Nusantara: The New Urban Frontier

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East Asia Society of Transportation Studies

Congratulation EASTS 30 years

Reality Check

The State of Transportation in Asia

SOURCE: CTTO

The 8th EASTS Conference

Surabaya, Indonesia, 16th-19th November 2009

The conference attracted 648 participants from all over the world and 535 academic/practical papers were submitted and 492 were finally presented covering all fields of transportation

Indonesia Vice President Prof. Boediono… Opening

Me … still young☺

Board Meetings and Representative Assembly

Keynote Speech Professor Kyung Soo CHON, President of EASTS

Panel Discussions: "Catastrophic Natural Disaster and Transportation""

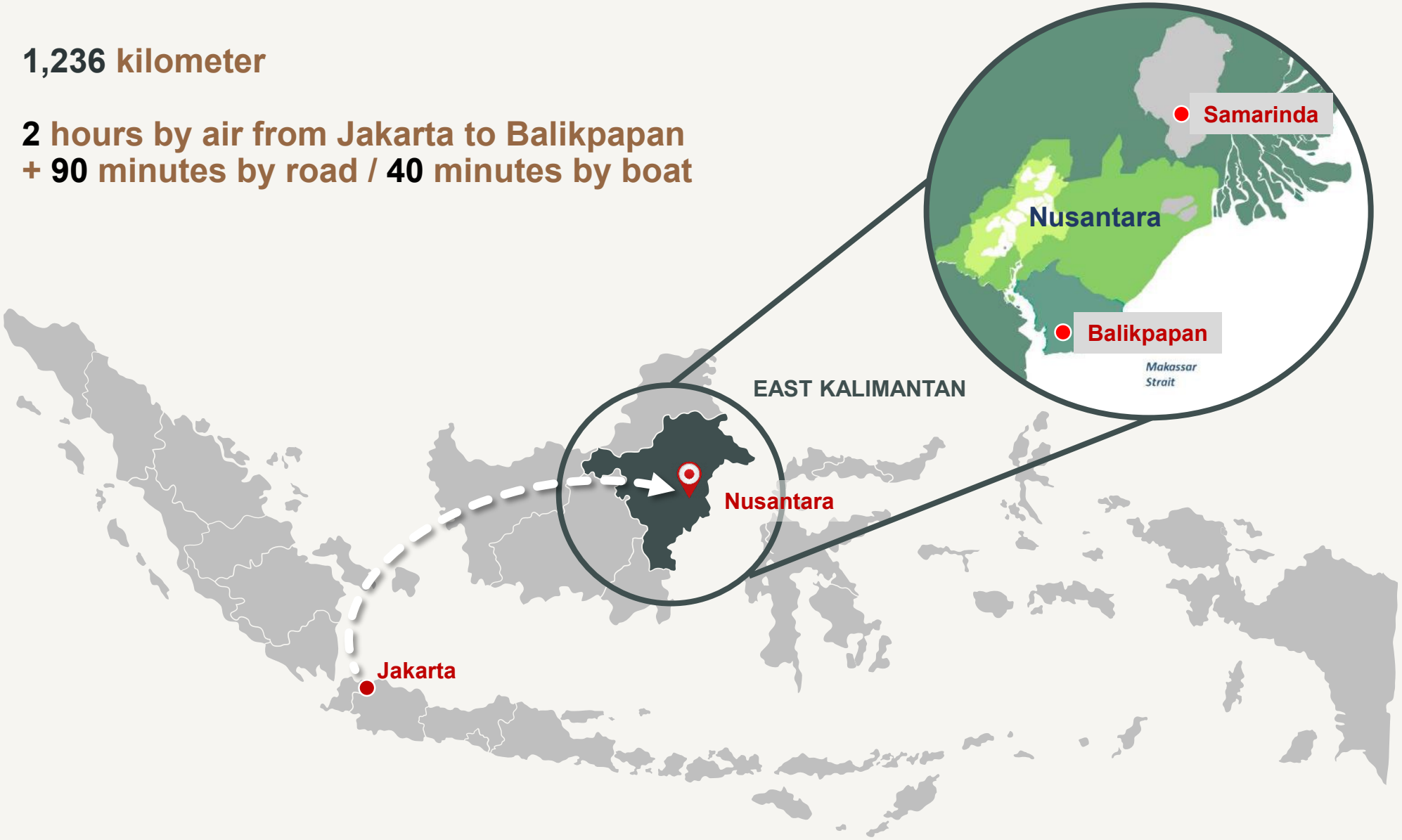
Today’s Presentation

1. The Context: The New Capital NUSANTARA
2. Intelligent Transportation System
3. Futuristic Transportation

From Jakarta to Nusantara

1,236 kilometer

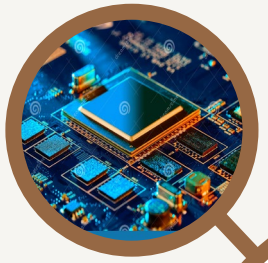
2 hours by air from Jakarta to Balikpapan
+ 90 minutes by road / 40 minutes by boat



Nusantara as Part of “Indonesia 2045” Vision

1

Human development and technological advancement
Cultivating world-class talents with strong academic and digital foundation



2

Sustainable economic development
Boosting East Kalimantan’s regional GDP up to 3 times by 2045 through economic diversification and transformation

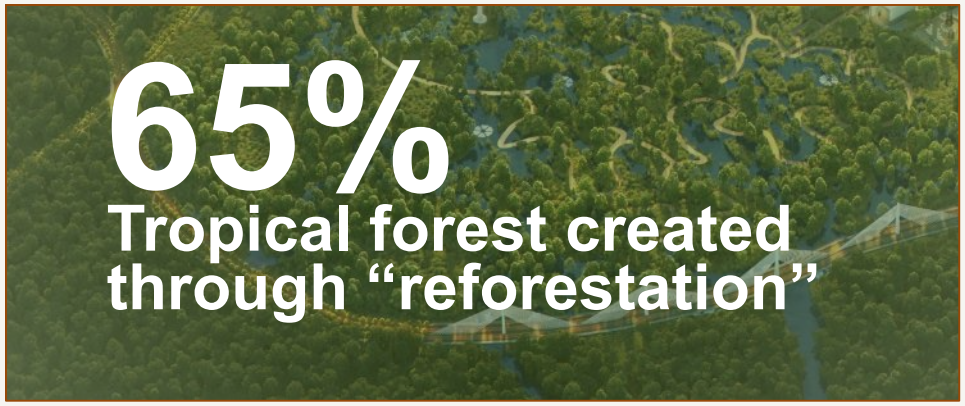
4

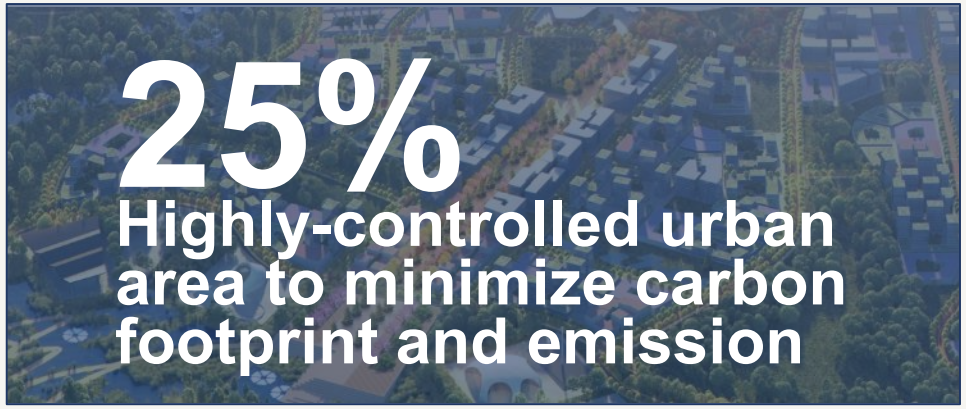
Enhancing national resilience and governance
Establishing new regulatory standards supported by investment and innovation

3

Equitable development
Catalyzing eastern Indonesia’s regional GDP and strengthening overall domestic value chain

Nusantara as Sustainable Forest City



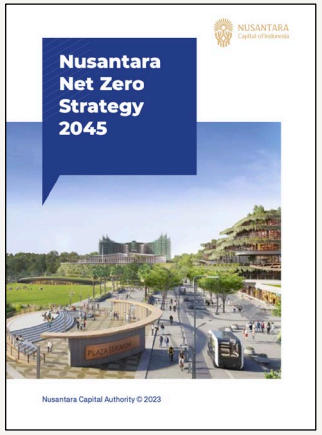


- **Green frameworks**: Carbon-neutral city roadmap (launched at COP27), smart-city framework, and sustainable energy management framework, etc.
- **Green infrastructure**: Plant nurseries, immersive tunnel, animals’ corridors and bridges, etc.
- **Collaboration** with communities and civil society on forest protection by combining local wisdom (“cultural forest”) and international best practices.

- **Design:** “10-minute city”; “sponge city”; city ecosystem that supports pedestrians, cyclists, and public transport users; etc.
- **Smart city instruments:** IoT-enabled infrastructure, smart meters, smart water and waste management, advanced mobility, healthy building, etc.
- **Policies:** 100% renewable energy mix by 2045, green certification for buildings, electric vehicles, carbon trading, open data, etc.

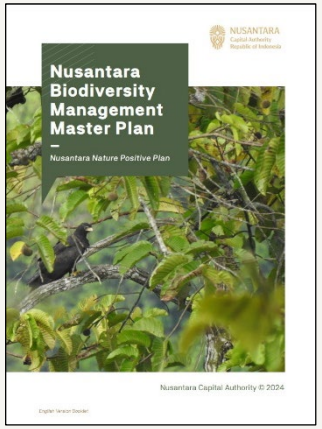
Carbon-neutral city by 2045

Nusantara's Long-Term Strategies for Sustainability



CLIMATE CHANGE

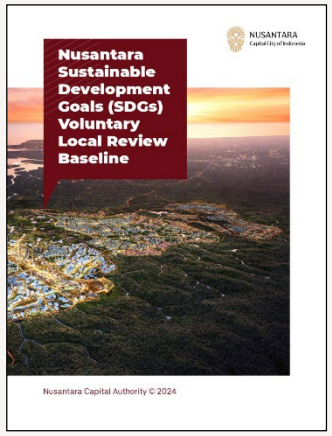
"Nusantara Net Zero Strategy 2045" was launched in COP-28 in Dubai.
→ *Indonesia's first city with locally-and regionally-determined contribution (LRDC)*



BIODIVERSITY

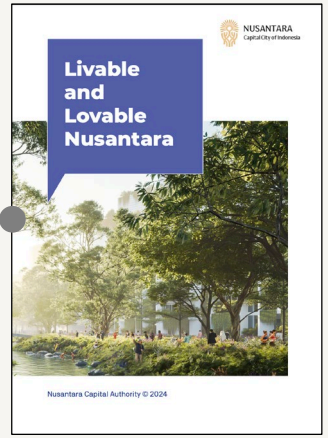
"Nusantara Biodiversity Management Master Plan" is the city's commitment to ensure wildlife habitat's existence and security. The document, published in March 2024, aligns with Kunming-Montreal Global Biodiversity Framework.

