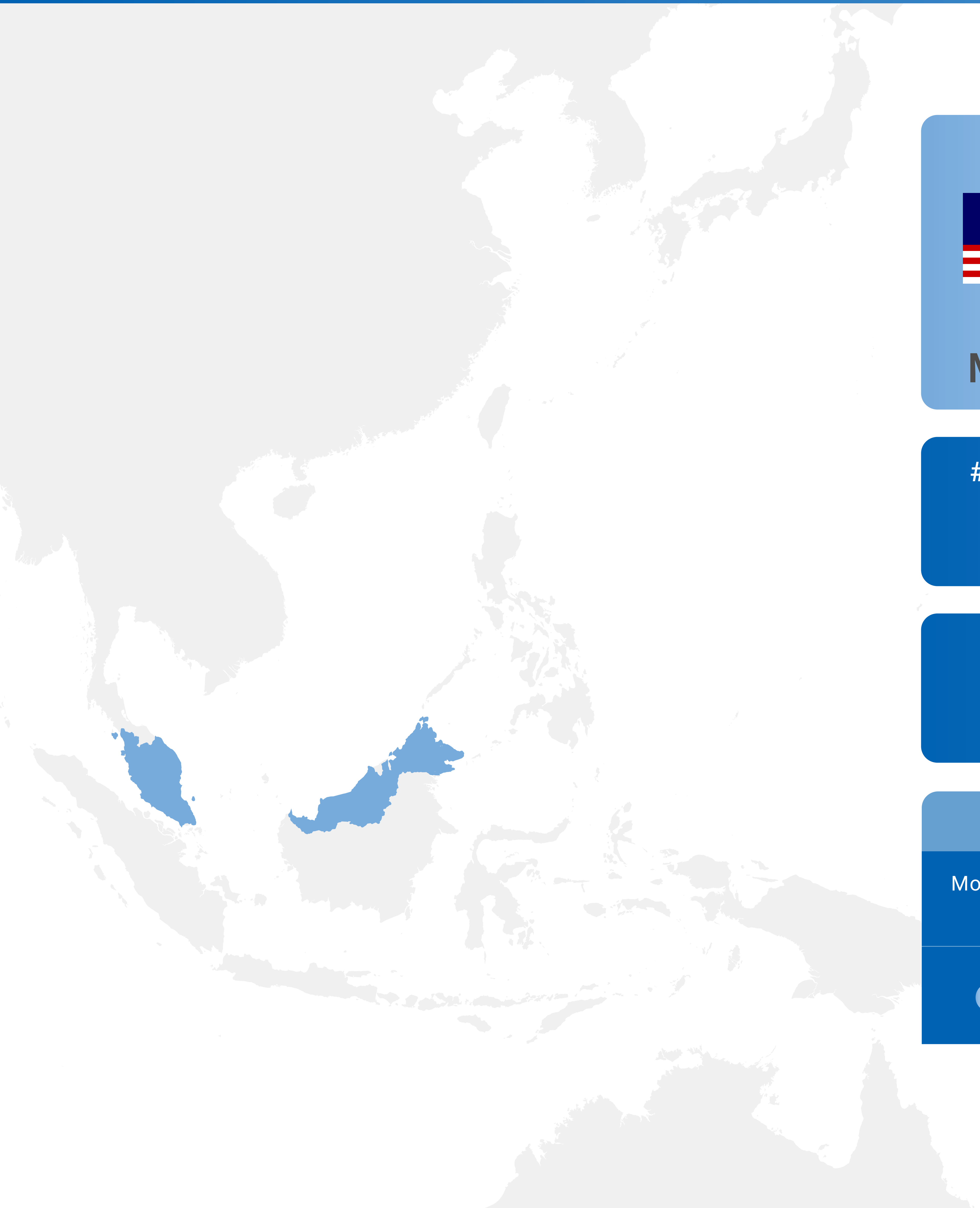
| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| ✓ | | ✓ | ✓ | ✓ | ✓ |

**APPLICATION**

- Construction of sports centers, online administrative services, techno parks, etc.

