THE CAPACITY BUILDING FOR SMART CITY

~LESSONS FROM SMART CITIES IN THE WORLD~

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SESSION 8

Smart Sustainable City Roadmap

- ✓Introduction to typical Smart Sustainable City roadmap
- ✓Developing governance, vision, policy framework and strategic goal
- ✓Assessing current status of city/business assets, city/telecom infrastructure
- ✓Analyzing opportunities and needs and role of stakeholders
- ✓Developing business cases and gaining investment

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Publication “A Decade of World e-Government Rankings” (IOS Press, Co-editor, 2015)...etc

DEFINITION OF “SMART CITY”

Smart City is a city that can utilize its resources effectively and efficiently to solve any city challenges using *innovative*, *integrated*, and *sustainable* solution by providing infrastructures and deliver city services to improve Quality of Life.

DEFINITION OF “SMART CITY”

The smart city as “one that has digital technology embedded across all city functions.” While easy to digest, this definition isn’t complete; technology is just one of the means through which we build smart cities, and it’s not their raison d’être.

DEFINITION OF “SMART CITY”

If the smart city were a human body, then technology would be its nervous system, taking in information and reacting to our current needs while modulating our long-term physical and intellectual resources. The smart city’s nervous system requires sensory inputs. IOT constitutes the eyes, nose, and ears of the city while its nerve fibers are composed of ICT (information and communications technology).

Following the corporeal metaphor, the smart city wouldn’t be able to function with just infrastructural systems like sensors and communication networks; it needs a source of nourishment that circulates through the body. That source of nourishment is data: the lifeblood of cities. Although blood and neurons are functionally important, what truly sets smart cities apart is their “mind”—the millions of engaged citizens who are empowered by technology to seek more fulfilling lives.

THE IMPORTANCE OF CAPACITY BUILDING OF SMART CITY

- For the first time in our history, 50% of the world's human population now live in cities and this is expected to move to 70% by 2050.
- Currently, cities are facing challenges in dealing with carbon emissions, energy consumption, traffic and dealing with an aging infrastructure.
- Cities are now starting to integrate technology in their core functions, including municipal operations, safety, infrastructure and transport.
- This has driven the application of IoT devices for a more connected and an informed city.
- However, it means that a large number of data is continuously gathered from several sources and to meet this growth of data sizes, we need a system that can efficiently monitor and analyze this data to add value to city.
- That is the model of Smart city. Therefore the HRD for smart city is important. It is important to create the model of capacity building for smart city among government, business and academia.

City Challenges

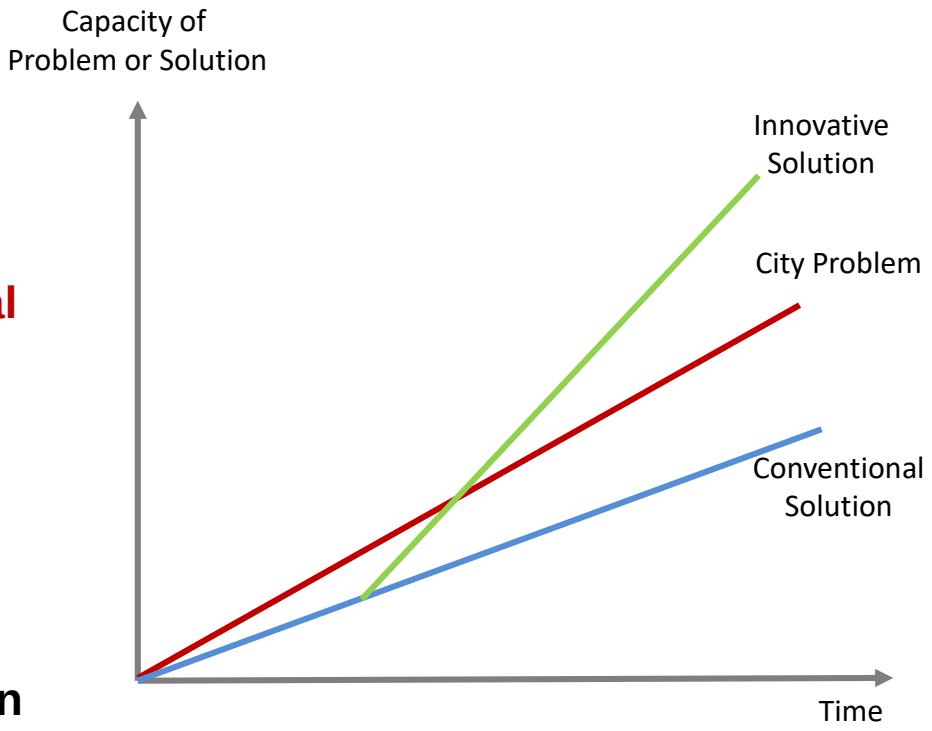
Complexity of city problem is growing fast.