NUSANTARA



SUSTAINABLE DEVELOPMENT GOALS

Nusantara's baseline Voluntary Local Review (VLR) was launched at an event hosted by UN-ESCAP in February 2024.
→ *Indonesia's first VLR that is fully aligned with net-zero goal*



LIVABLE AND LOVABLE CITY

Nusantara is envisioned to be both a livable and lovable city. The study of Livable and Lovable Nusantara was launched on the International Day of Happiness, March 20, 2024.

Nusantara's Knowledge Journey: International Collaboration with 28 institutions

Thirteen (13) United Nations agencies have declared their support for Nusantara's endeavors in achieving Sustainable Development Goals.

ESCAP · UNDP · ILO International Labour Organization · UN WOMEN · IOM UN MIGRATION · unicef · UNFPA

FAO Food and Agriculture Organization of the United Nations · unesco · UN-HABITAT · UN environment programme · UNIDO United Nations Industrial Development Organization · UNOPS

Coordinated by: UNITED NATIONS INDONESIA

CENTRE for Liveable Cities	Knowledge exchange and capacity building on livable city
ADB	Comprehensive support toward achieving Nusantara's net-zero goal
WWF	Biodiversity assessment and wildlife protection framework
Stanford | Doerr School of Sustainability	Research partnership on sustainability
TONY BLAIR INSTITUTE FOR GLOBAL CHANGE	Business case preparation and strategic communications support
USAID FROM THE AMERICAN PEOPLE	Development of Nusantara's smart city masterplan
WORLD RESOURCES INSTITUTE	Development of science-based climate targets
HYUNDAI	Proof of concept for advanced air mobility

Nusantara's Collaboration with Other Cities

SINGAPORE

MOU between Nusantara Capital Authority (NCA) and National Development Ministry on knowledge exchange in developing sustainable and livable cities.

Follow-up Activities: *Capacity building and benchmarking for NCA's staff in elements to develop green and smart cities.*

ASTANA, KAZAKHSTAN

MOU between NCA and Astana Akimat (Governor's Office) on economic, social, and cultural exchange between Astana and Nusantara.

Follow-up Activities: *Visit of Kazakhstan's business delegation to IKN, and participation of Kazakh's companies in developing a proof of concept (pilot project) for transport technology in Nusantara.*

SHENZHEN, TIONGKOK

MOU between NCA and Shenzhen city government to boost investment and technology-focused city planning.

Follow-up Activities: *Visit of Shenzhen's business delegation to Nusantara, and initial collaboration with Urban Planning Design Institute of Shenzhen (UPDIS) as Shenzhen's city planner.*

BRASILIA, BRAZIL

MOU between NCA and Brasilia city government Shenzhen city government in developing city's infrastructure, green space initiatives, and climate change mitigation and adaptation

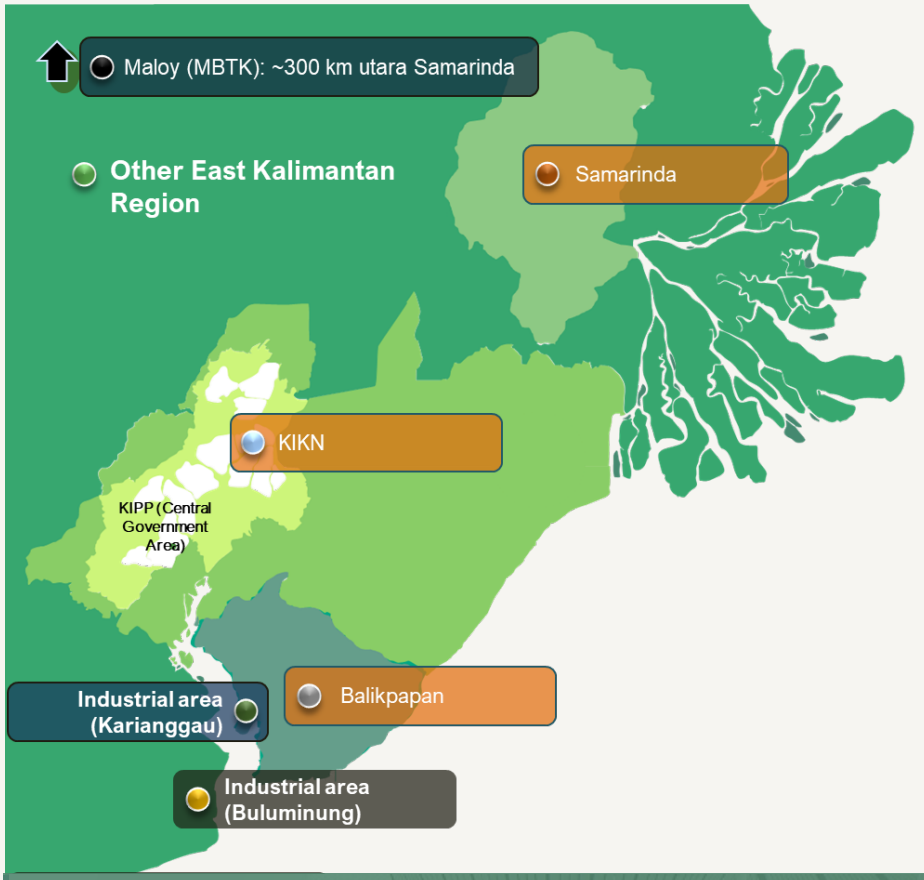
Follow-up Activities: *Follow-up meetings with Brasilia's city government in Indonesia; knowledge exchange between NCA's planning team and its Brazilian counterparts.*

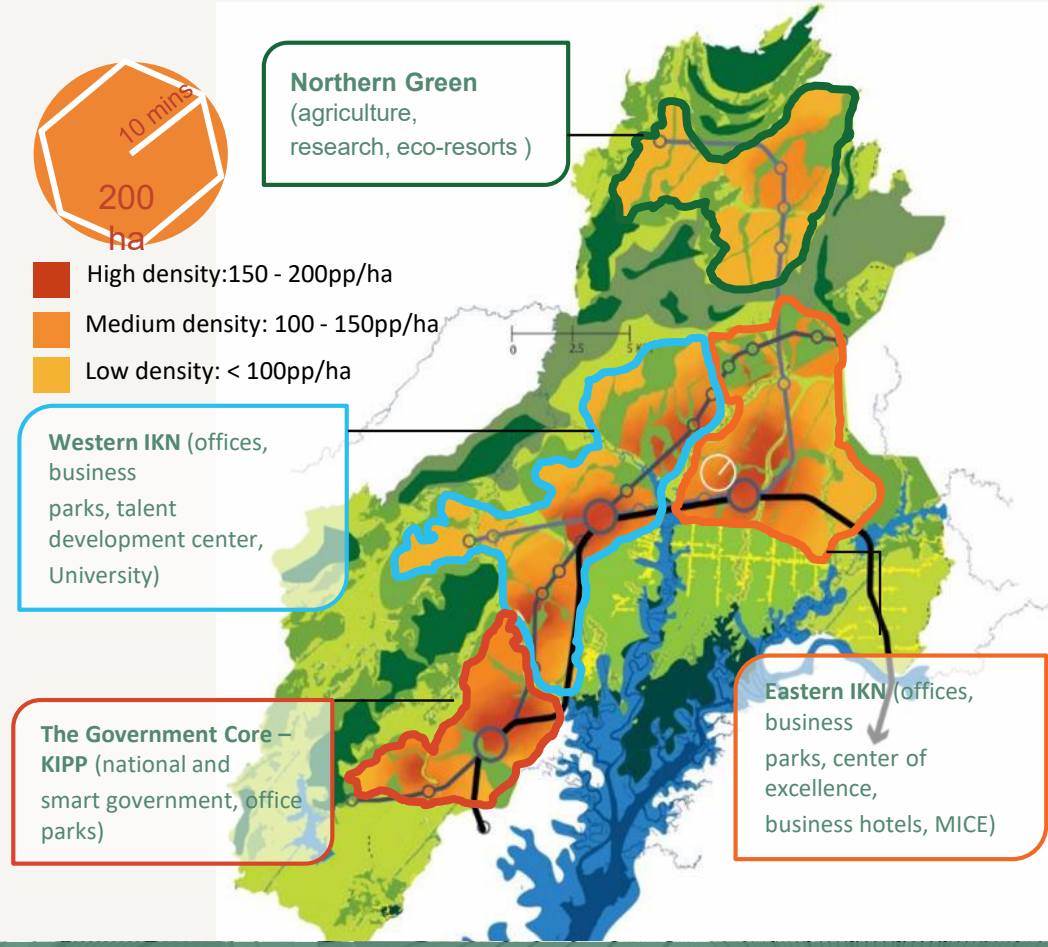
CANBERRA, AUSTRALIA

MOU between NCA dan Australia's National Capital Authority to do experts exchange and capacity development.

Collaboration (prior to the MOU): *Visit of NCA's officials to Canberra.*

Total 252k Ha of The **New Capital Will Have 1,7 – 1,9 Million Population** in **2045**





IKN (252k Ha)

- Catalyst for the East Kalimantan by taking advantage of the cities of Balikpapan and Samarinda
- 75% of the IKN area will be a green open space of which 65% is a protected area and 10% is for food production.

