Technological implementation and local innovation in a multi-layered smart city cooperation network

Region	**Asia and the Pacific**
Award Scheme	**Shanghai Manual**
Themes	**Data-Driven Process and Management** **Others**
Sustainable Development Goals	**Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable** **Goal 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels** **Goal 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development**

Summary

Bangkok’s smart city drive sits within Thailand’s national programme led by DEPA and the Smart City Thailand Office. Since being named a pilot in 2019, the metropolis has paired large-scale infrastructure upgrades with environmental quality improvements, using IoT sensors, AI, 5G and a national City Data Platform to manage mobility, safety and urban services. Multi-layered partnerships span ASEAN and global networks: Yokohama supports climate resilience and flood management; Incheon, Kunming and Moscow contribute digital governance and transport know-how; private partners such as Hitachi, Huawei, Microsoft, AWS and Google provide cloud, AI and IoT capabilities. Flagship deployments include a real-time traffic perception system, the One Bangkok mixed-use district with 250,000 sensors and predictive operations, and the Traffy Fondue chatbot that turns citizen reports into fast municipal responses. Bangkok and the Eastern Economic Corridor jointly cultivate digital skills, aiming to train tens of thousands in ICT, cloud and AI by 2025. Data governance follows ASEAN DMF and CBDFM to enable secure sharing and, prospectively, cross-border health data exchange. Together, these moves are building an innovation ecosystem that blends international cooperation with local capacity, accelerates decarbonization and disaster preparedness, and improves everyday services while progressing toward full smart-city certification by 2025.

Background and Objective

Bangkok’s objectives reflect dual imperatives: expand and modernize infrastructure while lifting environmental quality and public services. As a national pilot, the city leverages Thailand 4.0, the Twenty-Year National Strategy and ASEAN Smart Cities Network to test interoperable technologies and standards. Goals include multimodal mobility integration, real-time safety and disaster readiness, open data for citizen services, and climate-resilient, low-carbon development. International MoUs and private partnerships supply technology, funding and skills, while DEPA’s City Data Platform underpins data sharing and analytics. The overarching aim is a people-centred, innovation-driven metropolis that

functions as an ASEAN hub for transport, digital economy and urban sustainability.

Actions and Implementation

Bangkok deploys AI traffic sensing, V2X communications and urban apps to visualize flows, incidents and violations, informing traveller alerts and enforcement. It equips corridors and stations, centred on Bang Sue Grand Station, to knit high-speed rail, metro and airport links. Through Y-PORT and City-to-City programmes with Yokohama, it runs climate workshops, risk assessments and field drills, translating lessons into the Climate Change Master Plan. One Bangkok installs an IoT sensor grid and predictive operations platform for energy, water, safety and maintenance. DEPA's City Data Platform and the Traffy Fondue chatbot connect residents with agencies, while EEC-Bangkok academies scale ICT, cloud and AI training.

Outcomes and Impacts

Traffic perception and CCTV analytics improve incident response and compliance across major corridors. Traffy Fondue has processed over a million cases nationally, saving public costs, lifting satisfaction and raising on-time resolution to more than three quarters of reports. Climate cooperation has trained hundreds of officials and embedded low-carbon, flood-resilient practices. One Bangkok demonstrates measurable gains in energy optimisation, fault prediction and emergency response, providing a replicable district blueprint. Partnerships with global firms and the EEC are expanding the local talent pipeline, accelerating startup activity and technology transfer. Collectively, these outcomes raise service efficiency, safety and resilience while reinforcing Bangkok's regional hub role.

Sustainability and Scalability

Bangkok's stack is designed for reuse: standards from ASEAN DMF/CBDFM govern secure data flows; DEPA's City Data Platform separates data, applications and infrastructure to add new services without rework. District-level blueprints like One Bangkok de-risk replication across other precincts and secondary cities. Training academies, joint labs and public-private MoUs institutionalize knowledge and maintenance capacity. Climate workshops and shared playbooks enable continuous learning across ASEAN peers. Financially, co-investment and PPPs spread costs, while open interfaces lower vendor lock-in. This combination of policy, platforms and people creates a pathway to scale smart services citywide and across Thailand's urban network.

Gender and Social Inclusivity

The city’s people-centred approach uses Traffy Fondue to democratize service requests, letting any resident report hazards and track responses, reducing barriers for underserved communities. City Data Platform rules enforce consent, privacy and equitable access to public datasets. Smart-district design emphasises safe, accessible public space, multimodal choices and real-time information. Training programmes with Huawei, Microsoft, AWS and Techsauce Academy widen digital opportunities for students and mid-career workers, including women and youth. Emerging cross-border health data pilots aim to shorten emergency response for travellers and migrants. These measures align technology deployment with inclusion, transparency and safer streets in daily urban life.

Innovative Initiative

Innovation stems from orchestrating a multi-layered network: international city-to-city climate collaborations; interoperable ASEAN data standards; and private-sector platforms for AI, cloud and IoT. Bangkok blends V2X, computer vision and digital twins to move from reactive to predictive operations. One Bangkok’s 250,000-sensor grid and Lumada analytics embody district-scale cyber-physical integration. Traffy Fondue converts chat interactions into routable work orders using AI triage, creating a continuous feedback loop for urban maintenance and planning. The model’s novelty lies in coupling regulatory interoperability with local experimentation and talent pipelines, transforming global technologies into locally governed, human-centred services.

Resources devoted to delivery

Resourcing combines national support from DEPA and the Smart City Thailand Office, municipal investment by the Bangkok Metropolitan Administration, and PPP financing across mobility, safety and smart-district assets. Technology partners contribute platforms and training: Hitachi’s Lumada Center, Huawei ASEAN Academy, Microsoft’s TH AI Academy, AWS Academy and Google Cloud. International cooperation programmes; Y-PORT, OECC’s Asian Cities Green Alliance and ASEAN Smart Cities Network—fund capacity building, workshops and pilots. The City Data Platform provides shared infrastructure and governance, while agencies onboard to Traffy Fondue for operational efficiency. Dedicated teams in BMA manage project delivery, data stewardship and interagency coordination.

Conclusion

Bangkok demonstrates how a capital city can align national strategy, regional standards and private innovation to deliver tangible, people-centred results. By pairing sensor-rich infrastructure and digital twins with citizen reporting and strong data governance, the city improves safety, responsiveness and climate readiness. Cross-border collaborations convert shared risks into shared solutions, while talent programmes ensure continuity and local ownership. As certification nears, Bangkok’s approach—platform-first, partnership-driven and outcomes-oriented—offers a pragmatic roadmap for

ASEAN peers seeking to scale smart services without sacrificing inclusivity, privacy or resilience.