In most cases, capacity of conventional solution cannot fulfill the capacity demand of city problem

City need innovative solution that provide higher capacity of solution

ICT (Information System and Technology) is potential enabler that enable innovative and effective solution and create high capacity of solution

But, it should be noted that ICT is not the only solution, and Smart City is not equal to ICT city or digital city.



Dr. Suhono, Smart city conference, Jakarta 2018

LESSONS FROM VARIOUS MODEL ON SMART CITIES

SENSORS AND DATA: NEW YORK CITY, U.S.A.

New York City is a leader in successful sensor deployment and public data access, having incorporated sensing across many city functions including water metering and transportation. By eliminating the need for manual metering, the city decreased tax expenditure by $3 million dollars annually.

https://www.geospatialworld.net/news/esri-joins-smart-cities-new-york-2018-conference/

SMART INFRASTRUCTURE: BARCELONA, SPAIN

- ✓ **Superblock**
- ✓ **In 2002, Barcelona rolled out another key innovation that has minimized resource use. Districlima is an urban network of district-wide heating and cooling systems.**
- ✓ **Districlima saves more than 17,500 tons of C02 annually and reduces fossil fuel consumption by 60%. Barcelona's neighborhoods have also begun to experiment with another important infrastructural pursuit: smart waste management.**

Business Insider

SMART GOVERNANCE: TALLINN, ESTONIA

Anchored by X-Road—an interoperable data service that allows the nation's e-service databases to link up harmoniously with private citizens and companies—e-Estonia positions the nation at the forefront of digital governance. Since 2001, Estonians have been able to file their taxes online. 95% of the country does so today. In 2002, Estonia introduced high-tech e-ID cards paired with digital identities.

Since it began its reboot in 1991, Estonia has managed to put 99% of its government services online. Digitization has enabled the Estonian government to operate 24 hours a day while maximizing the efficiency of taxpayer dollars. To keep citizen data safe, e-Estonia has become an early adopter of blockchain, which the government is integrating across its entire suite of tools. The government already authenticates property registries, business licenses, and judicial actions through blockchain technology.

While individual smart city deployments will (hopefully) be tailored to their specific contexts, the general frameworks and methods used when developing smart city solutions are highly transferable.

https://www.smartcitiesworld.net/news/news/which-city-will-be-top-for-smart-tourism-3265

CASE; SC IN INDONESIA

https://medium.com/teknologi-id/langkah-dan-kendala-penerapan-smart-city-di-indonesia-f39341bb3fae

WHY CITY NEED COLLABORATION BODY?

- ✓ **E-Government relatively easier to implement because the boundary is government institution that fully under controlled by a Mayor.**
- ✓ **But, in the city, a Mayor do not have full control to all city components to force integration for business process, data, application, and infrastructure**
- ✓ **Integration achieved as an agreement based on long discussion to find the equilibrium point that satisfy all city component.**
- ✓ **Coordination conducted by a collaboration body that lead actively by the Mayor of the city. This is very important, because there is no “command” in this type of organization, so trust and leadership become very important.**