KIKN (56k Ha)

- Incorporates of various mixed-use zones and neighborhoods that support concept of “10 minutes walk” and social connectivity
- Design in harmony with nature, minimum of 50% green space
- 80% of trips by public transport or active mobility of residents
- 100% green replacement for each building

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Nusantara's Development Area and Connectivity

Total Area
(Land and Water)
322,429 Ha

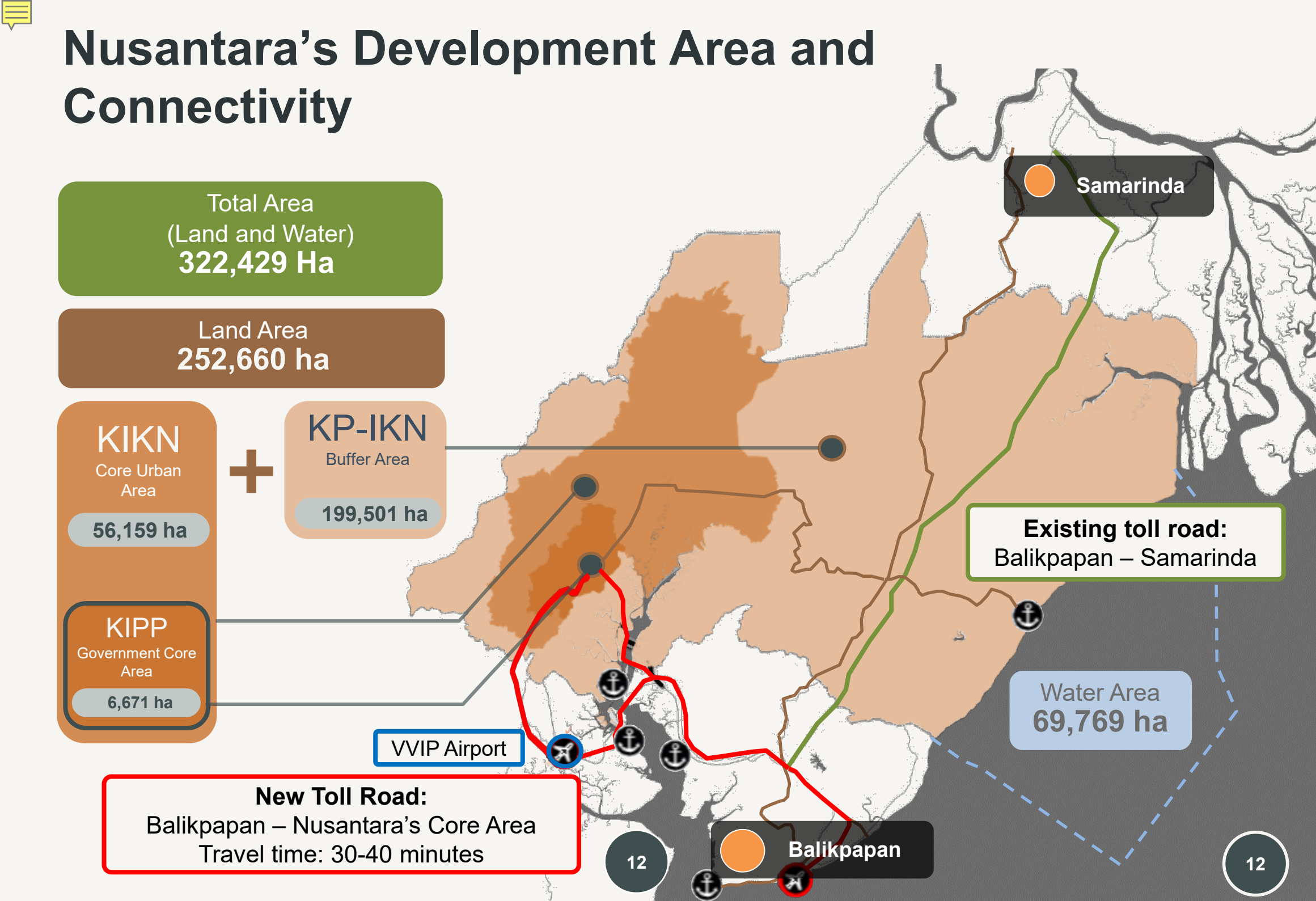
Land Area
252,660 ha

KIKN
Core Urban Area
56,159 ha

+

KP-IKN
Buffer Area
199,501 ha

KIPP
Government Core Area
6,671 ha



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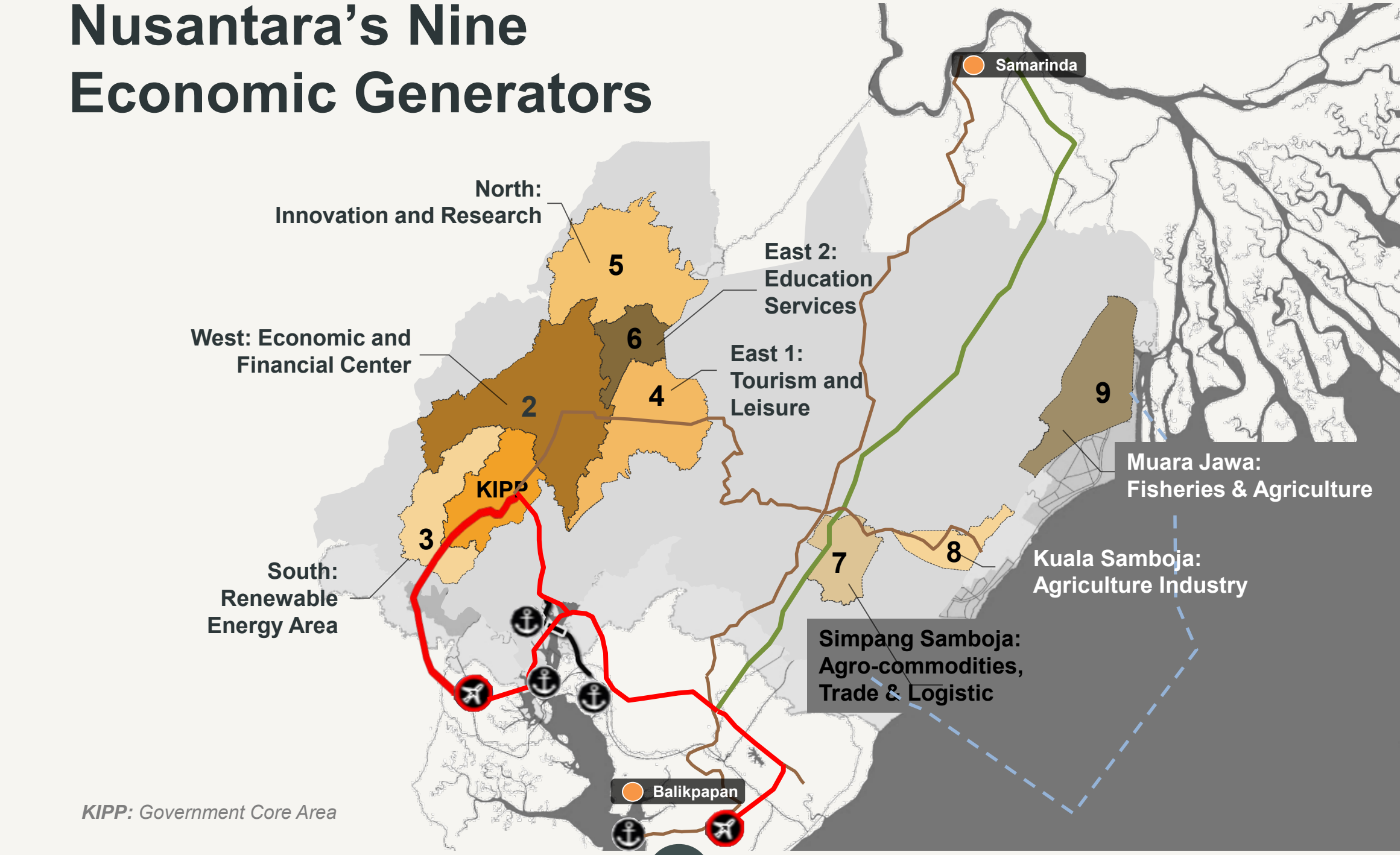
Nusantara's Nine Economic Generators



KIPP: Government Core Area

Nusantara's Development Phases

I

2022–2024

Transfer of priority government offices

Population: ~260,000

II

2025–2029

Strengthen Nusantara's core areas; Expand housing, office, and commercial zones

III

2030–2034

Scale up education, health sectors and high-tech sectors

IV

2035–2039

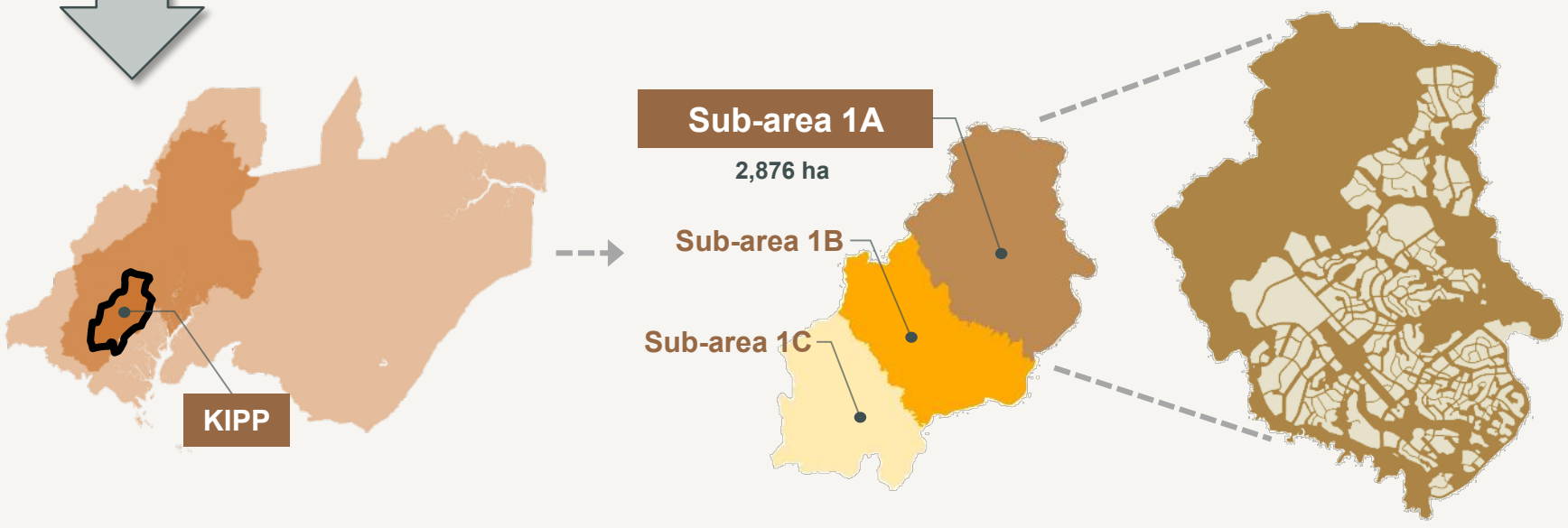
Complete construction of all major infrastructure, bolster three-city ecosystem (Nusantara, Balikpapan, Samarinda)

V

2040–2045

Consolidate reputation as "The World Class City for All"

