International Workshop on Smart Cities

How to Integrate Smart Cities Initiatives into Local Development Plans

Workshop Report

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26 - 27 April 2023
Bangkok, Thailand

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Workshop Overview

1. The International Workshop on Smart Cities in Thailand – How to Integrate Smart City Initiatives into Local Development Plans was jointly organized by the Department of Local Administration (DLA) of the Ministry of Interior, the Digital Economy Promotion Agency (DEPA), and the Japan International Cooperation Agency (JICA). The workshop took place in a hybrid format, both on-site and online, from April 26th to 27th, 2023. The event garnered significant attendance, with over 450 participants, including approximately 180 on-site attendees and 276 online participants. The workshop attracted a diverse range of participants, including representatives from Thai Local Administrative Organizations (LAOs), various Thai government organizations, Japanese government organizations, local authorities in both countries, academic and research institutions, and the private sector enterprises. The number of participants significantly exceeded expectations due to the strong support of multiple partners, such as the Embassy of Japan in Thailand, the Ministry of Land, Infrastructure, Transport and Tourism of Japan (MLIT), and the City Planning Institute of Japan.

2. After two days of intensive and constructive discussions, the workshop successfully achieved its three main objectives:
    (i)   Providing participants with updates on smart cities in Thailand, ASEAN countries (Indonesia, the Philippines, Malaysia), and Japan, as well as regional and global standards and trends.
    (ii) Enabling participants to gain awareness of various approaches to smart cities by sharing hands-on experiences, lessons learned, and recent developments and identifying new opportunities.
    (iii) Establishing a solid foundation for future collaboration and networks among various stakeholders.

    Overall, the workshop was highly successful in reaching its targets and indicating future directions. Participants expressed positive feedback in their ex-post evaluations and expressed their desire for follow-up activities. The following sections provide a more detailed outline of the major achievements.

3. The keynote speeches delivered by representatives from the organizing entities and international/regional leaders, including JICA, DEPA, ASEAN, the United Nations Human Settlements Programme (UN-Habitat), and the Organization for Economic Cooperation and Development (OECD), set the tone for the workshop. These speeches provided insights into global and regional trends, good practices, and major challenges in the field of smart cities. Key themes emphasized during the speeches included issue-based and demand-driven approaches, the importance of people-centered processes, alignment with universal goals such as the Sustainable Development Goals (SDGs), the Paris Agreement, and the New Urban Agenda, stronger support to intermediate cities and rural communities to make the best of smart technologies while mitigating digital and territorial divides, and the application of affordable and practical solutions and technologies that can best fit for residents' needs and local context. The keynote

speakers also presented global, regional, and bilateral cooperation frameworks to support smart city initiatives in Thailand and offered opportunities for future collaboration.

4.   Through keynote speeches and case studies, participants gained an understanding of the diverse smart city approaches implemented in Thailand, ASEAN member states, and Japan. The workshop successfully showcased cities and towns of varying sizes and distances from major economic hubs, challenging the perception that smart city initiatives solely benefit large metropolitan areas. The case of Pang Mu Subdistrict's E-Smart Services (ESS) in Northern Thailand's Khun Yuam district highlighted the inclusivity and benefits that smart city initiatives can bring to middle- or lightweight cities. The ESS focused on providing equal services to populations with different nationalities and mitigating the challenges of accessing public services in remote areas.

5.   Three Japanese cities, namely Kitakyushu, Toyama, and Kakogawa, were selected as exemplary models to demonstrate a range of smart city initiatives addressing diverse policy issues:
   ▪   Kitakyushu, for instance, has made a long-term commitment to converting environmental challenges, such as air and water pollution from industrial waste, into strategies for decarbonization and renewable energy;
   ▪   Toyama City has been tackling population decline and aging by transforming itself into a more compact city, with commercial and residential functions being relocated or regenerated along newly developed LRT lines;
   ▪   Kakogawa City is utilizing ICT solutions to enhance safety and security, particularly for children and the elderly. These initiatives are driven by the cities themselves and prioritize the needs of their residents, rather than being led by the national government.

   While the case studies of these three cities were highly appreciated, they represent only a fraction of the good practices found throughout Japan, which the Thai participants expressed a continued interest in learning more about.

6.   Similarly, the smart city initiatives presented by ASEAN representatives from the Philippines, Indonesia, and Malaysia are highly relevant and valuable for their Thai counterparts. Among them, Cauayan City's Innovative City of the North stands out as an ambitious project encompassing various smart city solutions, including E-vehicles, Digital Jobs Training and Digital Twin City, Greenhouse aquaponics, ESG Clear Energy and Waste Wise Cities for Sustainability, and SDG Center. Just like the Japanese smart cities, the ASEAN smart cities presented at the workshop offer only a glimpse of the diverse approaches existing across the region. The opportunities for peer-to-peer learning between Thai smart cities and Japanese/ASEAN smart cities are mutually beneficial and can reinforce each other's efforts.

7.   Smart city initiatives in Thailand are still in the early stages of development overall, but they are progressing rapidly, as evidenced by the impressive achievements showcased during the workshop. These initiatives primarily focus on e-governance and improved

communication channels between city/town authorities and residents. Notable examples include the City E-Service Center of Nakhon Si Thammarat City Municipality and E-Smart Services of Pang Mu Subdistrict, which utilize popular smartphone applications like Line and have already generated visible impact on the ground. Additionally, One Stop Service of Ban Klang Town Municipality and E-Smart Services of Pang Mut Subdistrict provide a broader range of e-services, such as online building permits, online certificates, online fee payment, e-facilitation, and e-registration. The unique smart technology project for senior healthcare service management of Saensuk Town Municipality serves as an indicative example for the future of smart city development in Thailand. Lastly, the Bangkok Metropolitan Administration (BMA) presented leading cases, including the concept of open Bangkok with its five pillars (open data, open contracting, open policy, open innovation, open services) and three area-based smart city projects: Rama IV Smart City proposed and implemented by Chulalongkorn University, Pandung Canal Smart City by BMA, and Makkasan Smart City by Asia Era Wan Co., Ltd.

8. However, apart from Bangkok, smart city initiatives in Thailand are still limited in scope, and other areas such as urban mobilities, clean energy transition, pollution control and waste management, smart building and housing, enhanced urban planning, and disaster prevention and mitigation have yet to emerge. Director Kanita Radnui of DLA described this situation, stating, "Many local administrative organizations (LAOs) have begun improving services for citizens using digital platforms, which is a good start. However, we must consider other areas for improvement, such as mobility, waste management, or pollution."

9. The workshop marked a new collaboration between the Department of Local Administration (DLA) and the Digital Economy Promotion Agency (DEPA). Additionally, representatives from the Department of Disaster Prevention and Mitigation (DDPM) and the Department of Public Works and Town & Country Planning (DPT) participated in the panel discussion, signifying a positive beginning for broader collaboration among key stakeholders within the Thai Government. Mr. Prasong Thummapala from DDPM emphasized, "Safety and livability are the most crucial aspects of developing a smart city for DDPM... DDPM is planning an integrated warning system. However, DDPM cannot invest in all areas. We can contribute through knowledge sharing and technology integration." Mr. Udom Chittawong from DPT expressed, "This is the first time for DPT to exchange knowledge on smart cities," and stressed the importance of smart cities striving to be safe, livable, and rich in culture, with technology serving as a means to support these goals. He added, "Comprehensive town plans, special town plans, and municipal strategic and operational plans are all related to smart city development... DPT focuses on Smart Living." Thus, further collaboration among these stakeholders holds great importance.

10. Participants from LAOs are particularly interested in case studies of technology implementation, such as IoT, Smart Pole, and E-Governance Platform, that they can implement in their cities. Also, multiple participants raised questions regarding project finance, budget, and return on investment (ROI), highlighting the fact that LAOs typically

lack sufficient financial resources of their own. Addressing these issues is crucial to finance costly smart city projects. The registered participants ranked "smart urban development and planning" as the most interesting domain, followed by "smart mobility," "smart environment," and "smart energy." These results align with the observation that Thai participants recognize the value and context of smart cities but face constraints in terms of budgetary and human resources. Even when they envision comprehensive smart city solutions to address major urban issues, they must adopt a realistic, step-by-step approach considering the available resources.

11. The workshop received extremely positive feedback from the participants and relevant stakeholders, and it is advisable to consider follow-up activities to further progress based on the results and lessons learned. The ex-post evaluation by Thai participants provided valuable forward-looking suggestions for future directions, including:
   ▪ Implementing this project across LAOs in Thailand.
   ▪ Acknowledging the aim of building international connections to jointly develop smart cities
   ▪ Conducting onsite workshops for better understanding.
   ▪ Recognizing the interesting content of the workshop while addressing time constraints.
   ▪ Separating the overall meeting from the practical level meeting.
   ▪ Requesting the DLA to cooperate with technological organizations to support LAOs in accessing affordable technology.
   ▪ Highlighting the budget constraints faced by LAOs and the need for training sessions to enhance technical knowledge and skills, enabling LAO officers to analyze and create cost-effective innovations.
   ▪ Emphasizing the importance of continued training to learn from successful cases in other LAOs.
   ▪ Requesting case studies from various cities worldwide

12. High-demand areas include securing specific budget/funds for smart city projects or digital technologies, capacity building/training for LAOs, technical support at the local level, enhancing polity frameworks to assist especially intermediate cities and rural communities, fostering peer-to-peer learning opportunities among Thailand, ASEAN, and Japanese smart cities, among others. DLA, DEPA and JICA will discuss way forward in consultation with DPT, DDPM, and many other partners.

Workshop Outline

Workshop name	International Workshop on Smart Cities in Thailand: How to Integrate Smart City Initiatives into Local Development Plan
Dates	26-27 April (Wednesday, Thursday) 2023
Venue	Amarin Hall, S.D. Avenue Hotel (94 Borommarat Chachonnani Road, Bang Bamru, Bang Phlat, Bangkok, 10700, Thailand), and Online participation via ZOOM
Organizers	DLA (Department of Local Administration, Ministry of Interior), depa (Digital Economy Promotion Agency), and JICA (Japan International Cooperation Agency)
Contributors	United Nations Human Settlements Programme (UN-Habitat), Organization for Economic Cooperation and Development (OECD), ASEAN Secretariat, Ministry of Land, Infrastructure, Transport and Tourism (MLIT) (Government of Japan), Embassy of Japan in Thailand, Japan Association for Smart Cities in ASEAN (JASCA)
Languages	Thai, English, Japanese (simultaneous interpretation)

Background:

The smart city has become a policy paradigm for urban innovation and inclusive, resilient, and sustainable development. The Asia and Pacific region is no exception to this global trend.

In Thailand, as of today, 30 cities and areas have been certified and approved as a "Smart City" by the Smart Cities Project Management Subcommittee and the Smart City Development Steering Committee, respectively, while other 31 cities stay as a "Smart City Promotion Zone" in which proposals have been submitted but remain under consideration by the Smart City Project Management Subcommittee.

A closer look at 30 smart city development plans reveals great diversity and variety in terms of the maturity of a project and the state of progress, as well as the agenda- and priority-setting and the nature and scale of challenges they face.

The Workshop aims to enhance knowledge and experience sharing and strengthen partnerships among cities and relevant stakeholders within Thailand and with other partners (e.g., ASEAN, Japan).

Objectives:

1. To provide updates on the status of smart cities in Thailand and on recent progress and development on the global and regional scales (e.g., depa, UN, ASEAN)
2. To facilitate sharing of experiences and knowledge, and dialogues among smart cities in Thailand and cities in other countries (e.g., Japan)
3. To provide opportunities for various stakeholders (e.g., academia, private enterprises, and international organizations) to engage in further collaboration in dealing with everyday challenges and exploring solutions.

