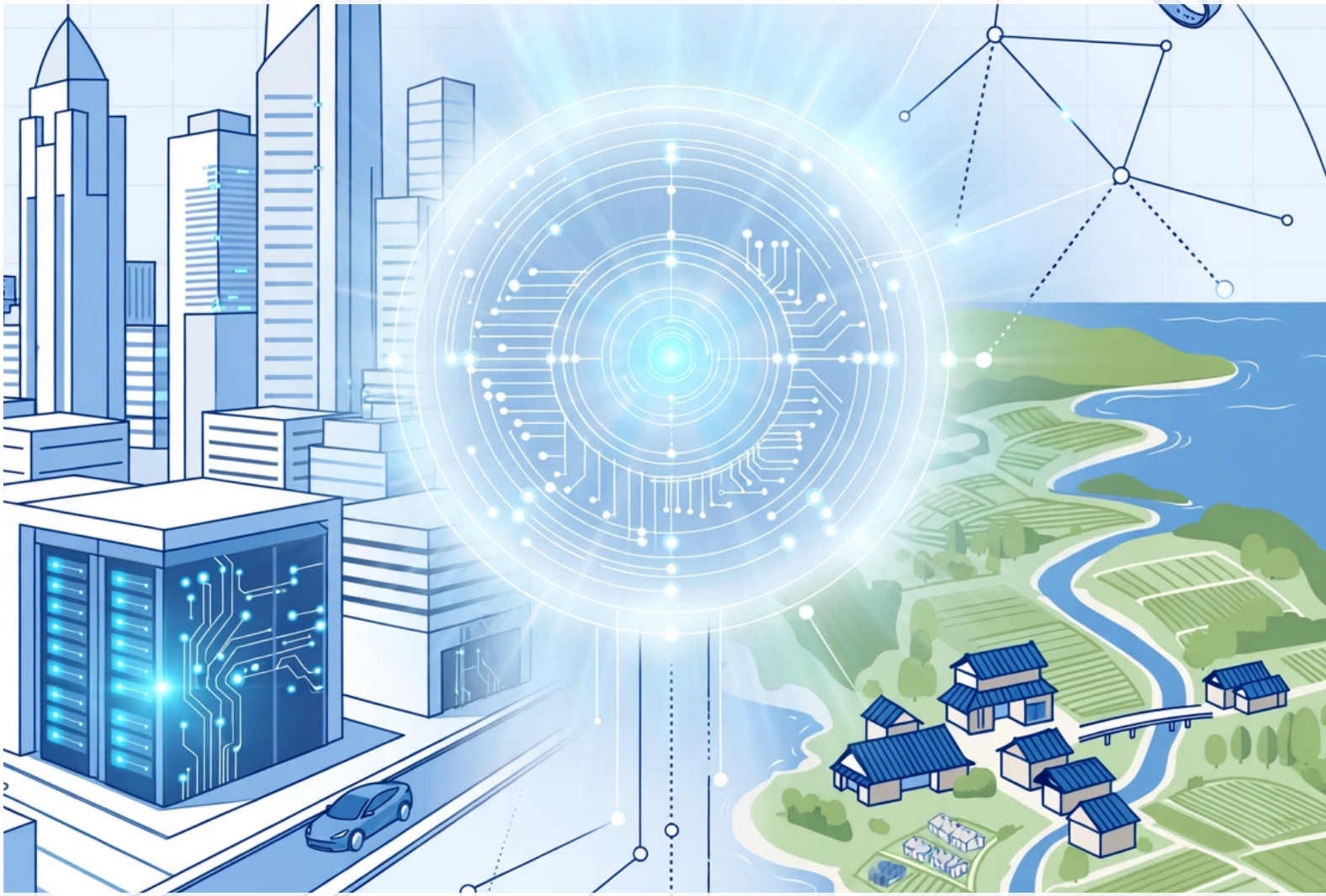
A Blueprint for Smart Cities from Japan

— From a Frontier of Challenges to the Growth Economies —

Matrix of Cyber Smart City Consortium (MCSCC)

Yoshihisa Toyosaki, Representative Director and Smart City Architect



October 2026

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Introduction — What Is MCSCC?