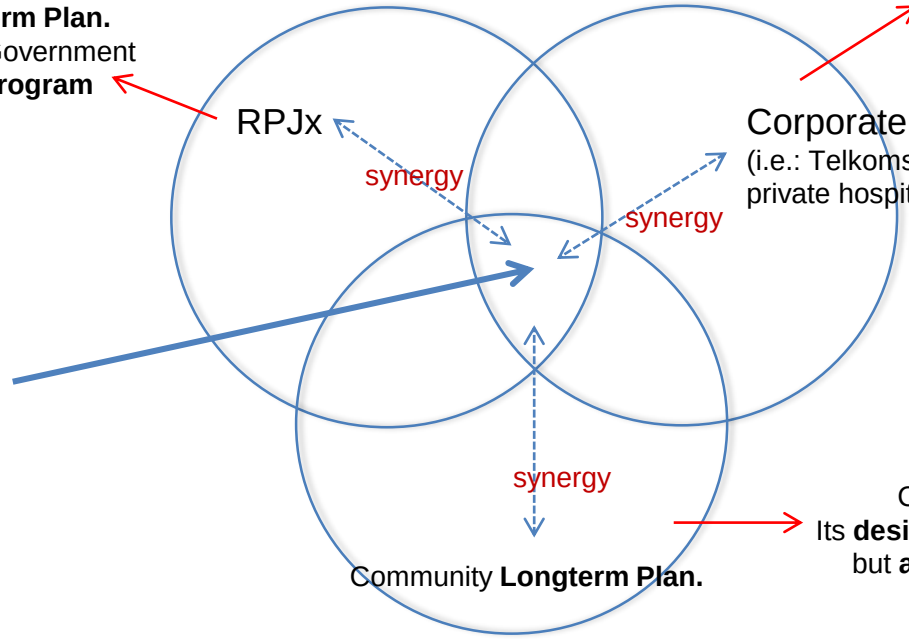
SCOPE OF WORK OF COLLABORATION BODY

- ✓ **Conduct Program Coordination between all city stakeholders**
- ✓ **Design Enterprise Architecture of the City as a common reference for integration: Business Process, Data, Application, and Infrastructure)**
- ✓ **Smart City Program (Collaboration program that execute separately by corresponding stakeholder). Smart City Program differ from Government's City Program, that in Indonesia known as RPJx, but must be aligned to RPJx and plans of every city stakeholders.**
- ✓ **Evaluate achievement of Smart City Program**
- ✓ **Notes**
  - ✓ **This collaboration body don't execute project**
  - ✓ **Project execute by corresponding stakeholder**
  - ✓ **Government and other stakeholders arrange their own strategic plan and project portfolio that aligned with Smart City Program that agreed by all stakeholders**

CONNECTION BETWEEN MANY PLANS

RPJx is **Government Longterm Plan.**
Its **designed and execute** by Government
but **align with Smart City program**

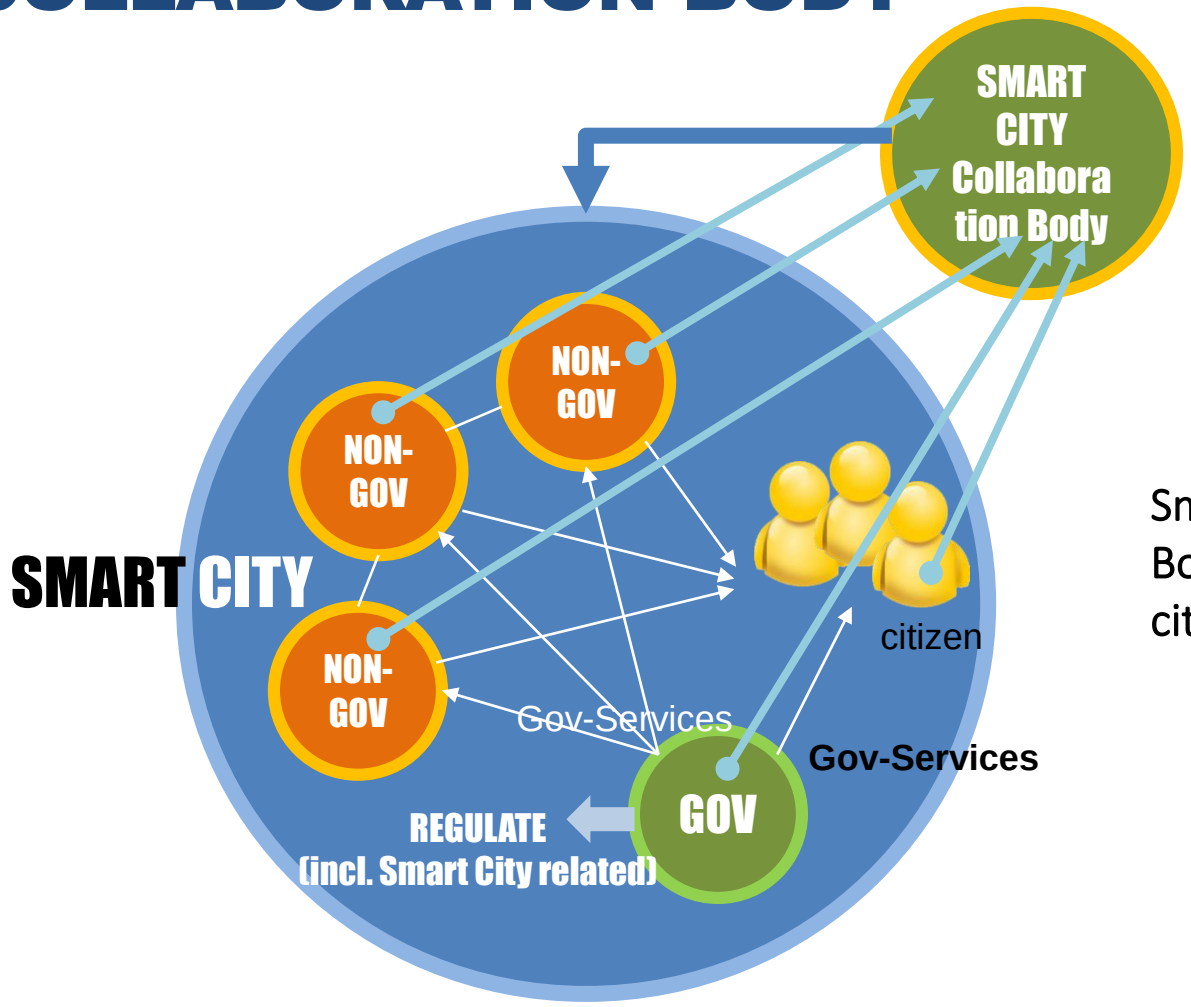
RJPP is **Corporate Longterm Plan.**
Its **designed and execute** by Corporate
but **align with Smart City program**