Agenda

Time	Procedures	Onsite/ online	Language	Slides
Day 1 **Opening (26 April, 9:30 – 10:30)** Moderator: Mr. Sataporn Senawong , DLA				
9:30-9:40	Welcome remarks and introduction of the Workshop	Onsite	Thai	
9:40-9:50	**Opening speech by Mr. Kajorn Srichavanotai,** Director-General, DLA	Onsite	Thai	
9:50-10:00	**Opening speech by Dr. Passakorn Prathombutr,** Senior Executive Vice President, DEPA	Onsite	Thai	
10:00-10:10	**Opening speech by Mr. Suzuki Kazuya, Chief Representative,** JICA Thailand Office	Onsite	English	
10:10-10:20	Group Photo	Onsite		
10:20-10:30	Coffee Break	Onsite		
Keynote Speeches 1 (26 April, 10:30 – 12:30) Moderator: Ms. Phannisa Nirattiwongsakorn				
10:30-10:35	Moderator's introduction to the session	Onsite	Thai	
10:35-11:05	**Unlocking the Potential of Smart Cities** by Mr. Atsushi Koresawa, JICA expert assigned to DLA	Onsite	English	Appendix A
11:05-11:35	**Smart Cities Development in Thailand** by Dr. Passakon Prathombutr, Senior Executive Vice President, depa	Onsite	Thai	Appendix A
11:35-12:05	**Japan's Cooperation for ASEAN Smart Cities Network** by Mr. Kazuya Ohno, Deputy Director, International Policy Division, Policy Bureau, Ministry of Land, Infrastructure, and Transportation, Government of Japan	Onsite	English	Appendix A
12:05-12:30	Q & A facilitated by Moderator	Onsite	Mixed	
Case Studies 1 – Japan Smart Cities (26 April, 13:30 – 15:30) Moderator: Mr. Atsushi Koresawa				
13:30-13:35	Moderator's introduction to the session	Onsite	English	
13:35-14:05	Presentations from Kitakyushu City on: - **Eco-Town Project** (Mr. Daisuke Miki) - **100% Renewable Energy Model using Circular Economy Elements** (Mr. Katsuhiko Umeno)	Online	Japanese	Appendix A
14:05-14:35	**Compact City using Public Transport** by Mr. Masanori Sano, Toyama City	Online	Japanese	Appendix A
14:35-15:05	**Urban Development Capitalizing on ICT and Data** by Mr. Isao Tada, Kakogawa City	Online	Japanese	Appendix A
15:05-15:30	Q & A facilitated by Moderator	Mixed	Mixed	
15:30-15:45	Coffee break			
Case Studies 1 – Thailand Smart Cities (26 April, 15:45 – 17:45) Moderator: Dr. Tama Duangnamol, DEPA				
15:45-15:50	Moderator's introduction to the session	Onsite	Thai	

Time	Procedures	Onsite/ online	Language	Slides
15:50-16:20	**City E-Service Center** by Mr. Phuwanard Theeka, Nakhon Si Thammarat City Municipality	Onsite	Thai	Appendix A
16:20-16:50	**One-Stop Service Center** by Mr. Sorn Inkeaw and Mr. Apichat Thepcha, Ban Klang Town Municipality	Onsite	Thai	Appendix A
16:50-17:20	**Policy Implementation for developing an area to become a smart city** by Mr. Nitjakaln Ngamwong, Bangkok Metropolitan Administration (BMA)	Onsite	Thai	Appendix A
17:20-17:45	Q & A facilitated by Moderator	Onsite	Mixed	
Day 2 **Keynote Speeches 2 (27 April, 9:30 – 10:50)** Moderator: Mr. Atsushi Koresawa				
9:30-9:35	Moderator's introduction to the session	Onsite	English	
9:35-10:05	**People-Centered Smart Cities: Ensuring that the digital transformation leaves no one and no place behind** by Mr. Srinivasa Popuri, Senior Human Settlements Officer, UN-Habitat	Onsite	English	Appendix B
10:05-10:35	**Smart and Sustainable Urbanization in ASEAN** by Mr. Lim Che Cheen, Director, ASEAN Connectivity Division, Office of Secretariat-General	Online	English	Appendix B
10:35-10:50	Coffee Break	Onsite		
Keynote Speeches 2 (27 April, 10:50 – 12:30) Moderator: Mr. Atsushi Koresawa				
10:50-11:20	**How Smart Cities Contribute to Inclusive and Susatianble Growth: Focusing on Sustainable Urban Development Finance in Southeast Asia** by Ms. Hiroko Suzuki, Senior Counsellor, Center for Entrepreneurship, SMEs, Regions and Cities, OECD	Online	English	Appendix B
11:20-11:50	**JICA's Smart City Projects and City-to-City Collaboration** by Mr. Kawabe Ryoichi, Senior Representative, JICA Thailand Office	Onsite	English	Appendix B
11:50-12:30	Q & A facilitated by Moderator	Mixed	English	
Case Studies 2 – ASEAN Smart Cities (27 April, 13:30 – 14:30) Moderator: Dr. Tama Duangnamol, DEPA				
13:30-13:35	Moderator's introduction to the session	Onsite	Thai	
13:35 – 13:45	**Cauayan City – The Innovative City of the North** by Mayor Caesar S. Dy, Jr., Cauayan City, Isabela Province, Republic of the Philippines	Online	English	Appendix B
13:45 – 13:55	**Smart City Development Case Study: Jakarta (Indonesia)** by Dr.Juan Kanggrawan, Head of Product and Tribe (Data Platform & Ecosystem), Ministry of Edu-Culture-Research, Indonesia	Online	English	Appendix B

Time	Procedures	Onsite/ online	Language	Slides
13:55 – 14:05	**Kuching Smart City – Initiatives & Way** by Mr. Hamadlan Hamdan, Chief Technology Officer, Sarawak Digital Economy Corporation Bhd (SDEC), Malaysia	Online	English	Appendix B
14:05 – 14:15	**Smart City Development Case Study in Indonesia** by Dr. Drs. SAFRIZAL ZA, M.Si, Director General of Regional Administration, The Ministry of Home Affairs of the Republic of Indonesia	Online	English	Appendix B
14:15 – 14:30	Council Q&A	Onsite	Mixed	
Case Studies 2 –Thailand Smart Cities (27 April, 14:30 – 15:45) Moderator: Ms. Bunyanuch Tumtamai				
14:30-14:35	Moderator's introduction to the session	Onsite	Thai	
14.35-14.55	**A Technological System Project for Managing, Tracking, and Monitoring COVID-19 Pandemic** by Mr. Pongsak Yingchoncharoen, Yala City Municipality	Onsite	Thai	Appendix B
14.55-15.15	**Smart Technology Project for Senior Healthcare Service Management** by Mr. Narongchai Kunplom, Saensuk Town Municipality	Onsite	Thai	Appendix B
15.15-15.35	**E-Smart Services (ESS Pangmu)** by Mr.Suriyan Malavan, Pangmu Subdistrict Administration	Onsite	Thai	Appendix B
15.35-15.45	Q&A facilitated by Moderator	Onsite	Mixed	
15:45-16:00	Coffee Break			
Panel Discussion on a way forward and follow-up actions (27 April, 16:00 – 17:30) Moderators: Mr. Astushi Koresawa and Dr. Tama Duangnamol, DEPA				
16:00 – 16:10	Moderator's introduction to the session	Onsite	English	Appendix B
16:10 – 16:20	**Comments from smart city researcher,** Asst. Prof. Dr. Pechladda Pechpakdee, Mahasarakham University	Onsite	Thai	
	Invite panelists to speak about (1) takeaways/ lessons learned, (2) identified gaps/ challenges for Thai SCs, (3) suggestions for a way forward (10 min each at maximum)	Onsite	English	
16:20 – 16:30	**Dr. Passakorn Prathombutr,** Senior Executive Vice President, depa	Onsite	Thai	
16:30 – 16:40	**Mrs. Kanita Radnui,** Director, Local Administrative Development Division, DLA	Onsite	Thai	
16:40 – 16:50	**Mr. Prasong Thummapala,** Department of Disaster Prevention and Mitigation (DDPM)	Onsite	Thai	Appendix B
16:50 – 17:00	**Mr. Udom Chittawong,** Department of Public Works and Town & Country Planning (DPT)	Onsite	Thai	Appendix B
17:00 – 17:10	**Mr. Kawabe Ryoichi,** Senior Representative, JICA Thailand Office	Onsite	English	

Time	Procedures	Onsite/ online	Language	Slides
17:10 – 17:20	**Mr. Ono Kazuya,** Deputy Director, International Policy Division, MLIT	Onsite	English	
17:20 – 17:30	Open Q&A	Hybrid	Mixed	
Closing (27 April, 17:30 – 18:00) Moderator : Mr. Sataporn Senawong, DLA				
17:00 – 17:05	Moderator's introduction to the session	Onsite	Thai	
17:05 – 17:13	**Closing speech by Mr. Kawabe Ryoichi,** Senior Representative, JICA Thailand Office	Onsite	English	
17:13 – 17:20	**Closing speech by Dr. Passakorn Prathombutr,** Senior Executive Vice President, depa	Onsite	Thai	
17:20 – 17:27	**Closing speech by Mr. Siriphan Srikongpli,** Deputy Director-General , DLA	Onsite	Thai	
17:27 – 17:30	Group photo	Onsite	Thai	
	Moderator's thank you speech and closure of the workshop	Onsite	Thai	

Secretariat

Department of Local Administration (DLA)

- Ms. Patthiya Gitpot, Plan and Policy Analyst, Professional Level
- Ms. Bunyanuch Tumthamai, Plan and Policy Analyst, Professional Level
- Mr. Nattawut Makhumtup, Plan and Policy Analyst, Practitioner Level
- Mr. Natchayut Iamumpha, Plan and Policy Analyst, Practitioner Level
- Mr. Thatchamin Pakjan, Plan and Policy Analyst, Practitioner Level
- Mr. Mudasseer Salatasoh, Plan and Policy Analyst, Practitioner Level
- Ms. Ployphairin Kayankid, Permanent Employee
- Ms. Panchika Runna, Permanent Employee
- Ms. Suchada Dararat, Permanent Employee
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Digital Economy Promotion Agency (depa)

- Dr. Passakon Prathombutr, Senior Executive Vice President
- Dr. Non Arkaraprasertkul, Senior Expert, Smart City Promotion Department
- Dr. Tama Duangnamol, Senior Team Lead, Smart City Promotion Department
- Dr. Ravivudh Khun-in, Senior Officer, Smart City Promotion Department
- Ms. Siriporn Moksai, Senior Officer, Smart City Promotion Department
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Japan International Cooperation Agency (JICA)

- Mr. Koresawa Atsushi, JICA Senior Expert
- Ms. Phannisa Nirattiwongsakorn, Consultant
- Mr. Miyoshi Katsuya, Representative, JICA Thailand Office
- Ms. Tanita Niltai, Program Officer, JICA Thailand Office

Sessions – 26 April 2023

Opening Remarks

Opening remarks were delivered by representatives from DLA, depa, and JICA Thailand Office to officially open the Workshop.

- **Mr. Kajorn Srichavanotai, Director-General, DLA:**
  Smart City development is a DLA's mandate, with the purpose to reduce inequality, accelerate innovation, develop good governance using technology, and strengthen local capacity. 76 Governors made a commitment with the United Nations on achieving SDG. The Workshop today helps to accelerate SDG 11 in Thailand and to support local governments in implementing smart cities in Thailand. Local Administration Organizations (LAOs) are the key agency at the local level to leverage technology for more efficient public services. Thus, DLA, JICA, and DEPA co-organize this Workshop to exchange knowledge on smart city development that LAOs can apply to their cities.

- **Dr. Passakorn Prathombutr, Senior Executive Vice President, depa:**
  Depa defines a smart city as a city that utilizes technology for urban management. COVID-19 emphasizes the importance and necessity of digital technology. We must become smarter and smarter. Smart city initiative aims to support cities to use technology more efficiently and smartly for the people, regardless of the city's size. The Workshop will show examples of smart cities from around the world, to show that Smart City is not a new concept.

- **Mr. Suzuki Kazuya, Chief Representative, JICA Thailand Office:**
  Since its establishment in 1954, JICA has collaborated with Thai governments in various domains. As Thailand becomes an upper-middle-income country, our cooperation with Thailand shifts to solving more complex and challenging issues including rapid urbanization. Regarding the phenomenon, the disparity between urban and rural areas become wider. Issues such as aging population, pollution, and job creation are the main challenges. In 2017 – 2020, JICA worked on a master plan and proposes a Smart City Concept for Bang Sue district. JICA supports DLA on accelerating smart city development in Thailand, to improve the citizens' quality of life.