The Matrix of Cyber Smart City Consortium (MCSCC), founded in 2018, is an implementation-focused smart city consortium of industry, government, and academia. In May 2019, its proposal was selected as one of only fifteen "Leading Model Projects" under the Smart City Model Program of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), with Masuda City as the testbed — a national model project aimed at realizing a cyber-physical-

system society through IoT, across the environment, disaster prevention, wellness, and social infrastructure.

MCSCC proves concepts in the local communities of Japan — the world's frontier of social challenges — and implements them in the growth economies of Asia and Europe.

Japan's regions are at the global forefront of challenges: super-aging, rising medical costs, population decline and depopulation, and aging infrastructure. MCSCC treats this "head start in challenges" as an asset. A solution proven where the challenge is sharpest can be exported to the growth economies that will face the same challenge next. Proof of concept happens in Japan; implementation happens worldwide. That is MCSCC's basic structure.

Our approach has three hallmarks. First, **R (research) before D (development)**: we begin from field investigation, not from technology. Second, a **human-centered, problem-solving orientation**. Third, we design the city as **an architecture built on semiconductors** — sensors, networks, data platforms, and the urban brain (AI) treated as one system.

Chapter 1. The Design Philosophy: The Smart City as a Future Data Industry

At the core of MCSCC's philosophy, a smart city is defined as **the embodiment of a cyber-physical system (CPS)**. A city is a "layer" that generates vast amounts of data — on health, mobility, infrastructure, and energy — and a smart city is the circulation that collects that data, processes it, and feeds it back into how the city runs. We call this the **future data industry**.

The system is layered:

1. **The edge layer** — wearable devices, environmental sensors, drones, and vehicles: the entry points that generate and collect data.
2. **The nervous layer** — fiber-optic networks, LPWA, 5G, and data-linkage platforms such as a city OS.
3. **The brain layer (the "cyber brain" / urban brain)** — AI data centers, implemented inside the city, which process the collected data and return decisions. This is where semiconductors are consumed in massive volumes.
4. **The limbs layer** — robots and humanoids (physical AI), which execute the brain's decisions in the physical world.

5. **The space layer** — positioning satellites and low-earth-orbit constellations, which support the city's nervous system from orbit where terrestrial networks cannot reach — or when disaster takes them down.

The space layer is not merely a concept; it has a track record of demonstrations. Building on space radio technology developed by JAXA and Advanced RF Design, from 2017 we conducted ground evaluations of "Hyper LPWA" — five times the RF output of standard LoRa, theoretically linking about 20 km — and designed applications such as marine smart buoys collecting water-temperature data for fisheries. For positioning, we adopted Japan's Quasi-Zenith Satellite System (Michibiki / QZSS) for road patrols in Masuda, and confirmed in actual driving that a satellite always near the zenith keeps vehicle tracks obtainable in mountain terrain where GPS alone loses signal. Looking ahead, we envision a world in which city terminals connect directly with stations in space, reducing dependence on ground infrastructure. The smart city on the ground and communication/data infrastructure in space are linked within a single blueprint.

This brain is not a new word for MCSCC. From 2018, we adopted FIWARE — the open-source IoT platform developed under Europe's FI-PPP program — and ran early proofs of concept as "the MCSCC FIWARE, foundation of the Cyber City Brain": a cross-domain design collecting data across fields through standardized open APIs (NGSI), a secure IoT server that processes data while encrypted, and data-center siting that included Nagasaki City and Minato, Tokyo — the district of Dejima, Japan's historic window to the world. Server implementation proceeded in the context of the MLIT Leading Model Project as well. The prototype of what we now call the cyber brain stands here.

This framing explains the recent explosion in demand for AI semiconductors. The rush to build AI data centers is the brain layer of the smart city growing ahead of the city itself. The edge layer rises slowly, at the pace of local implementation. The brain grows first; the body catches up. Designing the whole — with semiconductors as its foundation technology — is the work of the smart city.