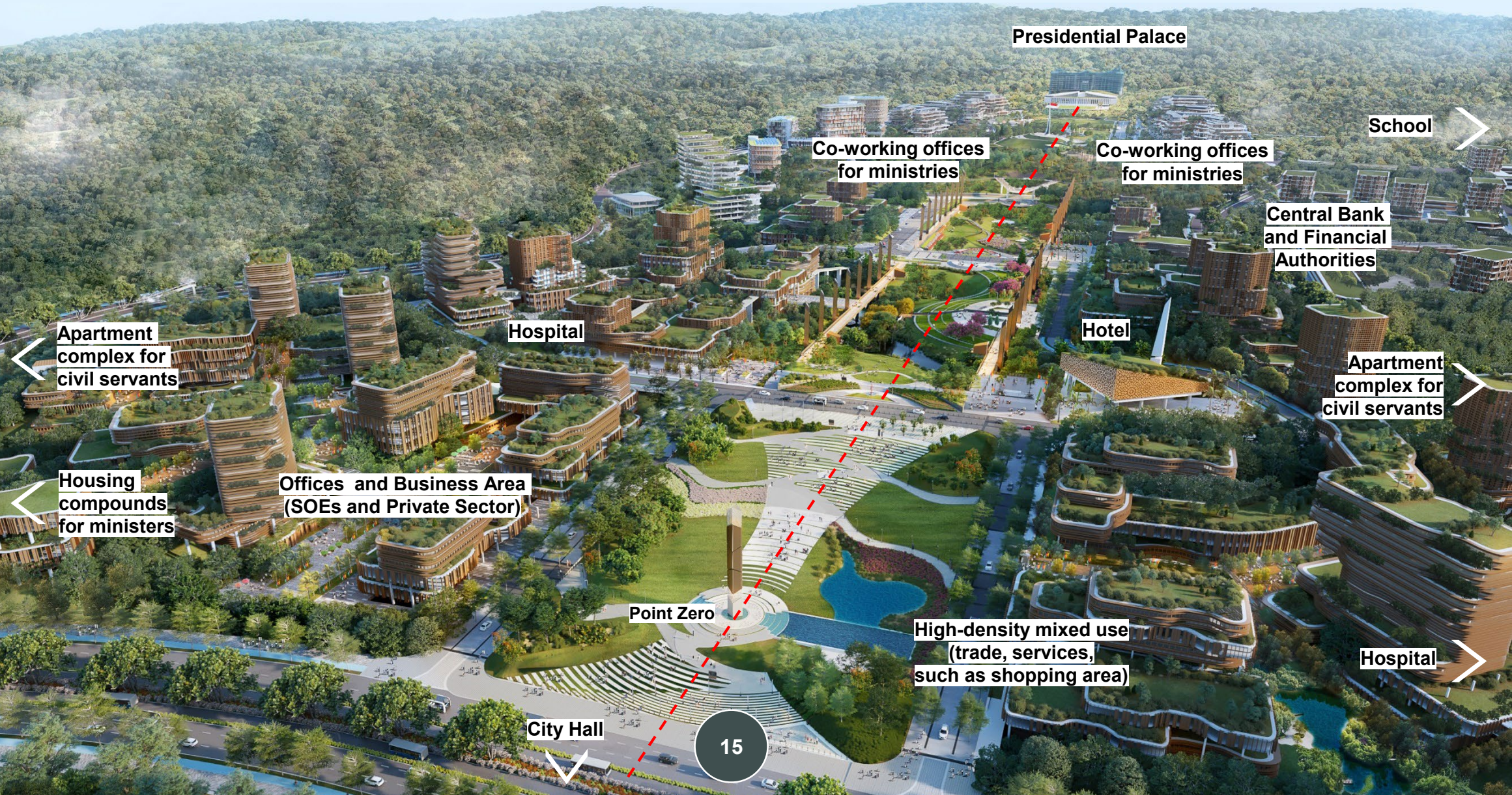
Population: ~1,911,000



By the end of 2024: Developing a fully-functioning city ecosystem in an area of around 1,000 Ha in 1A: Core of government complex supported by key infrastructure and facilities

Nusantara by the end of 2024

A fully-functioning city ecosystem: Core area of government complex, supported by key infrastructure and facilities to support the livelihood of its residents

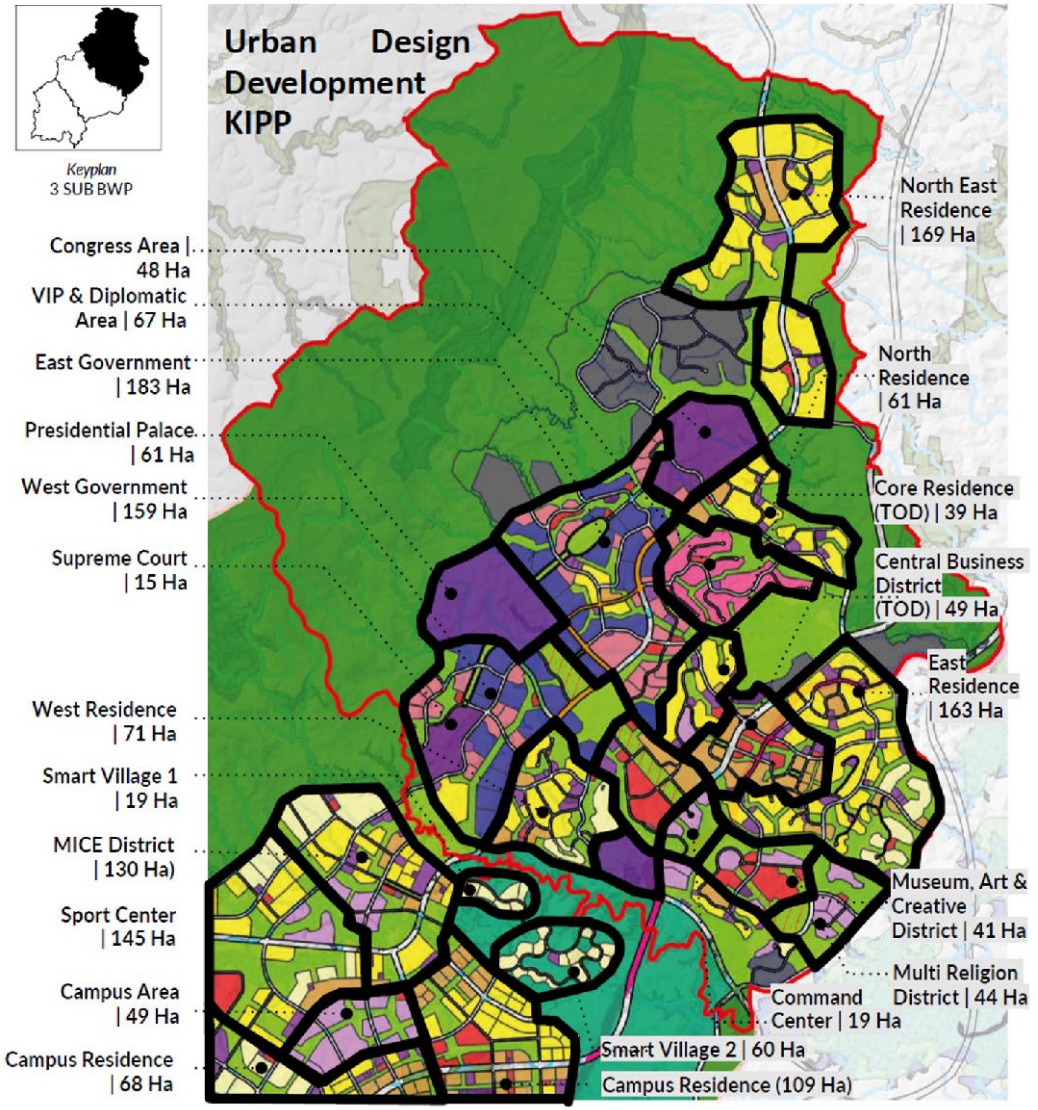


Urban Design Completed for the Core Area

Government Centre Area

Residential Area

Transit Oriented Development (TOD) Area



Development Progress: Buildings & Infrastructure

Presidential Palace and the Ceremonial Plaza

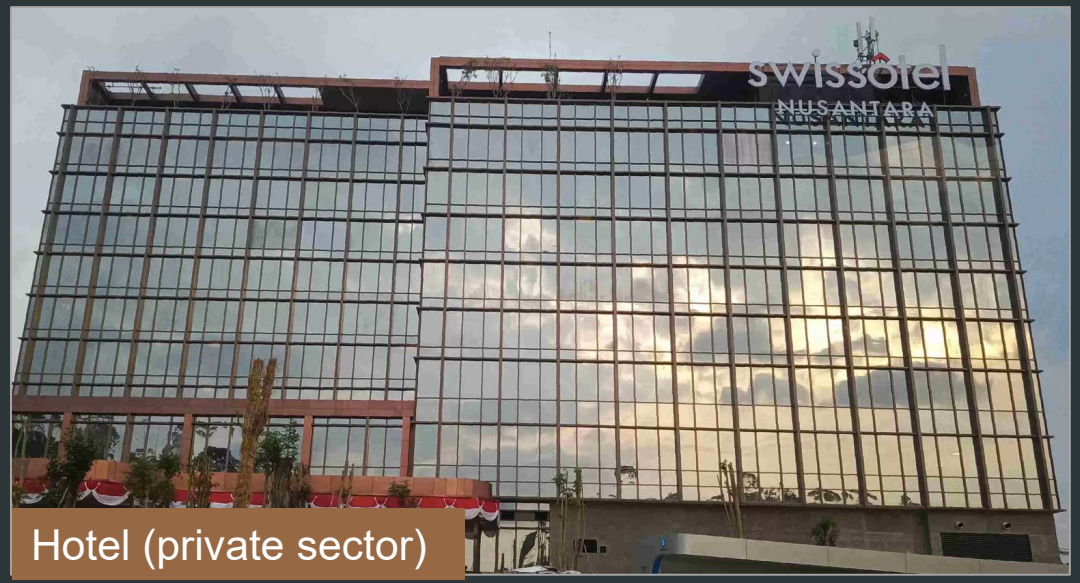
National Axis *(Sumbu Kebangsaan)*

Ministerial Offices

Workers' Housing Compounds

Dam to supply raw water

Plant nurseries



Hotel (private sector)

Hospital (private sector)

Community Development : Re-skilling and Up-skilling

Business Skills Training for MSMEs

Coffee-making Class

Cooking Class

Sewing Class

Hydrophonic Farming

Community Development : Digital Literacy and Empowerment

Educational *Techno-House*

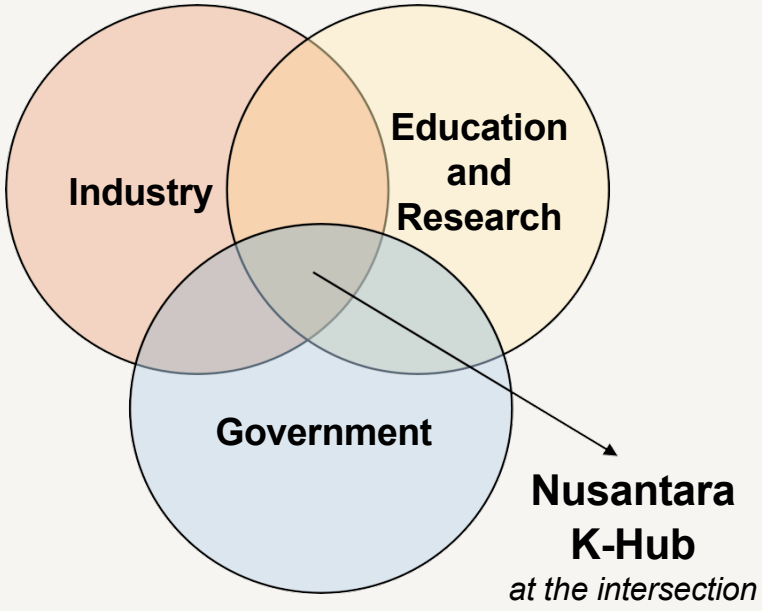
“Coding Mom” class


Computer literacy for children


“Solar Mom” workshop

Podcast training

Nusantara K-Hub: Knowledge Hub



- **Nusantara K-Hub consortium** with leading educational institutions is a strategic cooperation that aims to support the development of the Capital City.
- Through this consortium, educational institutions both local and abroad can contribute to the development of human capital and technological innovation in Nusantara.
- This collaboration accelerates the process of developing Nusantara as a modern and sustainable city.