Keynote Speeches 1

JICA Thailand Office – Mr. Atsushi Koresawa, JICA expert assigned to DLA
Unlocking the Potential of Smart Cities

We need to correct the mindset that big cities can benefit the most and small-and medium-sized cities can benefit less from smart city initiatives. Also, people tend to narrowly focus on digital technologies, but they are only a means to an end. Thus, mayor and city leaders should discuss more:

- How to create a livable, resilient, and inclusive cities;
- How to foster citizens' engagement;
- How to promote cooperation and coordination among various stakeholders.

Also, we need to be fully aware:

- Smart cities have the potential to change cities for the better, but they are not a panacea to cities' core structural problems nor provide a substitute for good planning and governance. If not implemented strategically and with care, they can create problems.
- How to make the most for citizens' well-being of the costly investment in smart technologies and innovative solutions.

The objectives of the Workshop is to: (1) To provide updates on Thai smart cities and global and regional trends; (2) To facilitate sharing of experience and knowledge and dialogues among smart cities and other organizations; and (3) To offer opportunities for further collaboration among them. The Workshop brought together international and regional leaders. Also, Japanese smart cities and the recent government policy framework "Digital Garden City Nation" are also relevant and useful.

Depa – Dr. Passakon Prathombutr, Senior Executive Vice President
Smart Cities Development in Thailand

Why become Smart? – rapid urbanization, inadequate infrastructure and resources, traffic congestion, inequality, to transform pain points into opportunities with technology.

What is Smart? – Automation, scalability, efficiency, precision, safety, shareability, etc. From "Environment driven", to "technology/data" driven, then "citizen" centric/driven.

How is Smart? – Digital transformation, new business model. Thailand 4.0 Policy and Smart Cities.

What have been done? – setting up Smart City Thailand Committee, participating in ASCN, Thailand Smart City Guidelines, Smart City Ambassador program, City Data Platform (CDP) Framework.

What will be done in the near future? – Thailand will try to achieve 105 smart cities by 2027, as set in the 13th NESDP's 8th Milestone.

Roles of Thailand's Smart City Office – (1) a policy maker at the national level (Smart City logo, regulatory sandbox, Smart City Competitiveness Index), (2) serving demand at the local level (training programs, Ambassador program, Leadership program), (3) a service provider (incentives, data catalog, business matching, accelerator programs)

Challenges of smart city implementation are found to be budget, technology, manpower, and regulation.

Dr. Passakon ends his presentation with key takeaways i.e.,

- Every city can be livable, with opportunities,
- Inequality can be reduced by smartly utilizing technology,
- Smart cities have to be demand-led, not technology-led,
- Government mechanisms to invite the private sector, and
- Data is a resource.

Ministry of Land, Infrastructure, and Transportation, Government of Japan – Mr. Kazuya Ohno, Deputy Director, International Policy Division, Policy Bureau

Japan's Cooperation for ASEAN Smart Cities Network

Collaboration between ASEAN – Japan has been expanding in recent yars, which include (1) the Japan Association for Smart Cities in ASEAN (JASCA), established in 2019, as a Japanese public-private partnership platform to support smart cities in ASEAN; (2) the ASEAN-Japan Smart Cities Network High-Level Meeting (HLM) held every year since 2019; (3) a support system named "Smart City supported by Japan ASEAN Mutual Partnership (Smart JAMP)" which conducts FS and prepare investment/loans for smart city projects, among other.

One of major tangible results is the ASEAN Smart City Planning Guidebook prepared by MLIT in consultation with ASEAN Secretariat and launched in Mar 2022. This Guidebook provides a wide array of smart city development guidelines and various good practices and lessons learned across ASEAN countries. It is available online on JASCA's website.

In summary:

- The Government of Japan will continue its collaboration with ASCN,
- The Government of Japan will be a part of building smart cities in ASEAN by collaborating with experts and local governments in Japan,
- A concrete roadmap is needed for actions,
- We are waiting for proposals from ASEAN countries.

Case Studies 1 (Japan Smart Cities)

Kitakyushu City – ECO-Town Project / 100% Renewable Energy Model

Eco-Town Project

Kitakyushu is created from the synergies of (1) technology, human resources, industrial infrastructure, (2) civic and institutional networks, and (3) spatial advantages of Hibikinada. It is the first and the biggest eco-town among 26 eco-towns in Japan. The project comprises 3 components – ECO-Town Center, One Stop Service, and 3-Step methodology. 3-step methodology includes basic research and education, technology and empirical research, and recycling business incubation. Recycle systems are created by recycling regulations for each commercial product. On outcomes, Kitakyushu can reduce CO2 emission by 380,000 ton, increase the investment volume from both public and private sector, and also increase employment by 1,100 positions.

100% Renewable Energy Model

The objective of the 100% Renewable Energy Model for Kitakyushu is to reduce energy costs using the circular economy components. The circular economy components are: (1) products and services, (2) sharing platform, (3) longer service life, (4) collection and recycle, and (5) reverse supply chain.

The mechanisms can be divided into 3 steps: (1) changing to 100% renewable energy sources, (2) installation of solar cells and battery at household level, and (3) additional energy saving devices. On (2), rechargeable batteries are used for government's EV vehicles and other appliances. After the batteries are used, they will be sold to the used battery market. On (3), refrigerant and air conditioners are collected, recycled, and sold to the used air conditioners martket. Air conditioners with IoT sensors are installed at a primary school. The sensor can elongate the air conditioner's life by 2 years.

Toyama City – Compact City using Public Transport

Toyama City is a famous tourist destination. However, the city is facing an aging and declining population. People prefer using private vehicles to public transportation, leading to declined ridership and services. Thus, Toyama City aims to re-improve public transportation services and the city's economy by Light Rail Train (LRT).

The city has a master plan to encourage housing near stations and support investment in different modes of public transportation. After implementation, public ridership has increased 2 – 3 times. Other mechanisms include encouraging housing near stations, developing public spaces in CBD.

The development has resulted in increasing ridership, growing rate of immigration, and higher land value from vibrant economy.

Kakogawa City – Community Development using ICT and Data

To improve safety & security, 1,475 CCTVs have been installed near primary schools during 2017 – 2018, in accordance with Kakogawa's municipal regulations on CCTV installation and control. An agreement with Kakogawa police has been made to allow access to CCTV footage for police. Crime has been 100% decreased from 2,900 cases in 2017 to 1,400 cases in 2021.

Decidim is a tool for participative democracy. The tool is implemented in Japan for the first time to let people have opinions on specific issues. As of November 2022, there have been 27 issues discussed by 1,400 users. Discussed issues are such as river-side development on the actual site.

The idea of Kakogawa Smart City started in March 2021 and is now in the feedback period. In the next step, feedbacks will be reviewed before creating Kakogawa Smart City plan.

Case Studies 1 (Thailand Smart Cities)

Nakhon Si Thammarat City Municipality – Mr. Phuwanard Theeka
City E-Service Center

Nakhon Si Thammarat City Municipality developed City E-Service Center as a channel for citizens to communicate with the city authority. It also reduces repetitive processes and shortens service time. The initiative is aligned with the national act on Electronic Performance of Administrative Functions (2022) and promotes E-Government.

City E-Service Center runs through a Line Official Account @Nakhoncity which allows 2-way communication on complaints/requests between city staff and citizens. The city also sets performance indicators – (1) E-Service is accounted for 50% of the total services provided to citizens, (2) Citizens subscribe to the Line Official Account 38,000 people/year, (3) Complaints are reported and solved at least 5,000 cases, and (4) Process time does not exceed 48 hours per case.

Currently, there are 42,176 subscribers, or 43% of the total population. 10,492 cases or 99% have been solved, as of 5 April 2023. The data is further utilized on City Data Platform for better decision-making and city management. The city also have Smart City Officers to take care of the system and Smart City Explorers to promote the initiative to communities, schools, and families.

Ban Klang Town Municipality – Mr. Sorn Inkeaw and Mr. Apichat Thepcha
One Stop Service

Ban Klang Town Municipality is in Lamphun Province. It has the total area of 18 sq.km. The total population is 11,000 while the unregistered population is around 40,000 from at least 70 factories around the town. Most of unregistered population are factory workers who face difficulties in taking leaves to receive government services. Thus, the municipality is trying to improve the service by offering One Stop Service to its citizens.

Ban Klang signed the MOU with DGA for a support on using a digital One Stop Service platform for free in the first year. The platform has been in operation since October 15, 2021, offering 5 services – (1) One Stop Service, (2) Online document system, (3) Online building permit, (4) Online certificates, and (5) Online fee payment.

Before (October 2021) and after (August 2022) implementation:

- Solved cases have been increased from 383 to 1,026 cases. 100% of reported cases have been solved.
- Building permit request time has been decreased from 45 to 2 days. Number of cases served has been increased from 122 to 144 cases.
- Certification process time has been decreased from 7 days to 15 minutes. Number of certificates issued has been increased from 332 to 371.
- Trash collection fee can be paid on mobile phone. Number of people paid for the tax has been increased from 4,114 to 4,664 people. Expenditure on staff to collect the trash collection fee have been decreased around 500,000 Baht/year.
- All documents are stored on Cloud. Number of documents has been increased from 2,409 to 2,623.

- The overall satisfactory level is 89.42%. Satisfactory level on efficiency is 89.62%, on convenience is 83.01%, on receiving services is 90.99%, on tracking progress is 94.05%.

Ban Klang's One Stop Service won Smart City Showcase Award of 2022 on Smart Governance. It also won a popular vote for an honorable service system from the Ministry of Digital Economy and Society on December 1, 2022.

Bangkok Metropolitan Administration (BMA) – Mr. Nitjakaln Ngamwong, Director of Department of Geographic Information
Policy Implementation for Developing an Area to Become a Smart City

Bangkok are facing challenges such as flood, air pollution, solid waste, wastewater, aging society, economic turbulence, terrorism, illegal workers, drugs, epidemic diseases, traffic jam and accidents, and digital transformation.

Bangkok has higher percentage of population with access to internet and digital devices than the national average.

Smart City development in Bangkok focuses on all 7 domains – Smart Mobility, Smart People, Smart Governance, Smart Energy, Smart Environment, Smart Economy, and Smart Living. The first 10 potential sites are: (1) Klongsan, (2) Rattanakosin, (3) Yothi, (4) Bang Sue, (5) Pathumwan – Siam, (6) Ladkrabang, (7) Kluainamthai, (8) Punnawithi, (9) Charoenkrung, and (10) Rama IV.

Currently, 3 Smart Cities in Bangkok have been approved – (1) Rama IV Smart City proposed by Chulalongkorn University, (2) Padung Canal Smart City proposed by BMA, and (3) Makkasan Smart City proposed by Asia Era Wan Co., Ltd.

Padung Canal Smart City has a vision of "connecting people, connecting canals", focusing on 4 Smarts – Smart Environment (water management, air quality - AirBKK application, green space database), Smart Energy (electric boats), Smart Mobility (traffic monitoring, smart bus shelters, Mana BKK application), and Smart Living (CCTV). The initiatives also include landscape revitalization along Padung Canal (5.4 km long), Living Lab, and participatory budgeting.

Bangkok plans for people-centric development, utilizing digital transformation to achieve open government, and open Bangkok. The concept of open Bangkok comprises of 5 pillars

- Open data (www.data.bangkok.go.th has 619 datasets in 17 categories),
- Open contracting (egp.bangkok.go.th),
- Open policy (www.bmavision.com and www.chadchart.com/policy),
- Open innovation (Committee on Research and Innovation and Subcommittees on Bangkok City Lab, Bangkok Research Facilitation, and Bangkok Sandbox and Pilot Projects), and
- Open services (One Stop Service - 28 major services and more than 90 minor services).