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

# Malaysia



## Malaysia

### THEMES OF INTEREST

- Smart Cities are envisioned to be the future driver of economic growth, hence initial focus on Kuala Lumpur and Johor Bahru
- ICT and "new" solutions are welcome, such as Alibaba City Brain AI platform

### GOVERNMENT POLICY, SUPPORT, AND ISSUES

- There is an official action plan to develop and implement SC projects especially for ICT/ Digital and govt. services
- In terms of incentives, there are few incentives to attract SC investment

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| 25 | • Vision 2020 | ✓ Medini Smart City (Iskandar)<br>✓ Johor Bahru BRT |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| Johor Bahru BRT (Iskandar) | – | USD 0.6 bn | Iskandar Regional Development Authority (IRDA) | New |

### SOCIAL ISSUES TARGETED

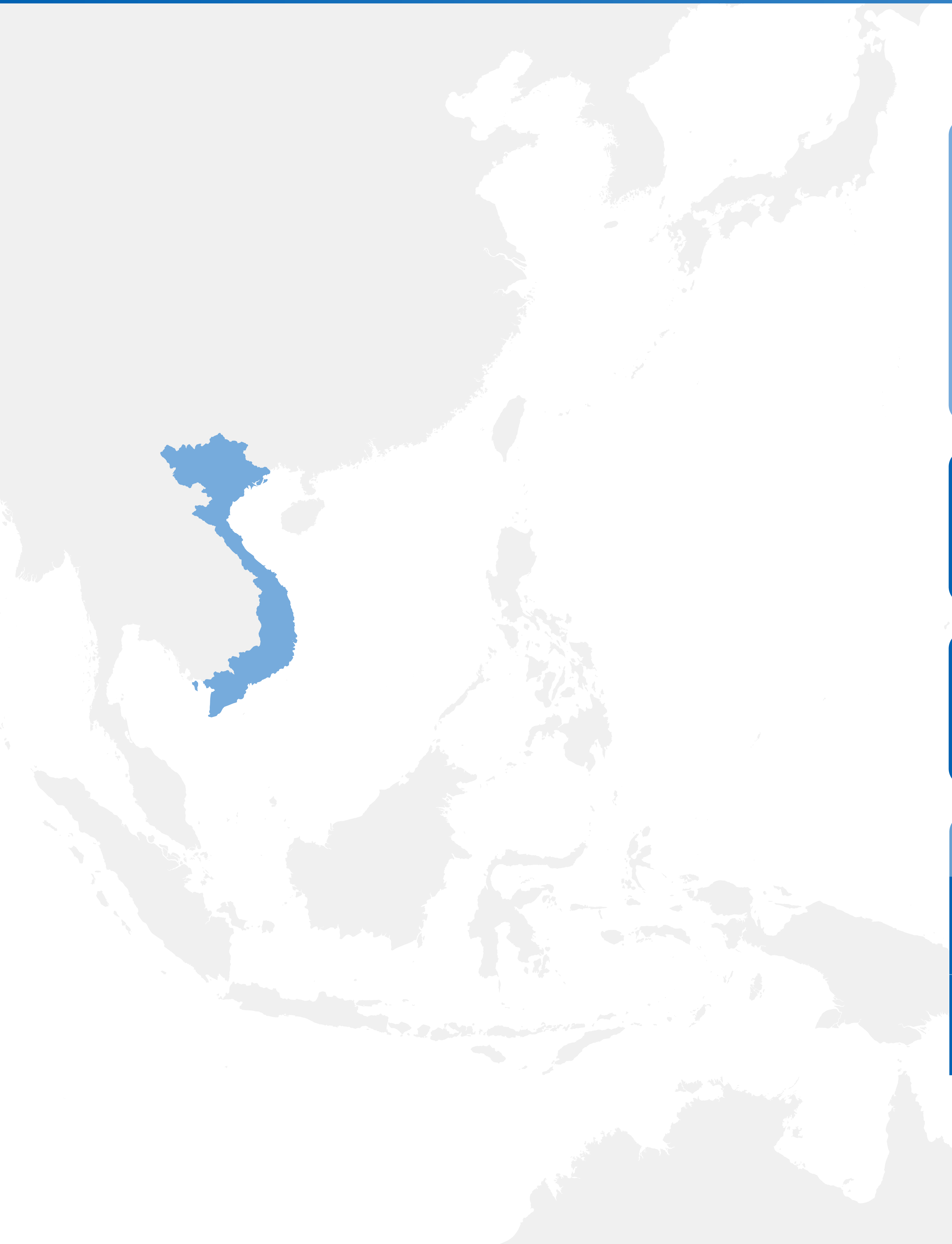
| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