MCSCC's fields of activity — semiconductor industrial strategy, health data from wearables, infrastructure inspection by drone, and urban implementation in Indonesia — are therefore not separate ventures. Each occupies one layer of a single blueprint.

Spatially, this blueprint converges on a single idea: **the fusion of the metropolitan and the rural**. Challenges sharpen first in the countryside, while capital and the brain accumulate in the metropolis. Left alone, that asymmetry lets the countryside decline and leaves the city unprepared for its own future challenges. MCSCC's method runs the other way. The rural

community is the proving ground where the prototypes of solutions are born; the metropolitan region is the stage where those patterns are implemented at scale. The monitoring and disaster-prevention patterns born in Masuda connect to the urban design of the Rebana Metropolitan area, while the technology and capital raised in the cities' brain layer flow back to sustain implementation in the countryside. City and countryside are not opposites. They are organs of a single circulation of data, living at different speeds. A future digital society is, in the end, a society that has succeeded in designing this fusion.

Chapter 2. The Masuda Model: Proof of Concept in a Frontier Community (Masuda City, Shimane)

The prototype of MCSCC's methodology began in Masuda City, Shimane Prefecture, in 2016. Known as the **Masuda Model**, the initiative was selected on May 31, 2019 as one of the fifteen "Leading Model Projects" under the Ministry of Land, Infrastructure, Transport and Tourism's Smart City Model Program, and was adopted for three consecutive years, 2019–2021. The significance lies in a rural city standing among the fifteen chosen nationwide: alongside metropolitan demonstrations, the national selection affirmed MCSCC's claim that a challenge-frontier local city — not only a big city — can be the prototype of the smart city.

The method deserves note. Before services began, MCSCC delivered eleven education programs to the community over roughly two and a half years, free of charge, receiving nothing from the city — a private-sector R&D investment made ahead of any contract. We did not begin with a sales pitch; we began by cultivating local understanding and people. That order determined the sustainability of everything that followed.

The foundation was a citywide fiber-optic network and LPWA (low-power wide-area) connectivity.

The first full-scale demonstration on that foundation was disaster prevention. The "Urban River Water-Level Monitoring IoT System" (July 2017 – February 2019) addressed the backflow and flooding of channels connected to the Takatsu River: IoT modules combining OMRON absolute-pressure sensors with LoRa-based LPWA were installed at more than a dozen points, aggregating water levels to a server that analyzed flood potential. The project — Architect Grand Design, OMRON, Shimane Masuda Electronics, Keio University, and others — drew this evaluation from the city's responsible division: "Without going to the site, we can judge by numbers rather than by feel, and operate the sluice gates swiftly. Having it and not having it make an entirely different response." The system remained in operation by the city after the

demonstration and received a YRP R&D Promotion Association award (recommended case) in 2018. For the communications base, a working group also examined a citywide self-operated LPWA network for Masuda, including NICT's disaster-resilient regional platform technologies (NerveNet and private LoRa).

On this foundation, services were implemented challenge by challenge: resident health management through blood-pressure monitoring (begun in workplaces in 2018, expanded to 1,000–2,000 citizens from 2019); and road monitoring by patrol cars carrying 31 sensors.

The monitoring of elderly residents with dementia who walk out alone began as a request from the field. At the request of the Masuda Police Station, a working group of MCSCC, the city's Elderly Welfare Division, and the police station was formed in April 2019, and carried out field verification of GPS tracking at four locations in the city, connecting search practice with technology. The challenge was set not by proposing technology, but by answering a request from the front line — the police — a clear expression of our R-before-D methodology.

Masuda's proof of concept also grew into inter-city collaboration. From 2018, together with Yatsushiro City in Kumamoto Prefecture, MCSCC ran a "Smart Agriculture IoT (wildlife damage countermeasures)" project. Crop damage by wildlife totaled roughly ¥16.4 billion in FY2017, with deer, boar, and monkeys accounting for about 70 percent — while in mountain communities the people who carry out countermeasures are themselves aging away. MCSCC formed a Wildlife IoT Working Group (Architect Grand Design, Advanced RF Design, NEC Solution Innovators, Suematsu Electronics, the National Institute of Technology, Kumamoto College, the City of Masuda, and others) and designed a labor-saving system combining electric fences with LPWA wireless. Following installation and guidance in Masuda's Shinmasa district, the MLIT Leading Model Project reported a result of "zero damage — 100 percent of the rice harvested" for the covered crop. Alongside health, the farm field is another proving ground of the edge layer.