Sessions – 27 April 2023

Keynote Speeches 2

UN-Habitat – Srinivasa Popuri, Senior Human Settlements Officer and Chief of Bangkok Office
People-Centered Smart Cities: Ensuring that the digital transformation leaves no one and no place behind

Technology is to support the life and the livelihoods of people, not technology to lead people. UN-Habitat's People-Centered Smart Cities program focuses on policy transformation, financing digital urban innovation, and digital empowerment & capacity building under 5 pillars – community, digital equity, infrastructure, security, and capacity. In short, People-Centered Smart Cities is people, planning, policy and participation powered by technology.

International Guidelines of Urban and Territorial Planning (IG-UTP) is a tool for planning to achieve sustainability in a city. A sustainable city should be compact, connected, inclusive, vibrant, and resilient. The guidelines cover urban policy and governance, social development, sustained economic growth, environment, planning components, and implementation and monitoring.

Then, Mr. Srinivasa shows lessons learned from South/East Asia such as Area-based development (ABD) in Surat Smart City, Streets for People in 38 Indian cities, Cycle for Change in 107 Indian cities, Mainstreaming LNOB in India, Nepal, Sri Lanka, and Bangladesh, and Sihanouklville Smart City Framework. All of the examples show how cities put people at the center of development.

ASEAN Secretariat – Lim Che Cheen, Director, ASEAN Connectivity Division, the ASEAN Secretariat
Smart and Sustainable Urbanization in ASEAN

Context of smart and sustainable urbanization in ASEAN – there will be additional 70 million people becoming urban dwellers in ASEAN cities, while 50% of urban growth will happen in cities with a population below 1 million people.

ASEAN Sustainable Urbanization Strategy (ASUS) – proposing multi-level strategy, strengthening regional coordination, and provide strategic frameworks for ASEAN cities. To accelerate the implementation of ASUS Project, ASEAN receives support from the Government of Australia and technical advisory from UN-Habitat. The outputs are 8 City Technical Proposal, ASEAN Sustainable Urbanisation Forum (6 – 8 October 2021), and ASEAN Sustainable Urbanisation Report.

ASEAN Smart Cities Network (ASCN) – ASCN has projects on ASCN Online Portal and ASEAN Smart City Investment Toolkit. ASEAN Smart City Planning Guidebook is a collaboration between Japanese MLIT and ASEAN, capturing examples from ASCN members and Japanese cities.

OECD – Hiroko Suzuki, Senior Counsellor, Center for Entrepreneurship, SMEs, Region and Cities
How Smart Cities Contribute to Inclusive and Sustainable Growth: Focusing on Sustainable Urban Development Finance in Southeast Asia

OECD's presentation can be divided into 2 parts:

1   OECD Program on Smart Cities and Inclusive Growth

OECD defines smart cities as "Cities that leverage digitalization and engage stakeholders to improve people's well-being and build more inclusive, sustainable and resilient societies."

OECD publications on smart cities: (1) Enhancing the Constitution of Digitalization to the Smart Cities of the Future (2019), (2) Smart Cities and Inclusive Growth (2020), (3) Leveraging Digital Technology and Data for Human-Centric Smart Cities – Report for the G20 Digital Economy Task Force (2020), and (4) Measuring Smart City Performance in COVID-19 times: Lessons from Korea and OECD Countries (2021).

2   Promoting Sustainable Urban Development Finance in Southeast Asia

Contexts – growing density in ASEAN-5 countries surpasses that of OECD countries, along with growing CO2 emission.

Policy recommendation – (1) policies to create an investment environment conducive to sustainable urban development, (2) legal and institutional framework to encourage diversified and financing instruments, (3) policies to minimize investment risks and improve project bankability for investors, and (4) policies to drive more ambitious sustainable urban development finance.

JICA Thailand Office – Kawabe Ryoichi, Senior Representative
JICA's Smart City Projects and City-to-City Collaboration

Studies by JICA on smart cities: (1) Smart City Approach Towards Sustainable Urban Management (2021 – 2022), (2) Training on techniques and actions to achieve smart cities (2022 – 2024), and (3) Smart Siem Reap City Roadmap (2022 – 2025).

(1) **Smart City Approach Towards Sustainable Urban Management** – 5 principles and 21 components to achieve a successful smart city,
(2) **Training on techniques and actions to achieve smart cities** – 2-week training for other countries to observe practices in Japan,
(3) **Smart Siem Reap City Roadmap** – currently in the planning phase. The pilot projects are: traffic violation detection, waste collection improvement, tourism data digitization, government document tracking, environmental quality monitoring, and public-private collaboration on tourism development.
(4) **Capacity building for Luang Prabang's world heritage management (2018 – 2022)** – the activities include knowledge exchange between Takayama City (Gifu Prefecture) and Luang Prabang, a cleaning event around the world heritage site participated by volunteers, experts from Takayama City to improve production in a pottery village and a rice wine village.
(5) **A pilot project on elderly care staff by communities in Thailand (2022 – 2025)** – Thailand is entering an aging society which is similar to Japan's situation, leading to knowledge exchange between Yugawara City (Kanagawa Prefecture) and Bueng Yitho City (Pathum Thani Province). A daycare, an elderly center, a medical and rehabilitation

center are set up to create a complete cycle of elderly care. Experience from the project will be shared with other 9 municipalities in Bueng Yitho's network.

(6) **Sustainable local revitalization project (2023 – 2026)** – to revitalize cities from decreasing aging population.

Case Studies 2 (ASEAN Smart Cities)

Cauayan City – The Innovative City of the North by Mayor Caesar S. Dy, Jr., Cauayan City, Isabela Province, Republic of the Philippines

Cauayan City, one of the 3 and 35 municipalities in Isabela Province, is the first Smart City in the Philippines. The population size is 140, 218 and the total land area is 34,335.879 hectares. It has the vision to become the Innovative City of the North by reinforcement of smart and sustainable city projects:

- **Goal 1** – Relief Assistance Monitoring System, household profiling using QR codes,
- **Goal 2** – First food bank in the region,
- **Goal 3** – Telemedicine, first digital healthcare management system,
- **Goal 4** – 21st century learning environment model, school-in-a-bag,
- **Goal 7** – E-vehicles, solar cells on Cauayan City Hall,
- **Goal 8** – Digital Jobs Training (DICT), job hiring for the first BPO Center in the region
- **Goal 9** – Business Intelligence Research & Development Center, Cagayan Valley Science Centrum, Knowledge, Innovation, and Science Technology Park (KIST),
- **Goal 11** – Digital Twin City, Digital Twin City skills training on data mining, geospatial analysis, and 3D modeling, Community Dengue Early Warning System (CDEWS), ODeSSEE for Flood and COVID-19, Cauayan Connect App (cashless, contactless, paperless), Smart Mobility, buses, tuk tuk, scooters.
- **Goal 12** – Greenhouse aquaponics, Kubota machines, drone sprayers, fertilizer, Smart Agriculture building
- **Goal 13** – ESG Clean Energy (plastic-to-energy) project, Waste Wise Cities for Sustainability,
- **Goal 17** – Twining city with Iloilo City, San Guillermo partnership, Tabuk City benchmarking
- **Others** – SDG Center, sport facilities, and community support

Jakarta – Juan Intan Kanggrawan, Head of Product and Tribe (Data Platform & Ecosystem), Ministry of Edu-Culture-Research, Indonesia
Smart City Development Case Study: Jakarta (Indonesia)

Context – Indonesia's 100 smart cities and 1,000 start-ups initiatives to encourage the culture of innovation, ASEAN's strategy on smart city development, Smart City Ecosystem Platform.

Current state and efforts – (1) collaborate with partners to develop products and solutions, such as Inovasi (government platform, One Stop Services, Digital ID, and citizen-designed services), (2) encourage cities to develop a smart city based on their context, such as corona.jakarta.go.id (COVID-19 platform) and 25 Kota Perintis Smart City (25 Pioneer Smart Cities), (3) develop 'Jaki' integrated digital services, (4) build a smart city ecosystem with other cities around the world, (5) collect data such as demography, mobility pattern, subsidy tracking, for policy making.

Future trajectory – (1) proposing the modular system for technological scalability, (2) developing business model to ensure sustainability, and (3) expanding the current ecosystem such as AsiaBerlin (AB) Support System.

Kuching Smart City – Initiatives & Way by Mr. Hamadlan Hamdan, Chief Technology Officer, Sarawak Digital Economy Corporation Bhd (SDEC), Malaysia

Core organizers to implement Sarawak Digital Economy are SMA, SDEC, Sarawak Center of Technical Excellence, and Sains8.

Sarawak Digital Economy Corporation Berhad (SDEC) was incorporated in 2018 as a state-owned company to lead the implementation of Sarawak's digital economy focusing on private sector.

Kuching Smart City Master Plan has a framework to leverages technology through 38 initiatives on government, environment, living, economy, and digital infrastructure. 10 strategic outcomes are: (1) create seamless digital experience for business, (2) develop new digital economy engine of growth, (3) raise awareness and empower citizens, (4) build a conducive and comfortable Kuching, (5) empower the municipal management with digital tools, (6) create a green environment, (7) build a transparent and service-centric government, (8) implement unified digital services to enhance cross-agencies collaborations, (9) facilitate socio-economic growth, and (10) instill openness and collaboration.

SDEC also encourages government-industry-university partnerships to promote R&D, especially to empower universities in Sarawak.

Smart City Testbed is a platform to test technologies before deployment. The tested technologies are such as 5G Smart Street Poles, Smart Parking, Smart Water Meter, Smart Electricity Meter, Smart Water Level, Smart Soil Quality, and Smart Urban Farming.

Smart City Development Case Study in Indonesia by Dr. Drs. SAFRIZAL ZA, M.Si, Director General of Regional Administration, The Ministry of Home Affairs of the Republic of Indonesia

Indonesia has the 2045 Vision to become one of the world's top 5 strongest economies, through (1) human capacity, science, and technology, (2) more equitable welfare, (3) national resilience, and (4) strong governance.

For urbanization, the concept of sustainable cities is promoted using 2 parameters to improve urban services standards – data measurement and community perception.

Indonesia's ASCN pilot cities and their initiatives are Banyuwangi (Spearing Industrial Growth through Educatio, Creating inclusive economic growth through tourism-based development, Smart Kampung, Caring for stunting, Sustainable Waste Management), DKI Jakarta (JakPreneur, JakLingko, JAKI, Corona Website), and Makassar (Smart Health Care, Smart E-Tax Services).

Indonesia will be the host country for ASCN in 2023. Discussions on different topics will be organized throughout the year – Industry and innovation (February), Safety, security, and built infrastructure (April), Quality environment (May), Civil, social, health, and well-being (July). Then, the 6th ASCN annual meeting will be held in July 2023.
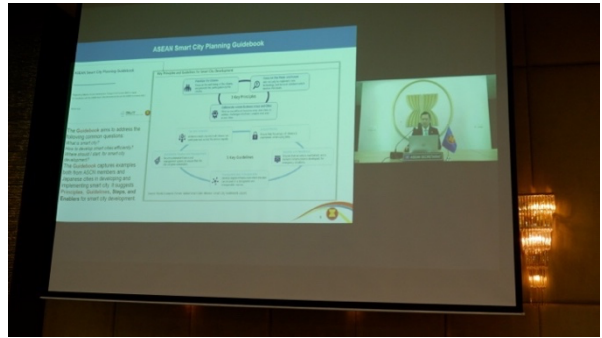
Case Studies 2 (Thailand Smart Cities)

Yala City Municipality – Mr. Pongsak Yingchoncharoen
A technological system project for managing, tracking, and monitoring the COVID-19 pandemic

Yala Model in fighting COVID-19 focuses on crisis and chaos management through 3 steps – preparation, epidemic control, and leniency measures.

Preparation – stakeholder discussions to find effective solutions, preparedness building and knowledge sharing for citizens, and the municipality as a center for resource mobilization in crisis. Free WiFi is provided across the city with the municipality's LINE Official Account for 2-way communication. Preparation measures are mostly satisfied by citizens (3.29/4.00).

Epidemic control – Each community manages itself with municipal support, medical supplies and devices for agencies, and door-to-door COVID test service. Epidemic control measures are mostly satisfied by citizens (3.38/4.00).