### APPLICATION

- Iskandar city observation, water resources and distribution management

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

# Vietnam



**Vietnam**

### THEMES OF INTEREST

- SC projects are driven by the city-level, not the national level
- For Hanoi and Ho Chi Minh, Master Plan indicates a strong focus on digital services and e-government

### GOVERNMENT POLICY, SUPPORT, AND ISSUES

- Although there is no specific SC incentive program, Vietnam offers various financial incentives for foreign investment into areas such as water/waste, ICT, industrial parks, and clean energy

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| 22 | • Smart City Development by 2030 | ✓ HCMC Smart City<br>✓ Hanoi Smart City, Danang Smart City |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| Thu Thiem Eco Smart City (Ho Chi Minh) | 16.71 ha | USD 2.2 bn | Lotte / Mitsubishi • Toshiba | New |

### SOCIAL ISSUES TARGETED

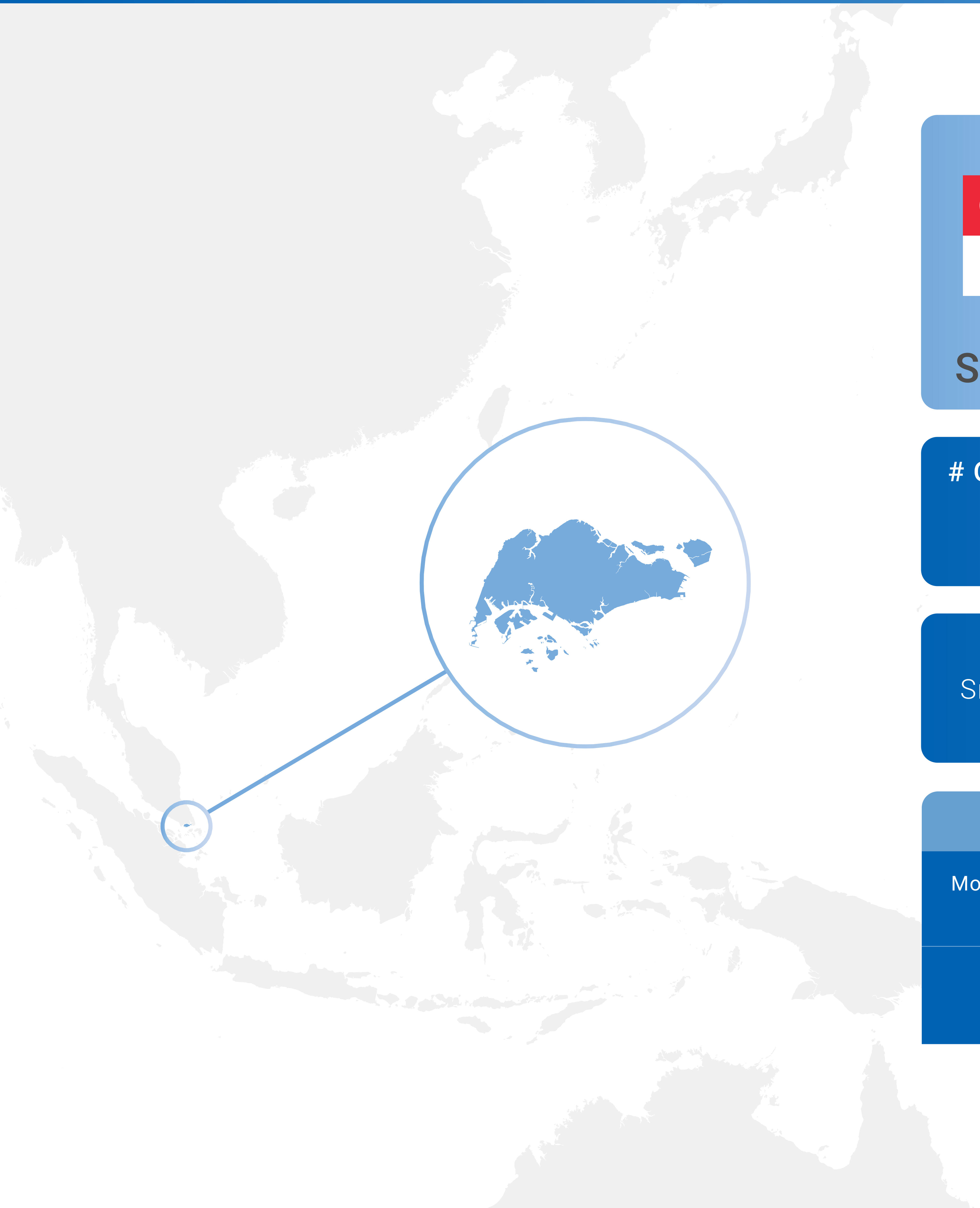
| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| ✓ |  | ✓ |  |  |  |