Knowledge Partners

32
Local Institution

12
International Institution

Stanford | Doerr School of Sustainability
King's College London
TU Delft
Erasmus University Rotterdam
Universiteit Leiden
Northern Illinois University
University of Turku
University of Malaya

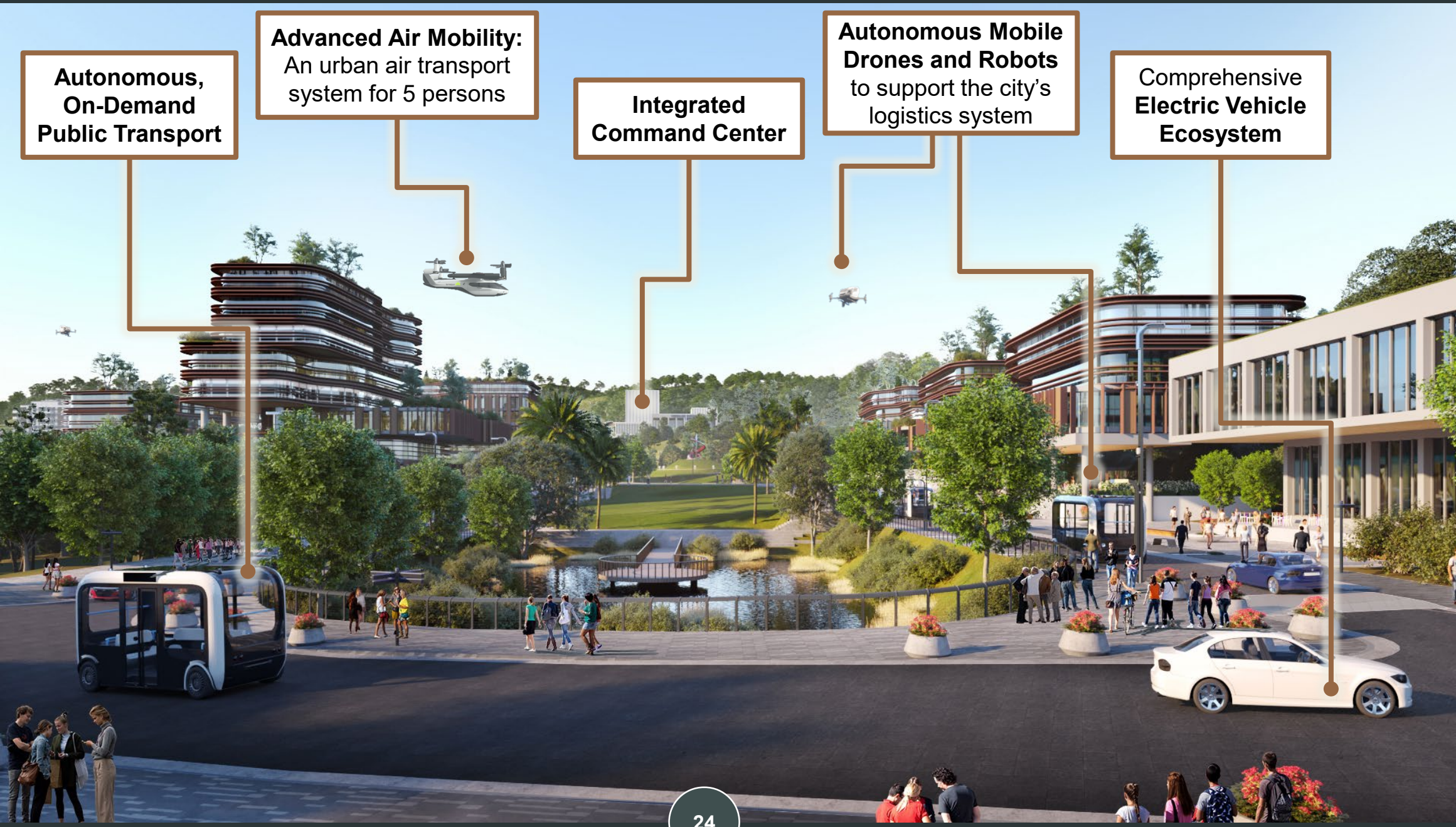
40
Global Industry

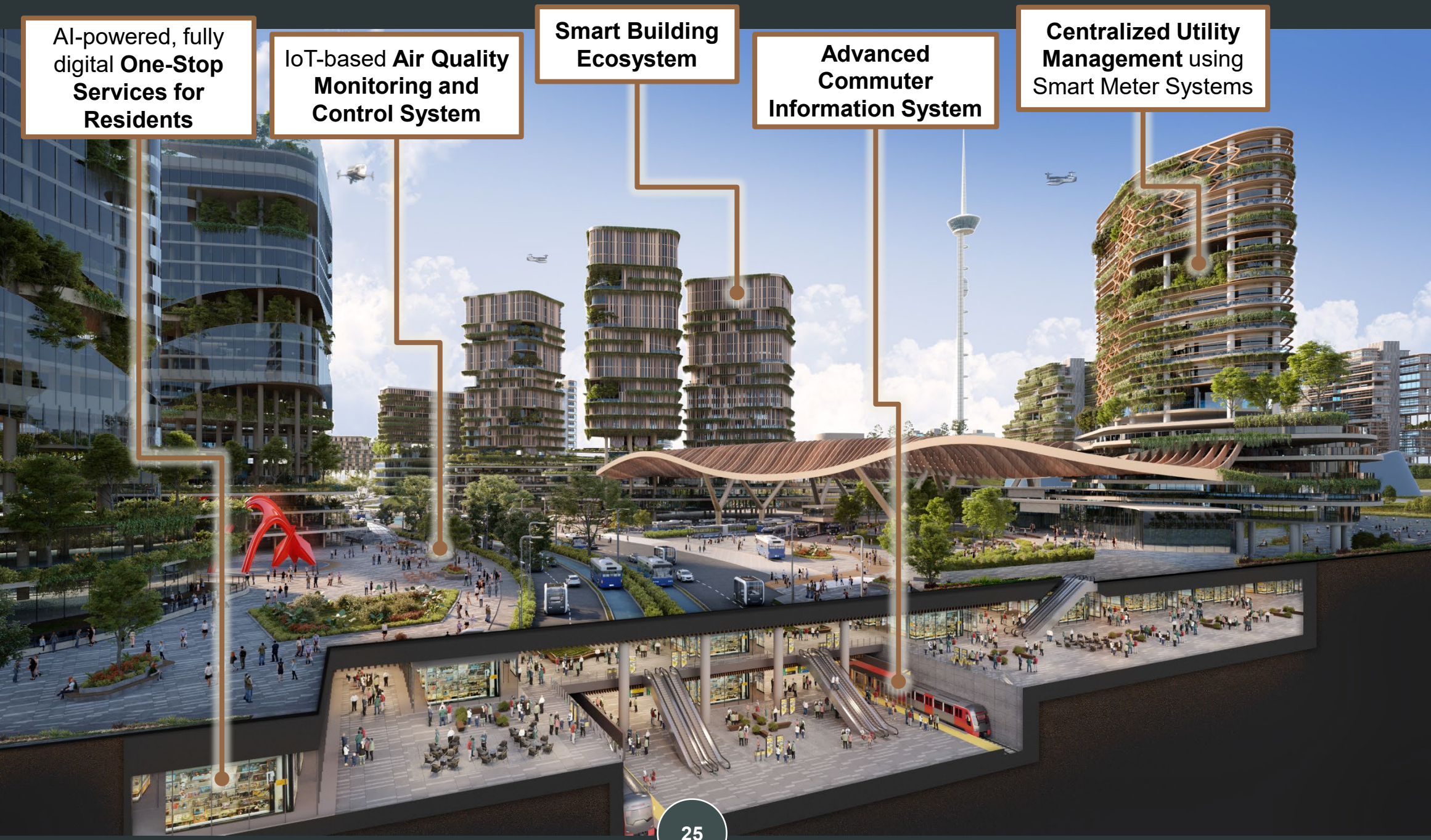
LG CNS
Microsoft
Huawei
Siemens
Cisco
Honeywell
Hyundai
SCIC

Nusantara K-Hub

Knowledge Hub

Imagining Nusantara in 2045




AI-powered, fully digital **One-Stop Services for Residents**
IoT-based **Air Quality Monitoring and Control System**
Smart Building Ecosystem
Advanced Commuter Information System
Centralized Utility Management using Smart Meter Systems


A city fully powered by renewable energy, optimized by smart grids and meters
Smart Farming Ecosystem: Precision Farming, Urban Agriculture, Smart Agroforestry
IoT-based **Water Quality Monitoring and Control System**
Natural Disaster Early Warning System
Forest Management System: Fire and Climate Censors, Hotspot Monitoring, Firebreak System
Biodiversity and Carbon Stock Monitoring System

Today's Presentation

1. The Context: The New Capital NUSANTARA
2. Intelligent Transportation System
3. Futuristic Transportation

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Nusantara Smart Mobility

Nusantara Vision & Transport KPI

Vision: "World-class city for all"

KPI: 3. Connected, Active, and Easily Accesible

- 3.1 **80%** of travel with public transportation or active mobility
- 3.2 **10 minutes** travel to important facilities and public transportation nodes
- 3.3 **<50 minutes** Transit express connection from KIPP to strategic airport by 2030

KPI: 4. Low Carbon Emmissions

- 4.3 ***Net zero emission*** for IKN (when operating) in 2045 in the 252KHa area

Implementation of ITS

SMART MOBILITY

- Optimize Active Mobility and Green Public Transport
- Optimize Decision Making by Data Analytics and AI
- Minimize Human Error

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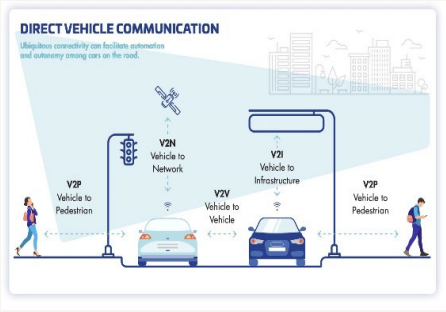
Transforming Urban Mobility

Nusantara Intelligent Transportation System

Collecting Data in Real Time for Better Passengers Experience

- Public Transport Information System (PTIS)
- Fleet Management
- Passengers Crowds Detector
- IKNOW (Integrated Digital Services for IKN)
- Pedestrian and Bus Priority in Traffic Management