Leniency measures – to allow normal activities after COVID while keeping protective measures. Economic revitalization measures are applied at the local level with Yala Market as a new platform for online retails. Leniency measures are satisfied by citizens (3.21/4.00).

Yala Market is a result of utilizing technology for economic sustainability in the municipality. Currently, there are 800 online shops, 25,257 users, 4,798 monthly orders, 15 riders for delivery, and circulating money of 2,500,000 Baht.

Saensuk Town Municipality – Mr. Narongchai Kunplom
Smart technology project for senior healthcare service management

Saensuk Town Municipality is an Eastern coastal city. 18.9% of the total population of 46,158 is elderly, leading to needs to have services for the population group. Saensuk is having challenges from lack of medical staff and their skills, lack of public spaces and tools for elderly, and lack of efficient management system.

Thus, Saensuk Smart City focuses on support system for elderly with 3 approaches: (1) capacity building and engagement process with support from JICA (2016 – 2023), (2) development of infrastructure and tools, and (3) development of technology and management system such as Smart Health, Telehealth, Smart Safety, and data management.

The concept to improve services for elderly has started since 2011:

- 2011 – 2013: Remote lighting control and emergency button for 46 households,
- 2014 – 2015: Emergency hotline for 115 households, with support from TOT,
- 2016 – 2020: IoT Gateway and Device (wrist band and necklace) to collect health information on cloud for 50 households, with support from NIA,
- 2021 – 2022: Smart Safety (GPS tracking device), Smart Health (health checkup recorded on cloud) for 250 households.

Smart Safety program on 2022 has the total budget of 1,300,000 Baht or 5,200 Baht/person/year. 250 people registered and 327 people requested services.

In 2023, Smart Safety and Smart Health are outsourced to a contractor with the total budget of 1,800,000 Baht or 6,000 Baht/peron/year. Smart Safety includes new GPS tracking devices for 300 people that can automatically call an emergency unit and detect falls. Smart Health provides health kits that record the results on cloud to more than 300 people. The municipality also provides Telehealth – house visit services for elderly and rehabilitation.

All data are collected and shared through www.citydata.in.th/saensuk.

Pang Mu Subdistrict Administration – Mr. Mr.Suriyan Malavan
E-Smart Services (ESS Pangmu)

43% of Pangmu's population has non-Thai/no nationality, thus the ESS focuses on inclusive design. These populations can equally receive the same services. It also mitigates the difficulties of traveling long distances to receive public services.

ESS has 2 objectives – providing general information and transparency, and 4 systems:

(1) **E-Relationship** (referring requests to other agencies)
Smart EMS to emergency medical units, from 15 to 12 minutes after using ESS,
Support to farmers, from 3 to 2 days after using ESS,

(2) **E-Stakeholder**
Register for special for elderly, newborn, and people with disabilities, from 2 to 1 days after using ESS,
Checking eligibility for elderly, newborn, and people with disabilities, from 2 to 1 days after using ESS,
Register for Tambon's Farmers List, from 2 to 1 days after using ESS,
Smart Health, from 30 to 10 minutes after using ESS,

(3) **E-Facilitation** (request for municipal services)
Request for sewage cleaning, 2 to 1 days after using ESS,
Request for water delivery, from 2 to 1 days after using ESS,
Request for tree trimming, from 2 to 1 days after using ESS,
File a complaint, from 2 to 1 days after using ESS,
Smart Yunglai, from 4 to 3 days after using ESS,
Smart i-Pole, from 2 to 1 days after using ESS,

(4) **E-Registration**
Register new businesses, from 8 to 3 minutes after using ESS,
Register new hazardous businesses, from 3 to 2 days after using ESS,
Register new address, from 15 to 10 minutes after using ESS,
Request a building permit, from 20 to 10 minutes after using ESS.

(5) **Transparency**
Tax payment, from 5 to 3 minutes after using ESS,
Smart Kids, from 30 to 10 minutes after using ESS,
Smart Garbage, from 5 to 3 minutes after using ESS,

(6) **General Information**
Smart Travel, from 5 to 3 minutes after using ESS,
Smart Infrastructure, from 5 to 3 minutes after using ESS[1]

Before the actual implementation, ESS is promoted and trained to citizens and community representatives from June – July 2021.

ESS solves the problems of: Social – inequality reduction, Economic – costs reduce for both government and citizens, and Environment – control of COVID-19, reducing CO2 and global warming.

Pangmu also builds knowledge networks with 11 other local governments in Mae Hong Son, Nakhon Pathom, Nakhon Sawan, Suphan Buri, Krabi, Khon Kaen, and Nakhon Ratchasima.

Digital transformation in Pangmu started from 2011 on land plot digitization and E-Tax system. Smart Yunglai, ESS, EMS, and Smart Kids received various national awards from 2020 – 2022. In 2023, Pangmu Survey for land use management and Local Innovation Center are planned to be implemented.

Panel Discussion

The panel discussion is moderated by Mr. Atsushi Koresawa. 3 questions were posted to panelists:

(1) What are three major takeaways and lessons learned from the Workshop sessions?
(2) What are three identified gaps and challenges you should address?
(3) What are your suggestions to advance smart city development goals?

Asst. Prof. Dr. Pechladda Pechpakdee, Mahasarakham University

As an observer, smart cities are endorsed and implemented at the local level which I have 2 impressions.

Firstly, I am impressed by initiatives by cities such as BMA's Traffy Fondue and Open Policy that are not started from the national level.

Secondly, I am impressed by initiatives from cities despite the great disparity between cities in Thailand. For instance, Khon Kaen's mobility project, Nakhon Si Thammarat's E-Service, and Saensuk's aging society project. These examples prove that smart cities are not just buying technology. Cities work with academia and develop technologies based on needs of the people.

Smart Infrastructure will be the next step to improve smart city services.

I would like to invite cities to transform into smart cities. Singapore has proposed the concept of Smart Nation 30 years ago. For Thailand, LAOs have been formed by laws since the 1950s which is quite a long time. To change the management is to change a shared value – government culture. Local administration has to be resilient. Lastly, youth is the best ambassador for change.

Dr. Passakorn Prathombutr, Senior Executive Vice President, depa

Thank DLA for arranging this workshop as there are more than 7,000 LAOs and municipalities in Thailand, while only 80 are interested to become smart cities. This workshop confirms that cities, regardless of population size, want to solve problems using technology. This aligns with ASEAN's mandate to leave no one/city behind.

Tasks - Mostly technology comes with data. Thus, good data is the key to solving problems.

Budget – In the case of Saensuk, the city does not use only its budget but also financial support from MSDHS. It proves that partners are important to successful implementation. Partners include JICA, and private sector. Also, depa and the Bureau of Budget have discussed about budget priority for certified smart cities to support local implementation, starting from the 2024 fiscal year. We also have digital service platform that private solution providers can propose their services to cities under the government's procurement standard.

Human resources – human resource is the largest gap. Successful smart cities need local leadership and understanding at both executive and working levels. Acceptance from citizens is also important. Some cities use volunteers to communicate with communities.

The last suggestion to put smart cities forward is to have a development plan developed from needs. After the plan is prepared, depa can support by bringing in development partners such as JICA. Plan will also help to receive approval from the Bureau of Budget. We also have other programs such as Smart City Ambassadors, who will support their cities in preparing a plan.

Mrs. Kanita Radnui, Director, Local Administrative Development Division, DLA

On behalf of DLA, I would like to thank other organizers for this workshop.

Firstly, smart cities must start with needs and demands. LAOs such as Pang Mu, Yala, Saensuk are good case studies, including other cities. A lot of LAOs start from improving services for citizens using digital platforms which is a good start. However, we have to think about the next improvement areas such as mobility, waste management, or pollution.

Secondly, decentralization is the key to successful implementation. LAOs can work with local partners to find needs and priorities. Small LAO such as Pang Mu has a successful implementation, proving that all local governments can start implementing smart city in their area. Will and commitment is the most important.

Executives' visions are also key.

Third and lastly, demand and acceptance from citizens are the most important. Cities have to ensure that their citizens can access to services through their devices.

Gaps – decentralization, passing authority to local governments are progressing. However, that national government still needs to support on specific areas such as IoT coverage. Collaboration between national and local levels are important.

Suggestions – Further collaboration between agencies is needed. Such as DLA-depa to train mayors on smart cities.

Mr. Prasong Thummapala, Department of Disaster Prevention and Mitigation (DDPM)

Thank DLA and JICA for this Workshop. The most important key to developing a smart city for DDPM is safety and livability. The other goals will follow. Different laws are issued to allow digital services for citizens.

Even different cities have different contexts, Smart People and Smart Livable are still foundational. COVID proves that digital technology can solve many problems such as social distancing and contactless payment.

Strengthening local capacity is also crucial to disaster mitigation. Strong municipalities are less likely to ask for DDPM's support during natural hazard time.

DDPM is planning for an integrated warning system. By budget, DDPM cannot invest in all areas. However, if local governments can invest in infrastructure, DDPM can support on knowledge building and technology integration.

Smart cities can be developed but should be in a sustainable manner. Sustainability is a long-term action.

Mr. Udom Chittawong, Department of Public Works and Town & Country Planning (DPT)

This is the first time for DPT to exchange knowledge on smart cities. DPT would like to provide inputs on planning process that can support smart city implementation. In my understanding, Smart cities should have goals to become safe, livable, full of culture. Technology is to support those goals. It is the same as the planning process. Smart Planning should come first, before technology.

Comprehensive town plans and special town plans are related to smart city development, also municipal strategic and operational plans. Currently, LAOs can develop their own comprehensive town plans by themselves, which can be integrated with their smart city plans.

DPT will support DLA on necessary data and studies to implement Smart Old Towns (currently 36 such as Roi Et and Surin). For Smart New Towns, DPT is starting to study these cities. DPT is trying to integrate planning process with technology in special town plans.

Gaps – knowledge base on planning. Especially, Special Planning is still new in Thailand. Different agencies may have different focuses on smart domains. DPT focuses on Smart Living. Knowledge transfer, data access, limitations of regulations, and municipalities' defined responsibilities are gaps to be improved.

Suggestions – Smart and sustainable development is a long-term process. Collaboration is the key to solving problems. It is also important to address challenges and needs at the local level. The last suggestion is decentralization. LAOs are now leaders, while the national government can support their actions.

Mr. Kawabe Ryoichi, Senior Representative, JICA Thailand Office

In 2019, international organizations started a discussion on smart cities. However, the concept of smart cities was not clear and the expectation was very high. JICA conducted a survey on smart cities.

The important thing is to identify social issues and the vision of each city. The uniqueness of each city and the actual issues discussed today are a good start.

Japan would like to learn from Thailand as well for its successful implementation of technologies. JICA has projects on smart cities in Laos and Cambodia and would like to share experience with Thailand. The case of Nakhon Si Thammarat, in collaboration with Fukuoka city, JICA and depa helped to connect those cities together. That is where we can support.

Mr. Ohno, MLIT

First, I appreciate DLA-depa-JICA to let me join the event. Smart city is a mean to solves urban issues. As Kawabe san mentioned, Japan's experiences in smart cities can be shared. Sustainability is another important point. The concept of area management is a way to manage a city to involve stakeholders and create a livable city. Smart cities are a good sandbox to area management.

Human resources are also a main challenge in Japan. In Japan, also, not all municipalities have enough manpower to implement smart cities. MLIT collaborated with JICA for a smart city training last year and this year in September.

Questions

DLA's ICT Division to provide technical support

DLA's responsibility to strengthen LAOs. Meanwhile, DLA is not big, compared to 8,000 LAOs to take care of. The autonomy of local governments is improving. DLA collaborates with other agencies on specific domains, such as MOPH on well-being, and depa on smart cities. However, the commitment to advancing a smart city must start from the city itself. Currently, all LAOs are asked to self-review if smart city implementation is possible.

3 organizations (DLA-depa-DPT) to collaborate to provide better services for cities

DLA is very pleased to collaborate with other agencies.

Depa already has MOU with DLA. Depa's suggestion is to learn from best practices in Thailand such as Yala, Saensuk, Mae Hia. Depa will prepare guidelines, in collaboration with DLA, that other cities with similar contexts can replicate. On the solution providers' side, depa is contacted by technology providers. Depa is proposing a technological sandbox in leader cities. DLA may suggest cities.