### APPLICATION

- Facilities such as self-driving buses, healthcare and kindergartens

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

# Singapore



**Singapore**

### THEMES OF INTEREST

- SG Smart Nation Initiative is focused purely on digital services & applications
- In terms of real estate projects, each focus on creating integrated and liveable districts for residents to live, work, and play

### GOVERNMENT POLICY, SUPPORT, AND ISSUES

- As the SG Smart Nation initiative is focused on digital applications, most grants also target investment into ICT / Digital Services
- There is less incentive for areas such as real estate, water/waste, energy, etc.

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| 41 | Smart Nation Singapore | ✓ National Digital Identity<br>✓ Smart Nation Sensor Platform<br>✓ Smart Urban Mobility |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| Smart Nation Singapore (Singapore) | 721.5 km² | USD 2.4 bn | Smart Nation and Digital Government Group (SNDGG) | Existing |

### SOCIAL ISSUES TARGETED

| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| | | | | ✓ | |

### APPLICATION

- Electronic Payment, National Digital Identity

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr
https://freevectormaps.com/singapore/SG-EPS-01-0001?ref=atr

# Indonesia

| Indonesia | THEMES OF INTEREST | GOVERNMENT POLICY, SUPPORT, AND ISSUES |
|---|---|---|
| | • Cities such as Jakarta wish to use the SC concept to address urban problems and govt. transparency (e-govt.)<br>• Focus areas of major cities are not only infrastructure development, but also SC environments through apps for citizens | • Various cities have launched programs to promote SC initiatives (e.g. Jakarta Smart City Program)<br>• There are also various grants from NGOs who partner with Indonesia to fund SC initiatives |

| # OF PROJECTS | KEY GOVERNMENT PROGRAM | MAIN PROJECT |
|---|---|---|
| >100 | • 100 Smart City | ✓ Bandung Smart City, Medan Smart City, BSD City, etc. |

| PROJECT (CITY) | AREA | BUDGET | DEVELOPMENT ENTRY | NEW / EXISTING |
|---|---|---|---|---|
| Meikarta (Near Jakarta) | 2,200 ha | USD 20.9 bn | PT LIPPO KARAWACI TBK | New |

**SOCIAL ISSUES TARGETED**

| Mobility | Energy and Utilities | ICT & Digital Services | Business Innovation | Govt. Services | Others |
|---|---|---|---|---|---|
| ✓ | | ✓ | ✓ | | |