One more demonstration crosses the layers: Smart Forest Monitoring and Disaster Prevention. MCSCC formed a working group with the Takatsugawa Forestry Cooperative, consulted with Kokusai Kogyo on remote sensing, and installed "smart stakes" in Masuda's Mitsuboshi district, treating forest monitoring and disaster prevention as one problem. Combining observation from space (remote sensing), drones in the air, sensors on the ground, and the field knowledge of a forestry cooperative whose workforce is aging, the demonstration — carried out in the context of the MLIT Leading Model Project — was among Japan's earliest attempts at "space × disaster prevention × forest management." Mountains and forests are not scenery outside the city: they are water sources, the starting points of

disasters, and carbon sinks. Extending the circulation of data to the deepest rural layer is a condition of the fusion we design.

The Masuda Model also taught a lesson about cost structure. A conventional city OS costs ¥100–300 million to introduce and ¥1–3 million per month to operate — a heavy burden for a municipality with an annual budget of roughly ¥20 billion. MCSCC has raised this issue directly, including with Japan's first Minister for Digital Transformation. A smart city for a rural community cannot be a scaled-down copy of a metropolitan system; it must be designed for local finances and local people.

Chapter 3. Putting Health Data to Work: Wearables and Community Medicine

Our work on health data began with the Masuda City Smart Healthcare Promotion Project, launched in 2018. It was at once an implementation program and Japan's first medical research study to aggregate home blood-pressure data over IoT networks for medical analysis. It kicked off in Masuda on July 20, 2018, with measurements starting that October. The motivation was stark: Masuda's stroke incidence and mortality exceeded the national average, and some 60 percent of stroke patients had hypertension.

The method aggregated home blood-pressure readings over IoT networks. Participants measured their blood pressure morning and evening, together with activity levels and urinary sodium/potassium ratios; the data was analyzed at Shimane University and fed back in line with the Japanese Society of Hypertension guidelines. The consortium joined the City of Masuda, the Masuda Medical Association, Shimane University, and OMRON Healthcare, with leading hypertension researchers from Shiga University of Medical Science and Tohoku University. It began with 306 workplace participants and expanded toward 1,000–2,000 citizens. The later joint research on wearable blood-pressure monitors stands on this foundation of "measure at home, manage by data."

Watching over begins at the very start of life. At the nursery attached to the Masuda Medical Association Hospital, "smart childcare" monitoring napping infants was implemented: body-movement ("baby") sensors detect prone sleeping or a stop in movement and alert caregivers' tablets, while breathing checks every five to ten minutes are recorded automatically by app. No established method prevents sudden infant death syndrome (SIDS); what is needed is a system that buys time for rescue if the worst happens, and that lightens caregivers' workload so human eyes can go where they are truly needed. The demonstration ran under the MLIT

Leading Model Project (FY2019 supplementary) and was implemented at the nursery in December 2020, where it remains in operation. In July 2019, an MCSCC member company was invited to present baby-tech childcare support at the Cabinet Office. From watching over infants, to blood-pressure management for the working generation, to watching over elderly residents with dementia who walk out alone — "from childhood to old age" is the design of Masuda's health data.

The health monitoring in Masuda thus developed into MCSCC's smart healthcare program. The initiative "Smart Healthcare Supporting Health from Childhood to Old Age" was selected among 46 finalists for internet voting, from 172 entries, in the national government's "Digi-den Koshien" (private-sector division). In a related demonstration, the Masuda City Medical Association and San-in Panasonic implemented a monitoring solution at the Kunisaki-en care facility from January 2023, combining facial-recognition wandering prevention, vital sensors, monitoring sensors, and behavior detection.