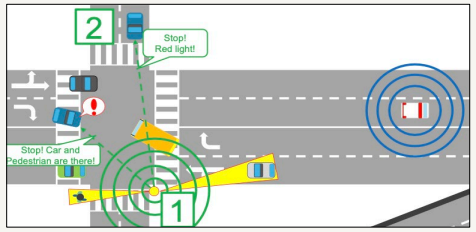


Giving Priority to Active Mobility and Public Transportation

- Pedestrian and Bus Priority in Traffic Management
- Smart Parking System to Manage Parking Lot in Core Urban Area – Park n Ride
- Traveller Information System

Big Data Analytic for Decision Making Process

- Digital twin map
- Land Use – Transportaion Intercation(LUTI)
- Traffic Camera/Detector
- Passengers and Active Mobility Crowds Detector



Safety and Security of Transportation

- Electronic Traffic Law Enforcement
- Incident Management System (IMS)
- Pedestrian Integrated Camera
- Emergency Car Priority in Traffic Management

ITS in Nusantara

Implementation Strategies of Smart Mobility in Nusantara

Nusantara Smart Mobility

Incident Management System (IMS)
Incident Control Room; Incident Detection Algorithms; Public Service Connectivity

Advanced Public Transport System (APTS)
FMS, VPS, and Fare Collection System; Public Transport Information System; IoT Sensors for Safety, Shelter for Safety

Electronic Payment System (EPS)
Account-based Ticketing; E-Card Ticketing

Advanced Parking Management System (APMS)
Dynamic Parking Pricing; Parking Supervision, Information, and Booking

Advanced Traffic Management System (ATMS)
Electronic Traffic Law Enforcement; Intelligent Signaling

Autonomous Driving System (ADS)
Route Planning; Vehicle Operation Safety; Camera, Radar, and LIDAR System; 5G Connectivity

Advanced Traveller Information System (ATIS)
Traffic Count Control Unit; Traffic Monitoring System; Passenger Info System; Variable Message Sign

Commercial Vehicle Operation System (CVOS)
Weight-in-motion System; Vehicle Size Monitoring

List of Priority

Nusantara's Command Centre

Advanced Traffic Management System

Public Transport Management System

Advanced Traveller Information System

Funding

Government Funding/Non-Investor
Basic Needs Infrastructure

Public Private Partnership
- PPP Solicited
- PPP Unsolicited

Investor Funding
- Assets Utilization
- Pure Private (Investor)

Source: OIKN, 2024.

ITS in Nusantara

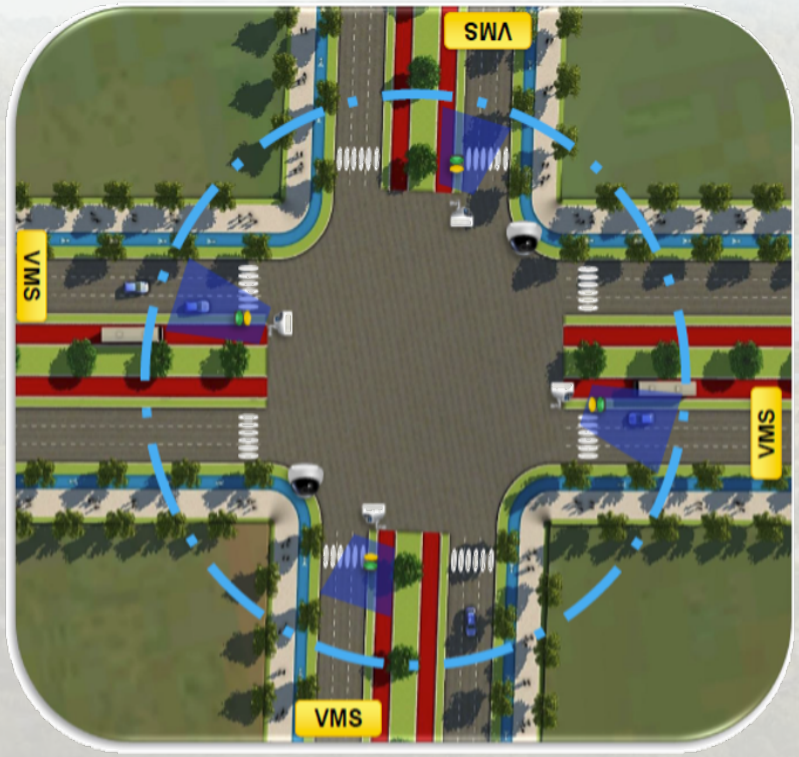
Advanced Traffic Management System

To accommodate the development of ATMS in IKN, the Authority uses the Advanced Traffic Control System (ATCS) up to the 5th generation for nodes that are able to exceed 100 intersections today. The ITS level that will be implemented in KIPP IKN is at least Level 4 and Level 5 which are already based on artificial intelligence (AI) networks and are able to predict traffic conditions.

Generation	Signal Light Controller	Detail	Node/Network	Feedback Loop from Traffic	AI Algorithm ?	Real-time Adjusting	Characteristics
1st Gen	Single-node pre-stored timing plans	Signal timing plans based on historical traffic patterns	Node only	NO	NO	NO	Basic Function
2nd Gen	Single-node self-adaptive plans	Plus real-time micro-adjusting based on real-time traffic	Node only	YES	NO	YES	Very flexible, heavy maintenance
3rd Gen	Coordinated Network Type	Fixed but coordinated timing plans across nodes in a whole network	Network	NO	NO	NO	VIP green light zone function, BUS First function, not flexible
4th Gen	Coordinated AI Network "Smart Traffic Controller"	Feedback loop provides measurement on the effectiveness of the network controller timing	Network	YES (traffic feedback by camera surveillance)	YES (Machine Learning)	YES	VIP green light zone function, BUS First function, not flexible
5th Gen	Digital Twin Traffic Controller	In real-time, the controller algorithm adjusts to the traffic flow and constantly changes	Network	YES	YES	YES	Most efficient traffic solution, requires large-scale implementation with over 100 nodes

ITS in Nusantara

Advanced Traffic Management System

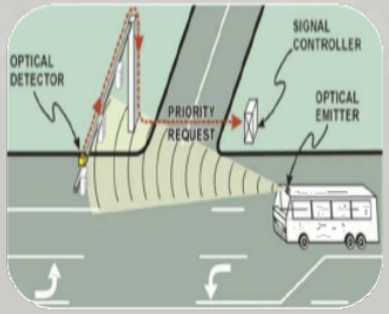


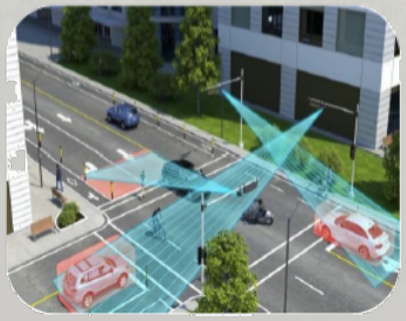
ATMS provides real-time information about traffic to road users. Besides that, it also provides information if there are obstacles/accidents on the route taken. Data inputs are obtained from: CCTV, traffic analyzer, traffic counter, Loop Detector etc. While the output is through: Variable Message Sign (VMS), radio, call center, etc.

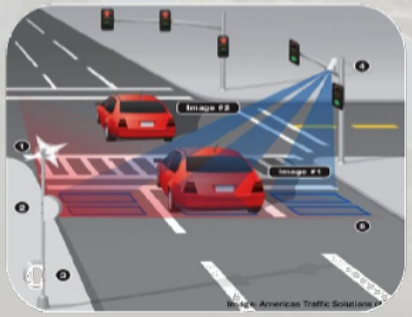
Traffic sensors are placed at important highway locations and consist of two types of components, namely Loop Detector and CCTV Video Imaging Detection System (VIDS) cameras. This sensor uses a Loop Detector embedded in the road body and sidewalk to detect and signal when vehicles containing ferrous metal pass by. Commonly used effector systems include traffic intersection signals, ramp meters, and Variable Message Sign (VMS) that can provide warnings and alternative route suggestions to drivers. In an ATMS system, the computer integrates data from thousands of circle detectors, displays sensors and CCTV information to assist operators in understanding traffic situations, and in some cases making and executing decisions.

Bus Priority at an intersection is a system that gives priority to buses to pass through a road intersection by giving a green light signal longer than other vehicles. The goal is to reduce waiting times and increase the speed of bus travel, so as to improve the efficiency and convenience of public transportation.

Sumber: Regulation of the Minister of Transportation No. 96 of 2015 concerning Guidelines for the Implementation of Traffic Engineering Management | US. DOT, Design aof an ITS-Level Advanced Traffic Management System A Human Factor Perspective.







Sumber : Peraturan Mentri Perhubungan No. 96 Tahun 2015 Tentang Pedoman Pelaksanaan MRLL | US . DOT,. Design of an ITS-Level Advanced Traffic Management System A Human Factor Perspective

Source: OIKN, 2024.

ITS in Nusantara

Advanced Traffic Management System

11.9.5 Variable Message Sign (VMS)

A Variable Message Sign (VMS) is a traffic control device used to provide travel information to motorists. The VMS is generally installed on bridges, on road shoulders or posts, and on poles. The information displayed is most often in real-time and can be controlled remotely, or it can also be controlled locally at the location of the VMS.

Variable Message Signs (VMS) generally have several functions based on the situations encountered by road users. The following are some functions of VMS:

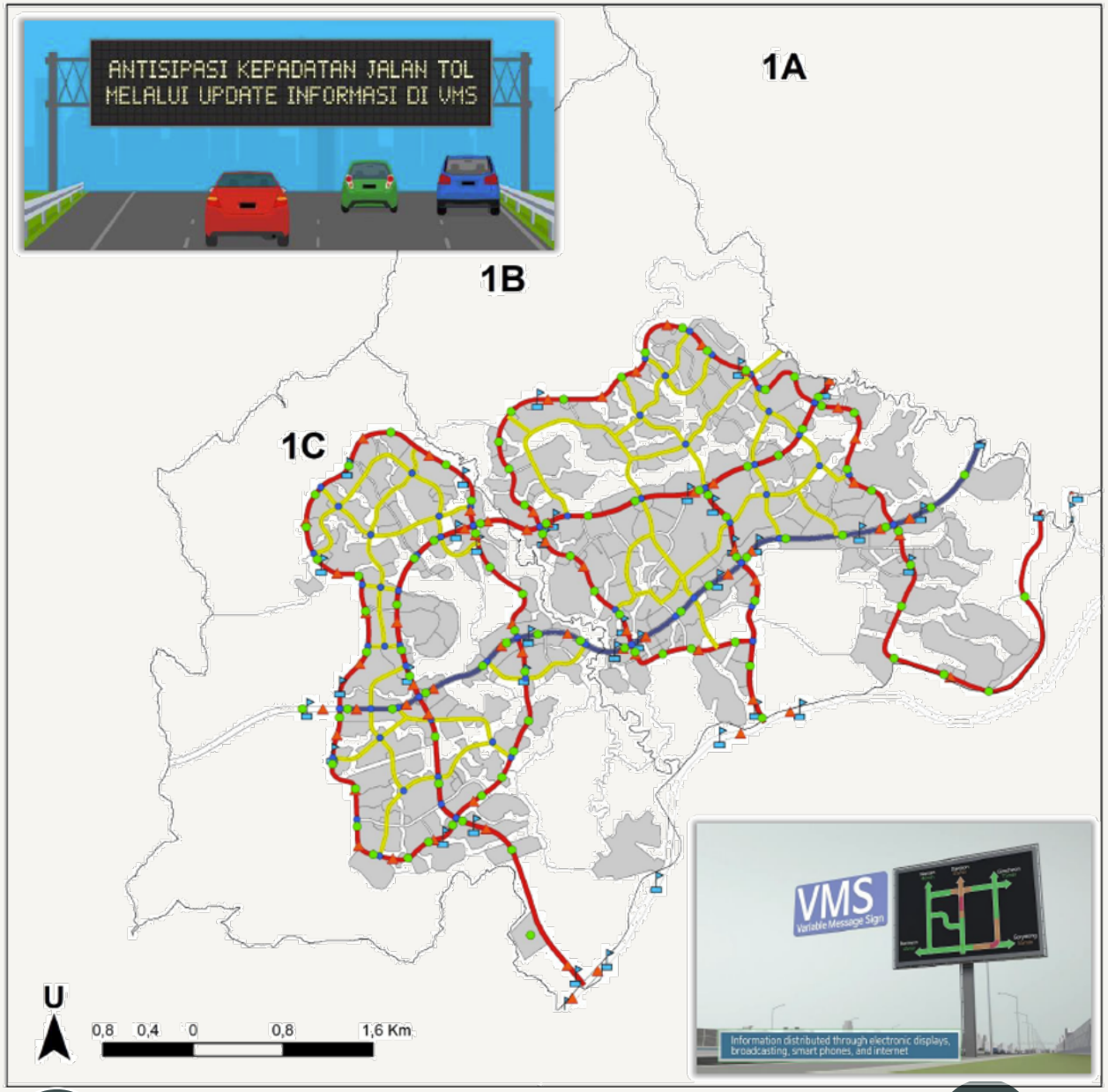
1. Providing traffic information
2. Providing tourism information
3. Providing public service information

VMS Placement Requirements

Variable Message Signs (VMS) must be placed at a sufficient distance from the point where action is required to give drivers enough time to read and understand the message and take the next necessary action, which may include the need to brake and/or maneuver. If complex maneuvers are not required, the minimum distance provided between the VMS and the hazard, decision point, intersection, or roadside furniture that may draw the attention of road users should generally be:

- 30 - 100 m in business and residential areas
- 60 - 120 m for speeds of 60-70 km/h
- 120 - 180 m for speeds of 80-90 km/h
- 180 - 250 m for speeds of 100-110 km/h

On urban arterial roads where traffic diversion is anticipated and will often be recommended, and where complex maneuvers are required, the VMS should preferably be placed 300 - 500 m ahead of the diversion point.

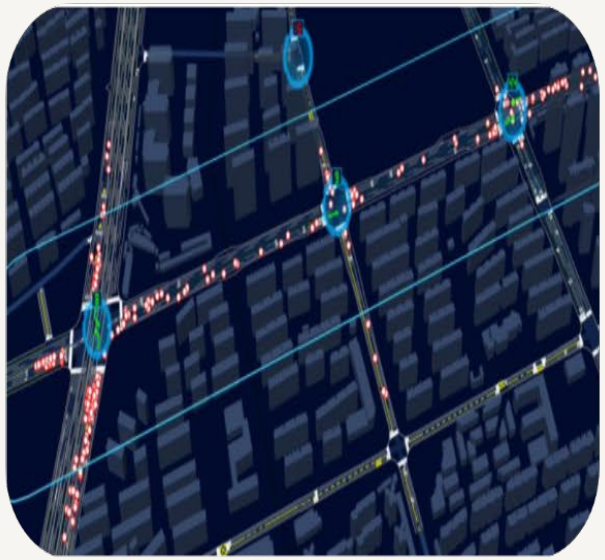


Source: OIKN, 2024.

ITS in Nusantara

Advanced Traffic Management System

Compared to the traditional monitoring method that prioritizes using video images, the concept of the Digital Twin - Level 5 traffic control system display method for ATMS in IKN provides the advantage of full display with finer target attributes. The system is capable of presenting dynamic GIS maps, augmented reality (AR) monitoring, and virtual reality (VR). Real-time target location sensing, focusing on this target can achieve continuous cross-border dynamic tracking.



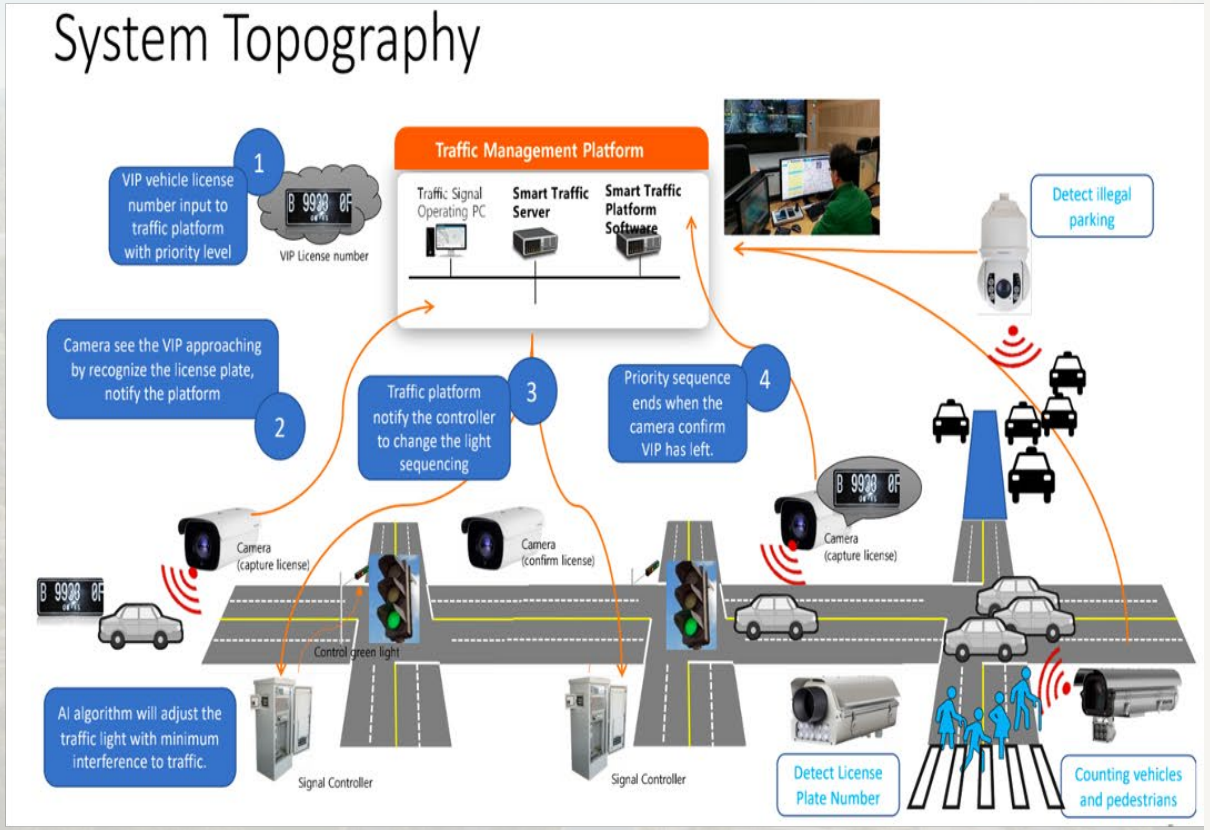
Source: OIKN, 2024.

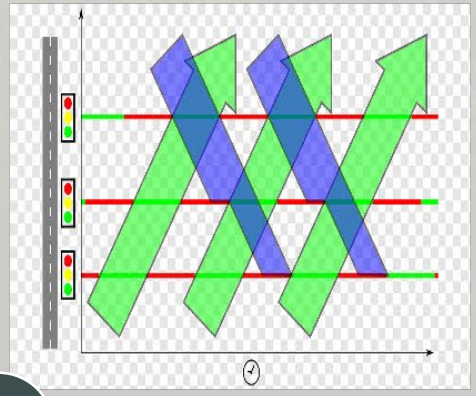
ITS in Nusantara

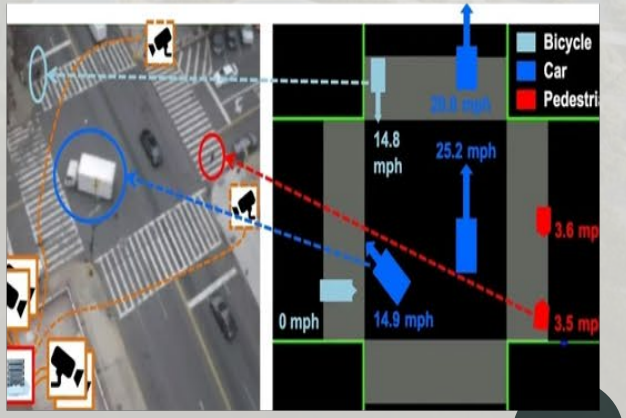
Advanced Traffic Management System

Digital Twin - Level 5 for ATMS in IKN in controlling traffic signals, the desired concept is:

1. Realtime Adaptive Optimization Control;
2. Emergency Congestion Management/congestion monitoring system;
3. Flexible Greenwave function (VIP, Emergency, PuT, etc);
4. Traffic Incident Detection;
    - Detection of Motor Vehicle Violations;
    - Pedestrian Violation Detection;
    - Detection of misdirected vehicles;
    - Detection of Illegally Parked Vehicles;
    - Reverse Vehicle Detection;
    - Congestion Incident Detection;







Source: OIKN, 2024.

Today's Presentation

1. The Context: The New Capital NUSANTARA
2. Intelligent Transportation System
3. Futuristic Transportation

Proof-of-Concept in Nusantara

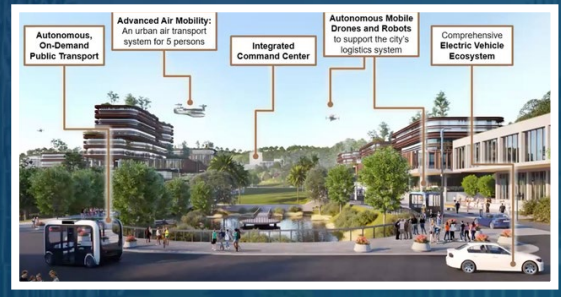
Transportation Challenges in Ibu Kota Nusantara

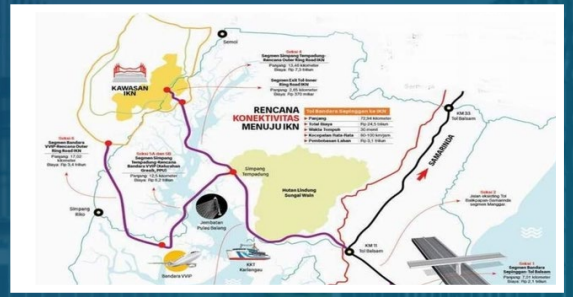
Indonesia Geography

18,000+ islands and Indonesia's projection in preparing for urbanization from villages to cities; from cities to metro areas, and ultimately to megacity scale

Transportation Challenges in Nusantara

The necessity for interregional mobility, specifically smart vehicles, autonomous vehicles, and e-mobility.