DPT is ready to support smart city development. Currently, DPT is responsible on 2 smart domains – Smart Environment and Smart Living, which we integrate into planning process.

Closing Remarks

Closing remarks were delivered by representatives from JICA Thailand Office, depa, and DLA to officially close the Workshop.

- **Mr. Kawabe Ryoichi, Senior Representative, JICA Thailand Office**
  This Workshop is informative not only to JICA but for participants. From the case studies presented at the workshop, it can be confirmed that people are the priority of development. Next, not only Thailand can learn from Japan, but Japan can learn from Thailand. JICA is looking forward to working together on smart cities.
- **Dr. Passakorn Prathombutr, Senior Executive Vice President, depa**
  DLA is a leading agency in the implementation of smart cities while depa can support on the technology side. The success factor is creating an understanding of the smart city concept, from Mayor to the individual level, through hands-on experience. Depa will plan the next steps together with partners. Not only sharing knowledge domestically, but Thailand can also become the best practice for ASEAN countries.
- **Mr. Siriphan Srikongpli, Deputy Director-General , DLA**

This Workshop is the first step of the implementation. Pilot cities selection is the next step, with support from JICA. A city can become smart in different aspects – living, working, services, and tools, depending on the city's context. DLA, MOI, and Thai Government are ready to support cities to work with partner agencies to implement the smart city concept.

Attendance

Overview of Attendance

Country	26 April Onsite	26 April Online	27 April Onsite	27 April Online
Thai local governments	89	98	75	71
Others (staff included)	95	178	80	112
Total	184	276	155	183

Onsite Attendance

Onsite attendance comprises of Thai local governments invited by DLA, Japanese counterparts invited through direct invitation and media, and other participants invited through an open invitation.

Onsite participants were asked to sign the attendance sheet prepared by DLA, which the number is included in the following table. However, there were some participants who did not sign the sheet. The estimate number of these participants is also included in the table.

Please see the Attendance of Local Governments section for the onsite attendance of Thai local governments in details.

Country of origin	Organization (if indicated)	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
Thailand	Local governments	92	87	89	75	67
	Not indicated	16	16	15	6	4
	Depa	1	1			
	Defense Technology Institute	2	2	2		
	Maejo University	1	1	1	1	1
	Canon Marketing Thailand	1	1	1		
	Interpreters	2	2	2	2	1
	UN-Habitat	1	1	1	1	1
	NHA	2			2	2
	ATI	1			1	1
	Fraser Property	1	1	1		
Japan	Not indicated	6	6	3	2	1
	JICA	4	4	3	4	2
	SC	1	1		1	
	Mizuho Bank	1	1			
	Fraser Property	1	1			
Others (estimated numbers, did not signed the attendance sheet)		66	56	66	60	30
Total		199	181	184	155	110

Online Attendance

Online attendance is recorded by Zoom application as follows.

Session	Unique viewers	Total users	Max concurrence views
26 April – Morning	276	519	223
26 April – Afternoon	198	321	172
27 April – Morning	183	310	145
27 April – Afternoon	153	239	115

Attendance of Local Governments

100 local governments were invited to physically join the Workshop by DLA. Their attendance was recorded by signatures of attendance in 26 April's morning and afternoon sessions, and 27 April's morning and afternoon sessions as the following table. In total, there are 92 representatives from 59 local governments in 36 provinces: 87 in 26 April's morning, 89 in 26 April's afternoon, 75 in 27 April's morning, and 67 in 27 April's afternoon. Please see the original table in Appendix.

In addition to onsite invitation, 250 local governments were invited to virtually join the Workshop by DLA. Online participant list is compiled from Zoom's sign-in records and comments in chat boxes. In total, there are representatives from 120 local governments in 59 provinces. Some participants may come from local governments but did not have indicative names. In that case, those names are not listed in this table but are included in the total online statistics.

The following table includes both onsite and online attendance of local governments in (onsite/online) format. The first number indicates the number of onsite participants from the city while the second number indicates online participation. Y indicates that the city attends the Workshop virtually.

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
Kanchanaburi	Kanchanaburi Town Municipality	1/Y	1/Y	1	1/Y	1
Kalasin	Tha Kanto Tambon Municipality	2	2	2	2	
	Nong Kung Si Tambon Municipality	Y	1/Y		1/Y	
KhonKaen	Na Nong Toom TAO	2	2	2	2	2
	Khon Kaen City Municipality	1	1	1	1	1
	Chumpae Town Municipality	Y	1/Y		1/Y	
Kampaengpetch	Pang Makha Town Municipality	Y	Y			
Chanthaburi	Tha Mai Town Municipality	Y			Y	Y

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
	Klung Town Municipality	Y				Y
	Koh Kwang Tambon Municipality	Y	Y			
Chachoengsao	Chachoengsao Town Municipality	1	1	1	1	1
	Tepparad Tambon Municipality	Y	Y	Y	Y	Y
Chonburi	Chonburi Town Municipality	1	1	1	1	
	Saensuk Town Municipality	1				1
	Laem Chabang City Municipality	6	6	6	6	6
	Ang Sila Town Municipality	4	4	4	4	4
	Banbueng Town Municipality	Y	Y			
	Kao Kansong TAO	Y				
Chai Nat	Chai Nat Town Municipality	Y	Y	Y	Y	Y
Chaiyaphum	Chaiyaphum Town Municipality	Y			Y	
Chumphon	Chumphon Town Municipality	2	2	2	2	1
	Lang Suan Town Municipality	Y	Y	Y	Y	Y
Chiang Rai	Chiang Rai City Municipality	1	1	1	1	1
	Wiang Toeng Tambon Municipality	2	2	2	2	2
	Pa Hoong TAO	1/Y	1/Y	1	1	1
	Pa Sang Toambon Municipality	Y			Y	
	Sri Kham TAO	Y			Y	
Chiang Mai	Buak Khang Tambon Municipality	1/Y	1/Y	1	1	1
	Yang Noeng Tambon Municipality	1	1	1	1	1
	Suthep Tambon Municipality	Y	Y	Y	Y	Y
	Wiang Phrao Town Municipality	Y	Y			
	Mae Hia Town	Y	Y	Y	Y	Y

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
	Municipality					
Tak	Mae Sot City Municipality	2	2	2	2	2
	Tak Town Municipality	Y	Y	Y	Y	Y
Trad	Trad Town Municipality	Y		Y	Y	Y
Trang	Trang City Municipality	1	1	1	1	1
	Kantang Town Municipality	Y	Y	Y	Y	Y
Nakhon Nayok	Nakhon Nayok Town Municipality	1	1	1		
Nakhon Pathom	Thammasala Tambon Municipality	3	3	3	3	3
	Phra Pratone TAO	1	1	1		
	Sampran Town Municipality	1	1	1	1	1
	Kampaengsaen Tambon Municipality	1	1	1		
	Nakhon Pathom City Municipality	2	2	2	1	1
	Naphon Pathom Town Municipality	Y		Y	Y	
	Krathum Lom Town Municipality	Y	Y			
	Sam Kwai Phuak Town Municipality	Y	Y	Y	Y	Y
	Prong Maduea Tambon Municipality	Y		Y	Y	
	Rai Khing Town Municipality	Y		Y	Y	Y
Nakhon Phanom	Nong Yad Tambon Municipality	Y			1	
Nakhon Ratchasima	Nakhon Ratchasima City Municipality	1/Y	1/Y	1/Y	1/Y	1/Y
	Pak Town Municipality	Y			Y	
	Non Somboon Tambon Municipality	Y		Y	Y	Y
Nakhon Si Thammarat	Nakhon Si Thammarat City Municipality	4/Y	4/Y	4/Y	2/Y	2/Y

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
	Thung Song City Municipality	Y	Y	Y	Y	Y
Nonthaburi	Nonthaburi City Municipality	1/Y	1/Y	1/Y	1	1
	Bang Kruai Town Municipality	1/Y	1	1/Y	1	1
	Mai Bang Bua Thong Town Municipality	1	1	1	1	1
	Pakkred City Municipality	Y	Y			
	Nonthaburi PAO	Y	Y	Y		
	Bangrak Pattana Town Municipality	Y	Y		Y	
	Bang Kurad Town Municipality	Y	Y			
	Mueang Mai Bang Bua Thong Town Municipality	Y	Y		Y	
Narathiwat	Narathiwat Town Municipality	1	1	1	1	1
	Su-ngai Kolok Town Municipality	Y	Y		Y	
Nan	Nan Town Municipality	1	1	1	1	1
Pathum Thani	Rangsit City Municipality	2	2	2	2	2
	Sanun Rak Town Municipality	1	1	1		
	Bang Koo Wat Town Municipality	1	1	1	1	
	Bangluang TAO	2	2	2	2	2
	Ku Kot Town Municipality	Y	Y	Y	Y	Y
	Bang Toei Tambon Municipality	Y	Y			
	Tha Khlong Town Municipality	Y	Y	Y	Y	
Pattani	Pattani Town Municipality	1	1	1	1	1
	Taluban Tambon Municipality	Y	Y			
Prajuab Kiri Khan	Prajuab Kiri Khan Town Municipality	Y	Y		Y	Y
	Huahin Town Municipality	Y	Y	Y		
Prachin Buri	Nong Ki Town Municipality	Y	Y	Y	Y	

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
Phuket	Phuket	7	7	6	3	3
	Ka Thu Town Municipality	Y	Y	Y	Y	Y
	Pa Tong Town Municipality	Y		Y	Y	Y
Phayao	Phayao Town Municipality	Y	Y	Y	Y	Y
Pattalung	Pattalung Town Municipality	Y	Y	Y		
	Pattalung Provincial Educational Office	Y	Y			
Pang-nga	Pang-nga Town Municipality	Y	Y			
	Bang Toei Tambon Municipality	Y	Y			
Petchaburi	Petchaburi Town Municipality	Y	Y			
	Nong Kanan Tambon Municipality	Y		Y	Y	
Phitsanulok	Phitsanulok City Municipality	Y	Y			
	Aranyik Town Municipality	Y	Y	Y	Y	Y
Phra Nakhon Si Ayuthaya	Ayothaya Town Municipality	Y	Y	Y	Y	Y
	Bankrod Town Municipality	Y	Y	Y		
	Sena Town Municipality	Y	Y			
Phrae	Phrae Town Municipality	Y	Y			
	Chor Hae Tambon Municipality	Y	Y	Y	Y	
Mahasarskham	Kham Riang Tambon Municipality	Y	Y		Y	
Mae Hong Son	Pang Mu TAO	1	1	1		
	Mae Hong Son Town Municipality	Y	Y	Y	Y	Y
	Khun Yuam Tambon Municipality	Y	Y	Y		
Mukdahan	Kam Pa Lai Tambon Municipality	Y	Y		Y	
	Dongyen Tambon Municipality	Y	Y		Y	Y

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
Roi Et	Roi Et Town Municipality	Y	Y	Y	Y	
	Non Tan Tambon Municipality	Y	Y			
Rayong	Rayong City Municipality	1	1	1	1	1
	Mab Kha Tambon Municipality	1	1	1	1	1
	Pa Yub Nai TAO	Y	Y	Y	Y	Y
	Mab Tapud Town Municipality	Y	Y		Y	
Ratchaburi	Potharam Town Municipality	2	2	2	2	2
	Ratchaburi Town Municipality	Y	Y	Y	Y	
	Chomphon Town Municipality	Y	Y	Y	Y	Y
Lopburi	Lopburi Town Municipality	Y	Y	Y		
	Kao Samyod Town Municipality	Y	Y	Y		
	Ban Mee Town Municipality	Y			Y	Y
Lampang	Lampang City Municipality	1/Y	1/Y	1/Y	Y	Y
	Khelang Nakhon Town Municipality	Y	Y			
	Kam Pa Lai Tambon Municipality	Y			Y	
Lamphun	Lamphun Tambon Municipality	2		2		
	Ban Klang Tambon Municipality	Y	Y	Y		
	Pasak Tambon Municipality	Y	Y			
Yala	Yala City Municipality	1/Y	1/Y	1	1/Y	1/Y
	Sateng Nok Town Municipality	Y			Y	Y
Yasothon	Yasothon Town Municipality	Y	Y	Y	Y	Y
	Nam Kham Yai Tambon Municipality	Y			Y	Y
Si Sa Ket	Si Sa Ket Town Municipality	Y	Y	Y	Y	