Smart City Plan

Community **Longterm Plan.**
Its **designed and execute** by Community
but **align with Smart City program**

SMART CITY: COLLABORATION BODY



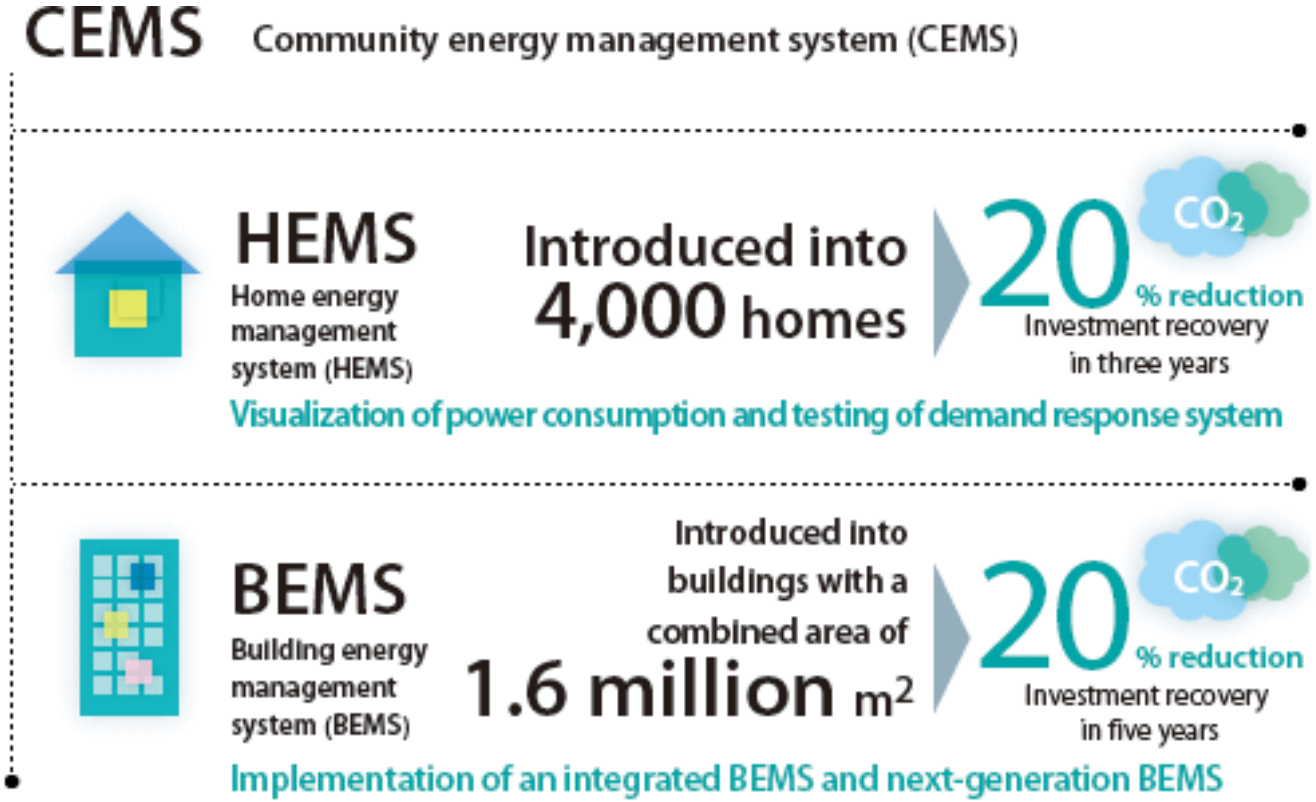
Smart City Collaboration Body: How to synergize all city stakeholder's program.