We also work on academic validation. Together with the Department of Public Health at Okayama University (Professor Hideyuki Kanda) and Huawei Japan, MCSCC has conducted research using the HUAWEI WATCH D wearable blood-pressure monitor (announced January 2024). In a validation at a care facility (40 participants), systolic readings were nearly identical to those of an upper-arm device. In a study of high-school esports players, systolic pressure rose by roughly 10 mmHg during matches and recovered within minutes afterward, with the change more pronounced in the winning team — suggesting sympathetic nervous system activation. The results were also presented at a product briefing in December 2024.

Health data is one of the starting points of a city's data circulation. The wearable is the representative device of the edge layer, and carrying both its accuracy validation and its social implementation is the foundation of trust for the data industry.

Chapter 4. Implementation in the Air: Drone Infrastructure Inspection and Regulatory Reform (Nagasaki)

Before the drones, there were vehicles. MCSCC's Smart Road Monitoring project kicked off in Masuda in June 2018. The idea is simple: city staff already patrol municipal roads every day — so equip those patrol vehicles with GPS (using Michibiki/QZSS for positioning in the mountains), cameras, and accelerometers, measure road-surface condition quantitatively in the course of daily patrols, judge it with AI, and feed it into maintenance planning. The monitoring vehicle was delivered to Masuda's civil engineering division in April 2019. In Phase

2, Architect Grand Design, Increment P, KYB (Kayaba), and Nexty Electronics joined, and KYB commercialized the system as a road maintenance support service. At its core is AI: the system learns from data collected by driving over several types of road surface, judges surface categories such as potholes, and records the judgments together with GPS data — and in November 2021 the road monitoring project received the AI & Robot Committee Special Award at MCPC Award 2021. In May 2025, the Mayor of Masuda presented its use at the national conference of municipal leaders on infrastructure maintenance.

The measured road data also has outlets beyond maintenance. Masuda is also a town of health-building through cycling and of cycle tourism, and designing safe cycling routes requires knowing the state of the road surface. In an exchange of views with Ukyo Katayama — former Formula 1 driver and director of a cycling team — held together with KYB's Core Technology Laboratory, the ability to visualize the road condition of routes drew a positive evaluation. A single dataset serving both the administration's maintenance planning and the health and tourism of citizens: a working example of the cross-domain principle.

The demonstration of "measuring" roads thus began with vehicles on the ground, passed through vehicle trials in Nagasaki City, and advanced to drones in the air — whose leading edge is the following program.

In 2025, MCSCC's drone program was adopted under the Cabinet Office's survey program for advanced services and regulatory reform, as a project of Nagasaki Prefecture's National Strategic Special Zone ("Kizuna" cooperation zone). The consortium members are Architect Grand Design, Torbizon, and Dentsu Kyushu.

The project builds a model for road and bridge inspection over public roads using Level 3.5 drones (beyond-visual-line-of-sight flight over uninhabited areas), aimed at disaster response and infrastructure maintenance, with the results accumulated as evidence for regulatory reform. A joint study with Tokyo Denki University (road-surface inspection) runs in parallel, and a flight survey was conducted in Nomozaki, Nagasaki City, in November 2025.

The point of the project is to take on, head-on, the airspace directly above public roads. For Japan's drone industry to mature in logistics and inspection, it needs an operational record and safety evidence in the airspace closest to daily life. As the next step, we plan to take on Level 4 flight (beyond visual line of sight over inhabited areas without assistants) in 2027.

Chapter 5. Designing for Islands: The Nagasaki Island MaaS Concept and Physical AI

Nagasaki Prefecture holds Japan's largest archipelago of remote islands. In May 2022, at the 3rd Digital Garden City Forum in Nagasaki (hosted by MCSCC, supported by Nagasaki Prefecture), MCSCC presented the **Nagasaki Island MaaS Concept** as a proposal to the prefecture. Its definition:

"Capturing the distinctive challenges of Nagasaki, home to Japan's largest group of remote islands: a land–sea–air multi-use 'Island MaaS' model that can be switched by purpose — daily use, tourism, logistics, and emergency medicine."