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
Sakhon Nakhon	Sakhon Nakhon City Municipality	Y	Y	Y	Y	Y
	Tha Rae Tambon Municipality	Y	Y		Y	
	Dong Ma Fai Tambon Municipality	Y	Y			
Songkhla	Prik Tambon Municipality	1	1	1	1	1
	Hatyai City Minicipality	Y	Y	Y		
	Ban Phru Town Municipality	Y	Y			
	Singhanakorn Town Municipality	Y	Y	Y	Y	
	Sadao Town Municipality	Y	Y		Y	Y
	Prik Tambon Municipality	Y	Y	Y		
	Kuan Lang Town Municipality	Y	Y		Y	
	Khao Rup Chang Town Municipality	Y				Y
	Koh Taew Tambon Municipality	Y	Y			
Satun	Satun Town Municipality	Y	Y	Y	Y	
	Klong Kud Tambon Municipality	Y	Y			
	Kuan Don TAO	1	1	1	1	1
Samut Prakan	Dan Samrong Tambon Municipality	1	1	1	1	1
	Bang Pu Tambon Municipality	1	1	1	1	1
	Klong Dan Tambon Municipality	1	1	1	1	
	Pu Chao Saming Phrai Town Municipality	Y	Y		Y	Y
	Prakesa Tambon Municipality	Y		Y		
Samut Songkhram	Yi San TAO	1	1	1	1	1
Si Sa Ket	Thad TAO	1	1	1	1	1
Samut Sakhon	Aom Noi City Municipality	1	1	1	1	1
	Bang Krachao TAO	1	1	1	1	1

Province	Local government	Number of participants	26 Morning	26 Afternoon	27 Morning	27 Afternoon
	Samut Sakhon City Municipality	1	1	1	1	1
	Kratum Baen Town Municipality	1	1	1	1	1
Saraburi	Kaengkhoi Town Municipality	Y	Y	Y	Y	Y
	Takud Tambon Municipality	Y	Y	Y	Y	Y
	Phra Phutthabat Town Municipality	Y	Y	Y	Y	
Sa Kaew	Wang Nam Yen Toen Municipality	Y	Y			
Sing Buri	Bangrachan Town Municipality	Y	Y			
Suphan Buri	Suphan Buri PAO	3/Y	2/Y	2/Y	3/Y	2/Y
	Song Phi Nong Town Municipality	Y			Y	
Surat Thani	Koh Samui City Municipality	2	2	2	2	
	Wat Pradu Tambon Municipality	Y	Y			
	Donsak Town Municipality	Y	Y			
Nong Bua Lamphu	Non Sa-ard Tambon Municipality	2	2	2	2	2
	Nong Bua Lamphu Town Municipality	Y	Y	Y		
Udon Thani	Nong Samrong Town Municipality	Y	Y	Y	Y	Y
	Namkham Tambon Municipality	Y	Y			
Ubon Ratchathani	Ubon Ratchathani City Municipality	1	1	1	1	1
Uttaradit	Uttaradit Town Municipality	Y	Y			
	Namrid Tambon Municipality	Y	Y		Y	Y
Ang Thong	Phosa Tambon Municipality	Y	Y		Y	
Bangkok	BMA	1		1		
Total (36/59 provinces)	**59/120 local governments**	92/98	87/98	89/59	75/71	67/41

Online Registration

1 month before the Workshop, the announcement of the workshop was circulated in Japanese media along with RSVP form and questionnaire. People who were interested in the workshop could register online through the provided Google Form.

Participants were asked to provide information on their (1) full name, (2) title, (3) organization, (4) country of residence/work, (5) phone, (6) email, (7) type of organization, (9) if they could attend the workshop on each day.

The open registration was closed on April 24, 2023. There are 183 registered participants which can be broken down as follows:

April 26, 2023

Country	Online	Offline	Cannot Attend	Total
JAPAN	104	3	4	111
THAILAND	23	32	1	56
INDONESIA	3			3
CAMBODIA	3			3
LAO PDR	3			3
MYANMAR	2			2
PHILIPPINES	1			1
SINGPAPORE	2	1		2
TANZANIA	1			1
TOTAL	**142**	**36**	**5**	**183**

April 27, 2023

Country	Online	Offline	Cannot Attend	Total
JAPAN	102	2	7	111
THAILAND	25	27	4	56
INDONESIA	3			3
CAMBODIA	3			3
LAO PDR	3			3
MYANMAR	2			2
PHILIPPINES	1			1
SINGPAPORE	2	1		3
TANZANIA	1			1
TOTAL	**142**	**30**	**11**	**183**

Organizations of Participants

Sector	Organizations of participants
National and regional governments	(Japan) Ministry of Land, Infrastructure and Tourism, Japan New Energy and Industrial Technology Development Organization Urban Renaissance Agency (Thailand) Office of the National Economic and Social Development Council National Housing Authority State Railway of Thailand
Local governments	(Japan) City of Kitakyushu (Thailand) Bueng Yitho Town Municipality Nasarn Town Municipality
Academia	(Japan) AUA Association Kyoto University Hamamatsu University, School of Medicine Meijo University Nagoya University Ritsumeikan University Tokyo City University Toyama University University of Tokyo Wakayama University Yokohama National University (Thailand) Maejo University Mahasarakham University Rajamangala University of Technology, Khon Kaen Campus Thammasat University
International organizations	JICA Thailand Office JICA Cambodia Office JICA Indonesia Office UN-Habitat Embassy of Japan
Private sector	ALMEC Corporation ARUP Asia Air Survey Co., Ltd Azbil (Thailand) Co., Ltd. Canon Marketing (Thailand) Canon Singapore Chubu electric power Co.,Inc. CICC Design Lab EX Research Institute EXRI Asia EY GLODAL, Inc.

Sector	Organizations of participants
	IHI ASIA PACIFIC (Thailand) Co.,Ltd.
	International Development Center of Japan
	Internet Initiative Japan
	JR-East design corporation
	KDDI Corporation
	Mitsubishi Jisho Design
	MJD
	Mizuho Bank
	Nikken Sekkei (Thailand)
	Nippon Koei Co., Ltd.
	Nippon Kori UrbanSpace Co.Ltd.
	NJS Co., Ltd.
	NSS
	NMB-Minebea Thai Ltd.
	OCG
	OM&A
	Oriental Consultants Global Co., Ltd.
	Pacific Consultants Co., Ltd.
	PASCO CORPORATION
	SAKAI HEAVY INDUSTRIES,LTD.
	SANKEN SETSUBI KOGYO CO., LTD.
	Sasakawa Peace Foundation
	ShinMaywa Industries, Ltd.
	Siam Aroon Group
	Small Impact LLC
	SOMETHING CO., LTD.
	Sasakawa Peace Foundation
	SVKY (SDGs Vehicles Keen to Yield)
	Tokyu Corporation
	Topcon Corporation
	Topcon Positioning Asia
	U.D. Asia Co., Ltd.
	UR Linkage
	Yachiyo Engineering Co., Ltd.
	Yasui Architects & Engineers, Inc.
	Yokohama Urban Solution Alliance (YUSA)
	㈱相鉄ホテル開発
	安井建築設計事務所
Others	Internation
	Japanese Weekly Thai Keizai
	NTT
	The Overseas Construction Association of Japan, Inc.
	NOGEZAKA-GLOCAL （野毛坂グローカル）

Survey and Comments

Pre-Workshop Survey

The pre-Workshop survey was included in the online registration in Google Form. The purpose of the questionnaire is to understand the expectation of participants from this workshop. Thus, in addition to personal information, additional questions were asked.

The majority of the registered participants somewhat know about smart city concept. The most interested topics are Smart Mobility and Smart Planning.

In terms of the development level, more than 30% of the cities are in the early stage of development, while 25% are in the planning stage and 25% are in the implementation stage. Only 16% has no smart city development in their cities at all.

In terms of challenges, budget is the most challenging issue. Human resources, technology, and regulations are also challenging.

List of Questions

How much do you know about Smart Cities before attending the workshop (5-Likert Scale, 1 – least knowledgeable, 5 – most knowledgeable)

ความรู้ของท่านเกี่ยวกับการพัฒนาเมืองอัจฉริยะเมืองอัจฉริยะก่อนเข้าร่วมงาน (How much do you know about Smart Cities before attending the Workshop?)
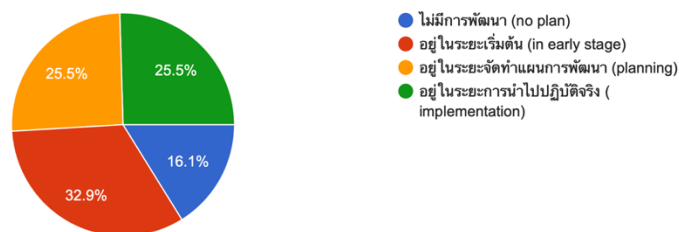
176 responses
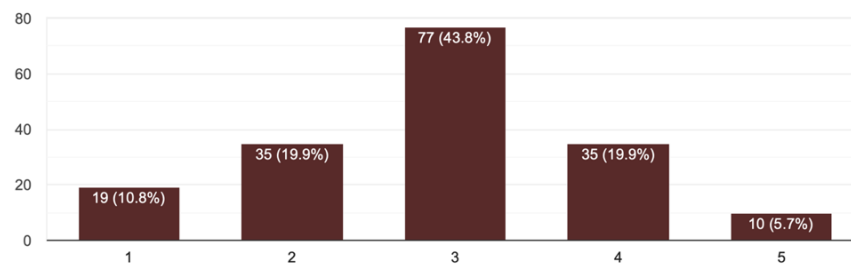
What is the status of Smart City development in your city? (No plan / in early stage / planning / implementation)

สถานะของการพัฒนาเมืองอัจฉริยะในปัจจุบันในเมืองของท่าน (What is the status of Smart City development in your city?)
161 responses

- ● ไม่มีการพัฒนา (no plan)
- ● อยู่ในระยะเริ่มต้น (in early stage)
- ● อยู่ในระยะจัดทำแผนการพัฒนา (planning)
- ● อยู่ในระยะการนำไปปฏิบัติจริง (implementation)

What are challenges in implementing Smart Cities? Multiple choices are allowed. (Budget / human capacity / laws & regulations / technology / others)

อะไรคือข้อท้าทายในการพัฒนาเมืองอัจฉริยะในพื้นที่ของท่าน สามารถตอบได้หลายข้อ (What are challenges in implementing SC? Multiple choices are allowed.)
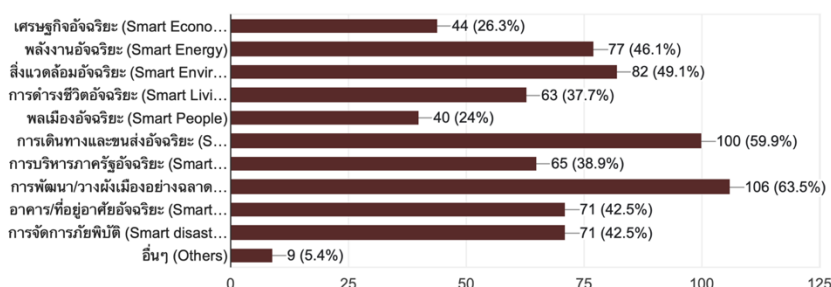164 responses
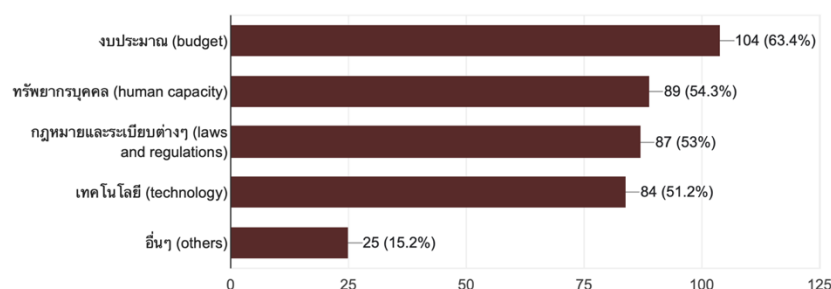
Which Smart domains are you interested to learn more? Multiple choices are allowed. (Smart Economy / Smart Energy / Smart Environment / Smart Living / Smart People / Smart Mobility / Smart Governance / Smart urban development-planning / Smart building-housing / Smart disaster management)

ท่านสนใจการพัฒนาเมืองอัจฉริยะด้านใดบ้าง สามารถตอบได้หลายข้อ (Which Smart domains are you interested to learn more? Multiple choices are allowed.)
167 responses

Post-Workshop Survey

Post-Workshop Survey was distributed among participants from local governments by DLA using Google Form. In total, there are 112 responses from Town Municipality (47.3%), Tambon Municipality (18.8%), City Municipality (17%), and others i.e., TAO, PAO, DLA, depa, and other international organizations. 54.5% of the responses participate onsite and 45.5% online.