**APPLICATION**

- Construction of Patimba Deep Sea Port, Kertajati International Airport, Autonomous Driving Monorail, LRT etc.

https://freevectormaps.com/world-maps/asia/WRLD-AS-02-0002?ref=atr

野村総合研究所
Nomura Research Institute

# How To Capitalise On Smart City Opportunities

---

## Initial Guidance To Align Effort

# Step 1: Identify Which Stage The Smart City Project Is In

| | STAGE | STAGE 1 | STAGE 2 | STAGE 3 | STAGE 4 |
|---|---|---|---|---|---|
| | Definition | Planning and concept stage | Construction has started and in progress | Construction is complete, digital services being formed or tested | Fully realised SC project with commercialisation of digital services |
| COMPONENTS | Plan | ✓ Master plan is drafted but may not be finalised | ✓ Master plan is finalised | ✓ Master plan is finalised | ✓ Master plan is finalised |
| | Physical | ✓ Hard infrastructure not yet developed | ✓ Hard infrastructure being developed<br>✓ Hard infrastructure players mostly determined<br>✓ IT sensors/equipment not yet developed | ✓ Hard infrastructure completed<br>✓ IoT sensors/equipment being developed or tested | ✓ Hard infrastructure completed<br>✓ IoT sensors/equipment fully developed |
| | Digital | ✓ At the concept stage<br>✓ Specific players and services not yet determined | ✓ At the concept stage<br>✓ Specific players and services not yet determined | ✓ Specific players and services being determined<br>✓ Advanced services launched as a pilot | ✓ Specific players and services confirmed<br>✓ Commercialisation of various advanced services |

# Step 2: Look At Opportunities And Align Your Efforts To Them

| STAGE | STAGE 1 | STAGE 2 | STAGE 3 | STAGE 4 |
|---|---|---|---|---|
| Expected Actions | • Sales activities aimed at the key developer or govt. agency<br>• Demonstration of higher quality products | • Need to develop new services to meet the concepts that developers have in mind<br>• Provision of analytics platforms in order to realise the Smart City concept<br>• For less innovative or ambitious projects, a similar approach to Stage 1 can be taken | | • Need to develop and demonstrate additional value to the end-user or consumer (B2C services) |
| How to Achieve | ✓ Develop deeper understanding of the project by engaging with the key developers or government agencies<br>✓ Formulate advice that addresses the projects' pertinent issues | ✓ Cross-division collaboration to develop new solutions, instead of relying on one single division or business unit<br>✓ Break down silos within the organisation to co-create | ✓ Transform the business model and create a new and innovative service through collaborating with third parties such as start-ups, academia, and other players<br>✓ Through this collaboration, create and provide a holistic service that extends beyond the scope of the organisation's traditional bounds | |

# Want To Learn More?
# Speak To Us!

- For more information on how NRI can help your organisation realise business opportunities in Smart City projects, please contact enquiry@nrisg.com
- Also, check out our previous whitepaper on the Elimination, Mobilisation and Demonstration model for evaluating your business model in APAC markets: here

NRI 野村総合研究所 Nomura Research Institute

# About NRI

Nomura Research Institute (NRI) is a leading think-tank and systems integrator. Headquartered in Japan with a global presence across Europe, North America and Asia-Pacific, it specialises in providing IT solutions and management consulting for organisations looking to launch, expand and strengthen their business in emerging Asian countries.

Founded in
**1965**

**13,000+**
Employees

Listed on the Tokyo Stock Exchange Since
**2001**

Recognised as
**No.1**
For-Profit Think Tank Globally*

**30+**
Offices Globally

Annual Revenue of More Than
**US$5** billion

*As publicised in the 2019 Global Go To Think Tank Index Report (GGTTI) by the Think Tanks and Civil Societies Program (TTCSP) at the University of Pennsylvania to acknowledge the important contributions and emerging global trends of think tanks worldwide.