The key is switching by purpose. The same island transport resources — buses, ferries, vehicles, drones — are re-bundled according to use: daily mobility, tourism, logistics, emergency medicine. That is what MaaS design means for an island.

In the communities that would host this concept, implementation is accumulating. Shinkamigoto Town was adopted in FY2020 under the national Smart Island promotion survey (consortium led by Japan Airlines) and demonstrated transport of medical specimens, blood, fresh fish, and daily goods by unmanned helicopter. Under the National Strategic Special Zone framework, area-based Level 4 drone delivery of medicines has also been implemented. MCSCC has begun a dialogue toward giving the concept concrete form in this town, where population decline is advancing at one of the fastest rates in the country.

The next layer is physical AI. Even when MaaS bundles "movement," its two ends — loading at the port, unloading in the village, the sites of care and watching-over — still need human hands. On islands where the workforce is shrinking, the stage has come for robots and humanoids to support those hands. MCSCC has launched a humanoid / physical AI project in Nagasaki: the implementation of convergence, where decisions in cyber space are executed in physical space.

Chapter 6. Implementation in Asia: Indonesia

Indonesia is MCSCC's principal field of implementation. Our Representative Director serves in an advisory capacity to Indonesian local governments, and in January 2026 he was appointed a Senior Fellow of Citieslab Nusantara, a Jakarta-based non-profit think tank.

The starting point was a national program. In April 2021, MCSCC's "Smart Mobility Infrastructure Development Study for Smart City Development in Bali, Indonesia" was

adopted under the Ministry of Economy, Trade and Industry (METI) feasibility-study program for high-quality infrastructure deployment overseas. Its three pillars — a road monitoring system, a MaaS platform, and EV charging infrastructure — carried the methods proven in Masuda into a survey of Bali's EV special zone. Fieldwork in November–December 2021 included consultations with the head of the National Research and Innovation Agency (BRIN), Grab Indonesia, the state electricity company PLN, the Bali provincial government, and the Bali Tourism Development Corporation; in October 2022, an MOU was concluded with the Sanur development foundation (YPS).

Survey work also continued in the capital region. In February 2023, under the FY2022 decarbonized-smart-city study program, MCSCC conducted a field survey in the Jakarta Special Capital Region, consulting with Transjakarta, a vice head of the National Research and Innovation Agency (BRIN), and the Jakarta provincial government's ICT agency, and reported the results at a Ministry of Economy, Trade and Industry workshop.

The work is now expanding laterally. In June 2025, MCSCC concluded a memorandum of understanding on smart city development with the Rebana Metropolitan area of West Java (seven regencies and one city). What MCSCC offers is "urban structural design capability based on semiconductor architecture" and a "human-centered, problem-solving approach" — connecting the patterns proven in Japanese communities to urban development in a growth economy. Development is also under way in Sanur, Bali. On the academic side, in April 2026 MCSCC concluded an MOU with the School of Architecture, Planning and Policy Development (SAPPK) of the Bandung Institute of Technology (ITB), establishing a base for research and human-resource development.

This partnership has also taken root in Nagasaki itself. On February 27, 2026, Nagasaki Prefecture and MCSCC co-hosted the "Indonesia Economy, Industry and Human Resources Symposium" at Dejima Messe Nagasaki, to a full house. Speakers included a deputy head of BRIN, a deputy head of the Rebana Metropolitan Authority, the co-representative of Smart City Orchestra, and JETRO; our Representative Director lectured on "Nagasaki and Batavia: History and Future." At the symposium, a letter from the CEO of the Rebana Metropolitan Authority to the Governor of Nagasaki was presented, proposing trilateral cooperation among Nagasaki Prefecture, Rebana, and MCSCC, and an inter-city partnership linking Nagasaki's 21 municipalities with Rebana's seven cities — some ten million people. Nagasaki, once tied to Batavia in the Edo period, joins Indonesia again in the age of the smart city: history and future met in the same place.