By session, participants are most satisfied with the sessions Case Study 1: Thai Smart Cities (4.21) and Case Study 2: Thai Smart Cities (4.28). Keynote Speech 1 and Panel Discussion also receive a high satisfactory level of 4.15.

By presentation, the session "Smart Technology Project for Senior Healthcare Service Management" by Saensuk Town Municipality receives the highest satisfactory level of 4.34, followed by BMA's "Policy Implementation for developing an area to become a smart city" (4.32) and Pang Mu TAO's "ESS Service" (4.31).

There is no significant difference of satisfactory level between Day 1 (4.19) and Day 2 (4.18).

In terms of logistics, participants are most satisfied with the venue and least satisfied with the length of the Workshop.

Question	1 Least	2	3	4	5 Most	Average
Day 1						4.19
Keynote Speech 1						4.15
Your satisfactory level to the session "Preliminary Analysis of Smart City Movement and the Rationale of the Workshop"	1	1	21	46	43	4.15
Your satisfactory level to the session "Smart City Development in Thailand" by depa	1	1	16	50	44	4.21
Your satisfactory level to the session "Japan's Cooperation for ASEAN Smart Cities Network" by MLIT	2	1	23	44	42	4.10
Case Study 1: Japan Smart Cities						4.11
Your satisfactory level to the session "Eco-Town Project" and "100% Renewable Energy Model using Circular Economy Elements" by Kitakyushu City	1	1	28	42	40	4.06
Your satisfactory level to the session "Compact City using Public Transport" by Toyama City	1	1	24	45	41	4.11
Your satisfactory level to the session "Urban Development Capitalizing on ICT and Data" by Kakogawa City	1	1	22	44	44	4.15
Case Study 1 : Thai Smart Cities						4.31
Your satisfactory level to the session "City E-Service Center" by Nakhon Si Thammarat City Municipality	1	1	12	47	51	4.30
Your satisfactory level to the session "E-Smart Service" by Ban Klang Town Municipality	1	1	12	47	51	4.30

Question	1 Least	2	3	4	5 Most	Average
Your satisfactory level to the session "Policy Implementation for developing an area to become a smart city" by BMA	1	0	16	40	55	4.32
Day 2						4.18
Keynote Speech 2						4.12
Your satisfactory level to the session "People-Centered Smart Cities" by UN-Habitat	2	1	22	52	36	4.05
Your satisfactory level to the session by ASEAN Secretariat	1	1	22	46	42	4.13
Your satisfactory level to the session "How smart cities contribute to inclusive and sustainable growth – Focusing on sustainable urban development finance in Southeast Asia" by OECD	1	1	19	49	42	4.16
Your satisfactory level to the session "JICA's Smart City Projects and City-to-City Collaboration" by JICA Thailand Office	1	1	23	42	45	4.15
Case Study 2: ASEAN Smart Cities						4.13
Your satisfactory level to the session "Case Studies 2: ASEAN Smart Cities"	1	1	22	46	42	4.13
Case Study 2: Thai Smart Cities						4.28
Your satisfactory level to the session "A technological system project for managing, tracking, and monitoring COVID-19 pandemic" by Yala City Municipality	1	1	19	45	46	4.20
Your satisfactory level to the session "Smart Technology Project for Senior Healthcare Service Management" by Saensuk Town Municipality	1	0	13	44	54	4.34
Your satisfactory level to the session "ESS Pang Mu" by Pang Mu TAO	1	1	15	40	55	4.31
Panel Discussion						4.15
Your satisfactory level to the Panel Discussion session	1	3	18	46	44	4.15
Workshop Logistics						
Your satisfactory level to the venue	2	1	21	41	47	4.16
Your satisfactory level to the Workshop organizers	1	1	19	44	46	4.20
Your satisfactory level to the length of the Workshop	2	7	33	38	32	3.81
Your satisfactory level to the technology used in the Workshop	4	3	22	39	44	4.04

Additional Comments

Additional comments are gathered from comments in the chat boxes, and from survey.

Question	Answer	Notes
What are the lessons learned from the workshop? How will you further apply them to your local area?	Yes We will use it to develop our vision and developed plans to suit the local context and increase the success rate. Yes, it will be used to further drive the Smart City. We will apply it to the Sub-district Administration Organization for the sake of the people. There are lots of advantages, experiences, and new perspectives. It can be an outline for a municipality to improve their implementations. Both other LAOs and international 'Smart City' case studies could be presented to an executive to consider implementing the Smart City policy. Rarely Very little Not sure Yes, it can be used as a model to initiate the 'Smart City in Chonburi Town' project. It was hard to understand, and it is difficult to apply and implement in the local level. Yes, to develop public participants (in the policy implementation) Public participants and private participate in investment To be informed about how to drive the Smart City at the international level. The presentations can be applied to develop the local in Nakhon Pathom Town Municipality. Technology to apply for organizational management, and especially for public services Applying to analyze the urban development capacity, citizen-centric urban development concerning local context Building local awareness of their own needs in changing and developing Because I'm not working in the LAOs, it can be used to understand and research about driving cities in Thailand to Smart City process. Yes, but the communication system and the fund for implementation need to be prepared. Build on 'Line OA' Yes, there is a lot of subjects that can be applied to security, public health service, grievance system, news publishing, and etc. Can be applied to implement the 'E-Service' and 'Line OA' It can be used to develop an innovation and technology as well as build the communication network across the area.	Total 73 answers. Most of the brief answers are 'Yes'. 'Line OA' is the technology most mentioned by participants. On process, participants are interested in the model processes that staff can propose to their executives. Meanwhile, their concerns are about the compatibility between local context and the Smart City technology.
Has your LAOs implemented	Around 28 answers are 'no' or 'not yet' or 'in progress' or '-', the giving reasons are as follows:	Total 111 answers.

Question	Answer	Notes
any Smart City projects? Or are you have a plan to implement any Smart City project in the future?	Because the compatibility and availability of the area is needed to be concern. Considering propose the smart city approaches to executives. In progress of studying various approaches to smart cities Not yet, but having a plan to implement smart cities in the future Having an unclear plan for smart cities because the project related to the smart city require the high budget and a municipality have quite a limited budget. Being suggest and having a plan; however, there are still lack of human resources, budgeting, and leadership. Around 82 answers are 'yes' or similar answers, the giving reasons are as follows: Joining the governments' project and following local executive's policy 'Smart Living project: SoS Energy' Smart Government 'E-Service for government correspondence' 'Line OA for grievance system' and flood disaster prevention system in the town municipal area, and other planned projects Municipal water supply system Operating under DEPA supports Smart City on health for seniors Joining the smart city project under DEPA, DLA, and other organizations Having approved smart city projects and in progress of becoming a Smart City The city has already E-service systems and planned to implement a 'City Data Planner' and infrastructure. Solar cells system for reducing the cost of livings and increasing the facilities to use an IoT device (Internet of Things) through an app on a smartphone. Online grievance system: people can inform their complaints via local government online service. QR Code in a pet project Wireless Surveillance Cameras installation with high-speed internet Public service via Line app and E-services Planning to become a Smart City Nakhon Pathom Town Municipality: Information Center (Web based application) for informing, inquiring, giving feedbacks, giving complaints, and others communications with people in municipality [completed]	

Question	Answer	Notes
	Technology and information development project for revenue collection and property and asset management [in progress] Smart city system lending project 1st phase e.g., a public Wi-Fi network, CCTV, Water Level Sensing for the Canals and Plumbing System Controls, Air Pollution Control Systems, Smart City platform on a smartphone [in progress] National Housing Authority: community development project in Din Daeng District, Bangkok Research and Innovation project for housing volume analysis in Laem Roong Ruang community, Rayong Province Using Line app in the subdistrict for the internal area communication Having smart city project in the Local development plan concerning smart people, smart living, and smart governance Hat Yai town municipality have been verified as a Smart City area with 17 projects proceeding. In progress of verifying with DEPA Using 5-years local development plan to analyses the feasible project that can bring about technology to apply following the plan. In progress of implementing the smart city development plan along with 7 aspects of the smart city GPS tracking on waste trucks Water bill payments via Applications, Banks, and Counter Service Payments	
Any other Suggestions	This project should be expanded to the locals. This is a good project to be implemented across LAOs in Thailand. This workshop should not be done after the official working hours (8.30 – 16.30). There is no need for dinner. And it should concise to during 08.30 – 17.00. Smart city projects require quite a lot of budgets to develop. If all of the LAO need to be proceeded, there could be some funds or budget that direct to this issue. For example, local authority and organizations can make a proposal to receive a budget such as 100% subsidies budget and matching fund. On this matter, Ministry of Interior and the government should actively support, and there should be a minimum standard that is set for each aspect of smart city development. In doing so, the city will have a clear direction for how to approach to smart city. In the case of LAO, to consider having smart city project in the local development plan, there also should have funds and budgets.	

Question	Answer	Notes
	Specific subsidies should also consider smart city development.	
	Considering arranges a workshop for each region.	
	The time period for the workshop was too long. My back was hurt sitting for too long.	
	Could DLA arrange the meeting or workshop about smart city more often?	
	The government policy should directly determine this duty (in arranging smart city as part of the public service) to the local body.	
	Giving a praise to the aim of building international connection that is about to develop smart city together.	
	The time period of the workshop should be arranged better.	
	It should be only onsite workshop for better understanding.	
	There was a problem about translation that were not clear and echoing.	
	Thank you	
	The time period of the workshop should be shortened to make it more interesting and engaging.	
	There should be a training for LAO officers to plan the scheme for proceeding smart city.	
	The volume of the speakers' presentations should be more than a meeting papers.	
	If the problem of corruption could be fixed, the smart city development will be truly for the sake of the people.	
	The content (of the WS) was interesting. The time period was tight which the participants could not sit for the long time. There should be some activities to reduce the stillness and the dizziness from listening the content.	
	There should be enough budget for the organization to arrange the digital technology and the training.	
	The speakers were foreigner. I could not understand.	
	The sound in the online system was inconsistency.	
	It was a good activity.	
	Could you split the overall meeting from the meeting for the practical level?	
	The translation and sound system had some problem: inconsistency and the translation for some jargon words that could not be understood.	
	There should be a support specify to the city that have already established the project plan.	
	I want DLA to co-operate with the technological organization to support the digital innovation for the LAO to have an affordable technology. Because there are more important infrastructures that have be prioritized than the digital service for people. Every LAO including Sub-district Administrative Organization definitely want to have the new technology, but there is lack of the	

Question	Answer	Notes
	budget and fund to invest in it. Besides, the LAO officers have lacked of technical knowledge and skill sets, so we want to have a training session or a specific training for LAO officers to analyst and create the easy and economical innovations.	
	I want to invite the staffs to create Suphan Buri province development plan, and to request for the budget that according to the National Strategic Plan.	
	There should be continually training by presenting the successful case of other LAOs because there is similarity in context among the LAOs. There also should be a sharing city data.	
	Needing cases from various cities across the world Requesting for the reports from each LAO to be an example: how to, budget, human capital, and working group.	