CASE STUDIES ON SC FROM YOKOHAMA CITY, JAPAN

The Yokohama Smart Community was inaugurated in 2011, when companies and organizations which support the principle "In order to realize a truly rich and full community life, it is imperative to learn from nature" joined together to develop technology to effectively incorporate the use of natural energy into everyday life of Japanese residences. Smart Cell, a field demonstration and research house at the Yokohama Smart Community, is designed as a community model for the next smarter greener generation.

- ✓ **The goal is "technology's place is assisting in the care of nature and humans", and to that end they conduct the following technological researches:**
- ✓ **Effectively utilizing natural energy.**
- ✓ **Taking measures against community power failures and reducing the system's load.**
- ✓ **Linking of energy and information between houses.**
- ✓ **Researching to create a compact community that is in a symbiotic relationship with nature, is self-sufficient, and recycling-based.**
- ✓ **Building a vision for the future that transcends individual industry sectors and industry types.**
- ✓ **A project that will last for "100 years", continuing to evolve toward the future.**

REALIZATION OF SMART COMMUNITIES REDEVELOPMENT TYPE: YOKOHAMA SMART CITY PROJECT



Other initiatives in this project include:

Introduction of 2,000 electric vehicles (EV)

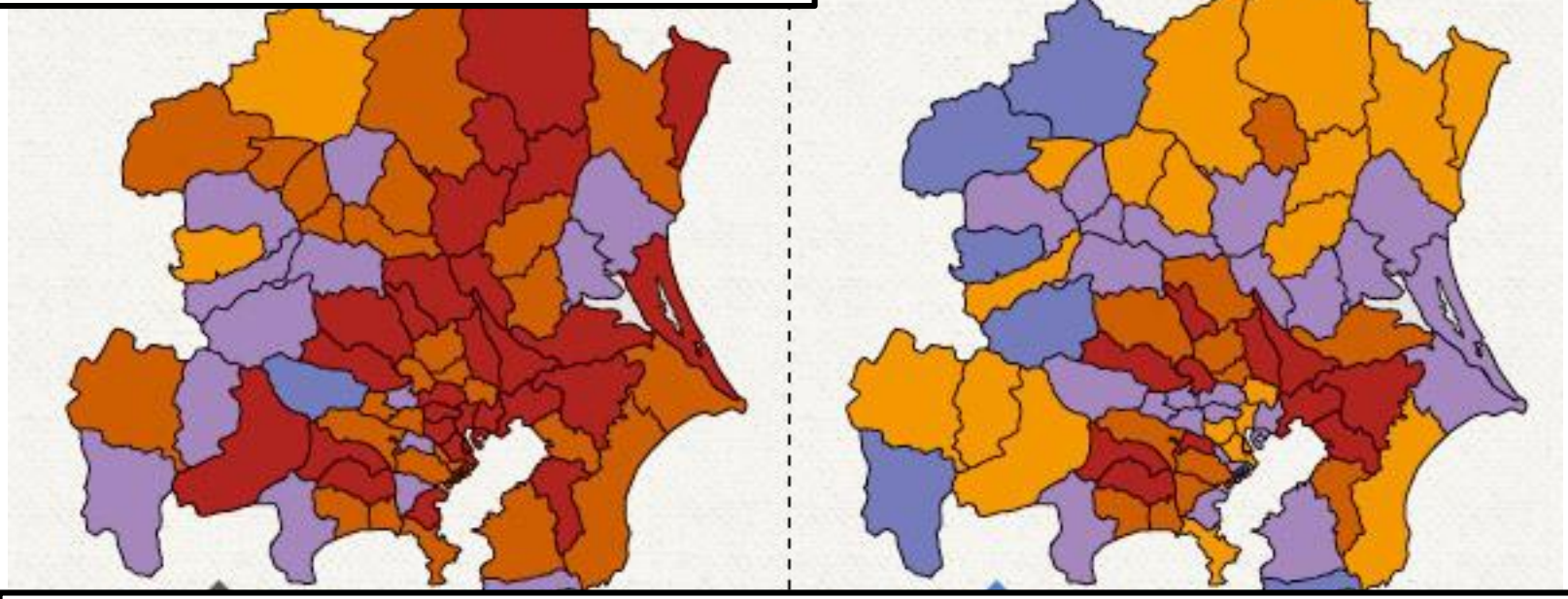
30% reduction per vehicle

BACK GROUND OF SC

FUTURE OF MEGA CITY [TOKYO] SUPER-AGED SOCIETY IN 2050

a (so-called) nursing-care refugee

a shortage of doctors



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http://blogos.com/article/147379/

THE GSSCI OF SMART CITY BY ITU

In October 2015, ITU and the United Nations Economic Commission for Europe (UNECE) agreed on the following definition for smart sustainable cities:

A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental as well as cultural aspects.

ITU Global Smart Sustainable Cities Index

THE ROLE OF CHIEF SMART CITY OFFICER (CSCO)