Implementation has now entered the stage of formal agreements. On August 27, 2026, at BRIN headquarters in Jakarta, a tripartite MOU was signed among MCSCC, JOYCLE Inc., and

Indonesia's National Research and Innovation Agency (BRIN). Its core is a feasibility study for deploying JOYCLE's resource-circulation and GX technology — adopted under the Tokyo Metropolitan Government's Global South GX Promotion Project — in the Rebana Metropolitan area of West Java, with MCSCC member Architect Grand Design supporting as a coordination partner. A hearing with a director-general of Indonesia's Ministry of Environment was also held. From surveys and proposals to implementation under agreements with government institutions: the work in Indonesia has entered its next phase.

The economic outlook reinforces this partnership. Driven by electrification and smart cities, Indonesia's GDP (purchasing power parity) is projected to reach roughly USD 7.5 trillion by 2040, ranking fourth in the world and surpassing Japan (per the Representative Director's published analysis, 2022). The "patterns" of a challenge-frontier country, and the "fields of implementation" of a growth economy: joining the two is the basic form of MCSCC's international work.

Chapter 7. Expansion into Europe: Bulgaria / Growing Academic Ties: Vietnam

In July 2026, at the invitation of Bulgaria's Deputy Prime Minister and Minister of Economy, Investment and Industry, our Representative Director visited Bulgaria and met with the Prime Minister, relevant ministers (innovation, digital transformation, environment, energy, and others), the presidents of Sofia University and the Technical University of Sofia, and semiconductor companies including Melexis and Visteon. The themes were nuclear power and small modular reactors (SMRs), AI semiconductors, the smart nation / smart city agenda, and the OECD accession preparations of Bulgaria, an OECD accession candidate country; MCSCC proposed a policy white paper to the Prime Minister and ministers. The visit confirmed that in Europe's growth economies as well, there is demand for "patterns of solutions" and for a blueprint of the city.

One concrete point of connection is flood countermeasures. Bulgaria, too, struggles with flooding, and the LPWA water-level monitoring pattern proven and still operating in Masuda — aggregating levels of small rivers and channels over low-power wireless, and turning them into number-based sluice-gate operations and warnings to residents — is an exportable package of problem-solving in its own right. At the government meetings in late November, we will present this disaster-prevention IoT as a concrete theme for cooperation.

The circle of academic partnership is widening at home and abroad. In Japan, in June 2023 MCSCC concluded a cooperation agreement with Shiga University's Center for Data Science and AI Innovation, and is forming projects on AI and big data for smart cities in Japan and overseas — holding analytical capability on the academic side underpins implementation in the brain layer. In Asia, in September 2026, IETDSO — an academic member organization of MCSCC — concluded a comprehensive partnership agreement with Vietnam National University, Ho Chi Minh City. Our Representative Director serves as an advisor to IETDSO for smart cities, AI, and semiconductors, and dialogue with Vietnam is now deepening.

Chapter 8. Proposals: Designing the Smart City as a "Future Industry"

Five proposals emerge from MCSCC's practice:

1. **Design from challenges, not from technology.** Put R (research) before D (development) and begin from field realities and numbers. Product-out policy produces investment without an exit.
2. **Treat the circulation of data as an industry.** The data a city generates not only improves health, mobility, and infrastructure; the processing base itself — semiconductors and AI data centers — is an industry.
3. **Accept that each layer moves at a different speed.** The brain layer (data centers) is fast; the edge layer (local implementation) is slow. Design so that the revenue and technology of the fast layer fund implementation in the slow layer.
4. **Fit the cost structure to local capacity.** Unless a municipality with a budget on the order of ¥20 billion can sustain it, it is not social implementation.
5. **Patterns cross borders.** A solution proven in a challenge-frontier country answers the future challenges of growth economies. International partnership that divides proof-of-concept and implementation supports both Japan's regions and the world's growth at once.

A smart city is not a project to make a city clever. It is the cradle of future industries. MCSCC will keep drawing that blueprint — and building it.