CAPACITY BUILDING / HUMAN RESOURCE DEVELOPMENT TRAINING CURRICULUMS ON SMART CITIES AT UNIVERSITY-1

1. The definition of Smart city

- ✓ What is the smart city? Sustainable or resilient or livable?
- ✓ Comprehensive approach

2. Emerging technologies for solution

- ✓ Big data
- ✓ Cloud and COGNITIVE computing
- ✓ IoT
- ✓ AI
- ✓ Block chain
- ✓ Open data and Big data analytics

3. System case studies

- ✓ Water, Energy, Transportation
- ✓ Buildings
- ✓ Food production
- ✓ Urban design
- ✓ Universal Design
- ✓ Digital Government and social services
- ✓ Sustainability
- ✓ Environment
- ✓ SDGs2030

4. Capacity building for Chief Smart City officer (CSCO)

- ✓ Preferential core competencies of experts for building smart cities
- ✓ Cooperation among governments, municipalities

CAPACITY BUILDING / HUMAN RESOURCE DEVELOPMENT TRAINING CURRICULUMS ON SMART CITIES AT UNIVERSITY-2

5. Risk management

- ✓ Natural disasters and BCP (Business Continuity Planning)
- ✓ Cyber securities
- ✓ SCM

6. Finance

- ✓ Investment and Procurement

7. Project management

- ✓ Quality management
- ✓ Life cycle of project management
- ✓ Evaluation

8. Privacy and Data protection

- ✓ Best practices
- ✓ Risk management for data protection
- ✓ Compliance
- ✓ Strong infrastructure

9. User /Citizen oriented

- ✓ Generations
- ✓ Digital divide
- ✓ Friendly for ageing people
- ✓ Happiness index

10. Case Studies worldwide

- ✓ Japan
- ✓ USA
- ✓ China
- ✓ Russia
- ✓ EU
- ✓ OECD
- ✓ ASEAN

SUGGESTIONS

1. To create the definition on the smart city and the role of CSCO.
2. To learn Lessons from the model of capacity building on smart cities in the world and to create core competencies of CSCO who handle the strategy on smart city from the aspect of digital solution.
3. To prepare for capacity building on the resources at universities cooperate with between Japan and ASEAN.
4. To create new agendas on infrastructure for smart city in order to increase citizen's Quality of Life (QoL) toward SDGs 2030.

THANK YOU VERY MUCH !!

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