Appendix

MCSCC Timeline (selected)

Year	Milestone
2016	Smart city initiative begins in Masuda City, Shimane (Masuda Model)
2017	Ground evaluations of the space-derived radio technology "Hyper LPWA" begin; IoT water-level monitoring demonstration starts in Masuda (to Feb 2019, then continued operation; YRP R&D award in 2018)
Jul 2018	Masuda City Smart Healthcare Promotion Project kicks off — Japan's first medical research study aggregating home blood-pressure data over IoT (from 306 workplace participants toward citizen scale)
2018–2020	Inter-city collaboration with Yatsushiro City: "Smart Agriculture IoT (wildlife countermeasures)" — electric fences × LPWA; zero damage and 100% harvest reported for the covered rice crop
2018	MCSCC founded. Early PoC of "the MCSCC FIWARE," the foundation of the Cyber City Brain, on Europe's open platform begins. Smart Road Monitoring project kicks off in Masuda (monitoring vehicle delivered to the city's civil engineering division in Apr 2019)
Apr 2019	At the request of the Masuda Police Station, a working group on monitoring elderly residents with dementia who walk out alone is formed (MCSCC, city Elderly Welfare Division, police)
2019–2021	Selected as one of the fifteen "Leading Model Projects" under the MLIT Smart City Model Program (announced May 31, 2019); adopted three consecutive years
Dec 2020	"Smart childcare" infant monitoring implemented at the Masuda Medical Association Hospital nursery (MLIT FY2019 supplementary Leading Model)
Apr 2021	Bali smart mobility infrastructure study adopted under METI's FS program; fieldwork the same year; MOU with the Sanur development foundation (YPS) in Oct 2022
Nov 2021	Road monitoring project receives the AI & Robot Committee Special Award at MCPC Award 2021
May 2022	Nagasaki Island MaaS Concept proposed to Nagasaki Prefecture at the 3rd Digital Garden City Forum in Nagasaki
Jan 2023	Monitoring solution demonstration begins at Kunisaki-en care facility, Masuda
Feb–Mar 2023	Field survey of Jakarta Special Capital Region under the FY2022 decarbonized-smart-city study program; consultations with Transjakarta, a BRIN vice head, and the Jakarta provincial ICT agency; results reported at a METI workshop
Jun 2023	Cooperation agreement concluded with Shiga University's Center for Data Science and AI Innovation (project formation on AI and big data for smart cities, in Japan and abroad)
Jan 2024	Joint research on wearable blood-pressure monitoring announced with Okayama University and Huawei Japan

Year	Milestone
Jun 2025	MOU concluded with the Rebana Metropolitan area, West Java, Indonesia (7 regencies, 1 city)
2025	Drone inspection model adopted under the Cabinet Office / National Strategic Special Zone program (Nagasaki "Kizuna" zone)
Jan 2026	Representative Director appointed Senior Fellow of Citieslab Nusantara (Jakarta)
Feb 2026	"Indonesia Economy, Industry and Human Resources Symposium" held at Dejima Messe Nagasaki, co-hosted with Nagasaki Prefecture (sold out). A letter from the CEO of the Rebana Metropolitan Authority to the Governor of Nagasaki proposed trilateral cooperation and inter-city partnership
Apr 2026	MOU concluded with SAPPK, Bandung Institute of Technology (ITB)
Jul 2026	Visit to Bulgaria at government invitation; meetings with the Prime Minister and ministers
Aug 2026	Under the Tokyo Metropolitan Government's Global South GX Promotion Project, a tripartite MOU among MCSCC, JOYCLE, and Indonesia's National Research and Innovation Agency (BRIN) is signed in Jakarta (feasibility study for deploying resource-circulation / GX technology in Rebana)
Sep 2026	Comprehensive partnership agreement between IETDSO and Vietnam National University, Ho Chi Minh City

About MCSCC

- Name: Matrix of Cyber Smart City Consortium (MCSCC), a general incorporated association
- Founded: 2018
- Representative Director and Smart City Architect: Yoshihisa Toyosaki
- Website: https://matrix-cyber.org/

This report is based on MCSCC's activities as of October 2026. Figures and facts are drawn from published materials and the consortium's records.