Integrated Air Mobility

- Enhancing the mobility of residents across islands
- Utilizing existing aviation infrastructure
- Leveraging advanced technology to maximize efficiency

Smart City Transportation Concept in Nusantara

- Integration of Transportation Modes
- Use of Smart Technology
- Sustainable Transportation
- System Data Analytics
- Comfort and Accessibility
- Security and Safety

Transportation Components in a Smart City of Nusantara

- Smart Vehicles
- Intelligent Traffic Management
- Integrated Public Transport
- Electric Vehicle Charging Infrastructure
- Shared Mobility Services
- Smart Infrastructure
- Big Data Analytics

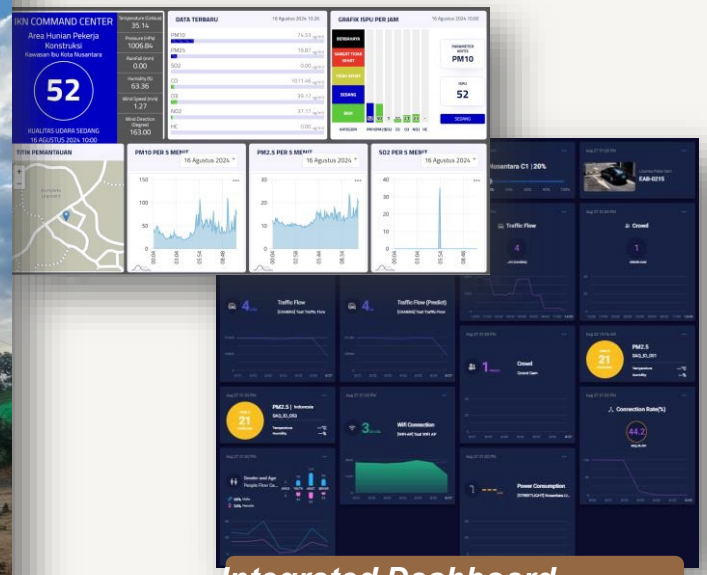
Urban & Regional Air Mobility

Urban and Regional Air Mobility in Nusantara, the New Capital of Indonesia, is an integral part of developing a sustainable, efficient, and innovative future transportation system.

Smart Pole dan Smart Lighting

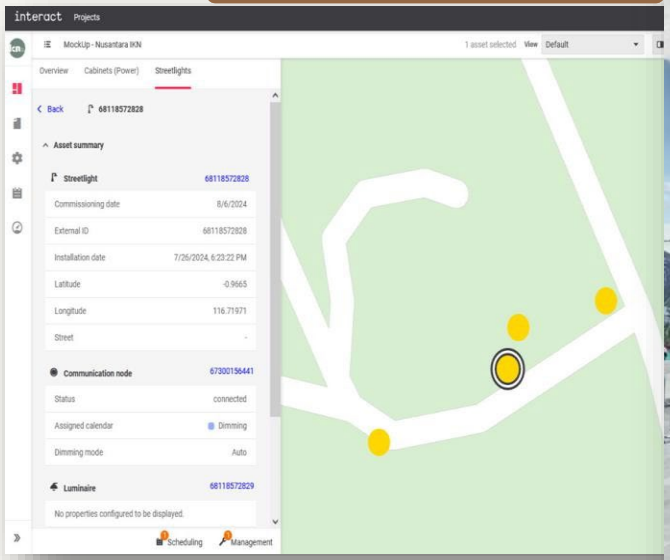
Multifunctional Smart Public Infrastructure

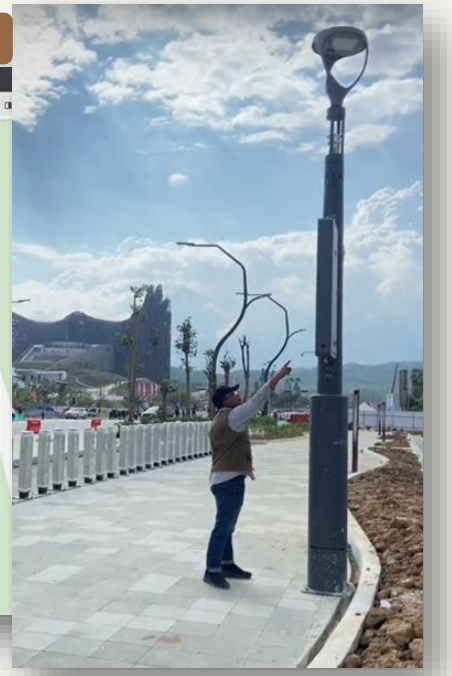
Air Quality Sensors



Integrated Dashboard

Lighting Portal





Smart Pole

The Smart Pole is equipped with several features, including CCTV with vehicle analytics and facial recognition, air quality, humidity, temperature, and wind speed sensors, as well as an integrated dashboard with daily weather forecasts. The pole also includes public information display features.

Smart Lighting

Smart Lighting integrates intelligent technology to manage urban lighting, with solar energy usage implemented to enhance energy efficiency. This technology supports the development of a sustainable smart city in Nusantara.

Autonomous Rail-Rapid Transit (ARRT)
Autonomous Tram Testing

Autonomous Driving System: Autonomous Tram

The Autonomous Tram is a mass public transportation mode that offers the capacity of a train with the flexibility of a BRT bus. The ART operates without a driver, using sensors to navigate its route. AI analyzes the sensor readings to ensure accurate guidance.

The ART operates on a dedicated lane using road marking sensors for guidance.

Autonomous Rail-Rapid Transit (Autonomous Tram)

A technology demonstration of the autonomous tram concept is being conducted in Nusantara's Capital City to assess the feasibility of autonomous technology in public transportation for IKN. The demonstration spans two months, from August 9 to October 10, focusing on testing the tram's autonomous control system, GPS, and telecommunications with the environment along the established routes of the Nusantara Capital City.

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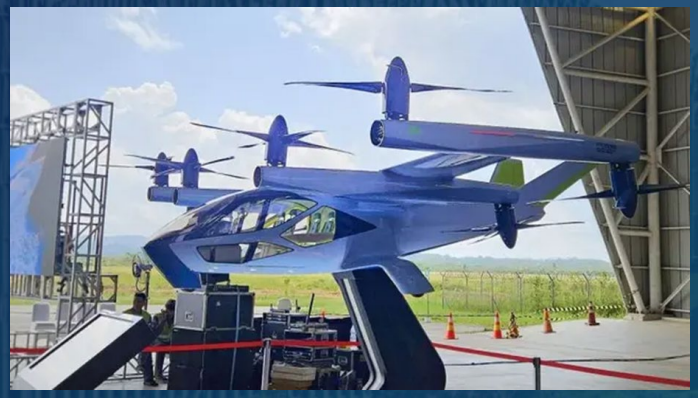
Urban Air Mobility: Proof of Concept

- Accelerating EMobility in Urban Areas
- Enhancing InteRegional Connectivity
- Reducing Ground Infrastructure Burdens
- Providing Flexible and On Demand Transportation



Urban Air Mobility (UAM) Development In The World

No	Country	Progress of Implementation	Estimated Start of Commercial Services	Trials for		Flight Trials	Infrastructure	Regulatory Plans	Sources
				Passengers	Cargo				
1	USA	Testing in Los Angeles and Miami	2025	☑	☑	☑	☑	☑	Taylor Wessing (2023), Bloomberg (2024)
2	Japan	Testing in Osaka and Tokyo	2025	☑	☑	☑	☑	☑	Urban Air Mobility News (2024), Bloomberg (2024)
3	South Korea	Testing in Seoul	2025	☑	☑	☑	☑	☑	Bloomberg (2024), Urban Air Mobility News (2023)
4	United Arab Emirates	Volocopter Testing in Dubai	2026	☑	X	☑	☑	☑	Taylor Wessing (2023), Volocopter Roadmap (2024)
5	Brazil	Testing in São José dos Campos	2026-2027	☑	X	☑	Development	Development	Urban Air Mobility News (2023), Bloomberg (2024)
6	France	Testing in Paris	2025	☑	X	☑	☑	☑	Taylor Wessing (2023), Urban Air Mobility News (2024)
7	Singapore	Volocopter Testing in Marina Bay	2026	☑	☑	☑	☑	Development	Volocopter Roadmap (2024), Urban Air Mobility News (2024)
8	Germany	Testing in Munich and Bavaria	2025	☑	X	☑	☑	Development	Taylor Wessing (2023), Volocopter Roadmap (2024)
9	Australia	Testing in Sydney	2026	☑	X	☑	☑	Development	Bloomberg (2024), Urban Air Mobility News (2024)
10	Italy	Testing in Roma	2026	☑	X	☑	Development	Development	Bloomberg (2024), Urban Air Mobility News (2023)
11	Spain	Testing in Barcelona and Santiago	2025	☑	X	☑	☑	Development	Taylor Wessing (2023), Bloomberg (2024)
12	UK	Testing in London and Midlands	2025	☑	X	☑	Development	Development	Urban Air Mobility News (2023), Taylor Wessing (2023)
13	Canada	Testing in Toronto with Lilium	2026	☑	X	☑	☑	Development	Urban Air Mobility News (2023), Bloomberg (2024)
14	Mexico	Testing plan in Mexico City	2027	☑	X	☑	Development	Development	Taylor Wessing (2023), Bloomberg (2024)
15	Netherlands	Testing in Groningen	2026	☑	X	☑	Development	Development	Bloomberg (2024), Urban Air Mobility News (2023)
16	China	Testing in several major cities, including Shenzhen and Beijing	2026	☑	☑	☑	☑	☑	Urban Air Mobility News (2023), Bloomberg (2024)
17	Indonesia	Testing in Ibu Kota Nusantara	2027	☑	X	☑	Development	Development	Urban Air Mobility News (2024), Bloomberg (2024)

Sources

https://www.aaminternational.com/2024/10/brazils-rise-in-urban-regional-air-mobility/

https://www.taylorwessing.com/en/interface/2024/onwards-and-upwards/urban-air-mobility-is-taking-off

https://www.honeywell.com/us/en/news/2024/10/advanced-air-mobility-in-2024-where-the-industry-is-heading dan https://www.unmannedairspace.info/aam-uam-route-and-programme-news/25035/

https://cdn.volocopter.com/assets/vnra6vfvrab/DcsQRmxTSPhAokKn3/5290e554030c7b2a093e14d1eafbe7e5/Volocopter_Whitepaper_Singapore_Roadmap_web.pdf

https://www-unmannedairspace-info.translate.goog/urban-air-mobility/urban-air-mobility-takes-off-63-towns-cities-worldwide/?_x_tr_sl=en&_x_tr_tl=id&_x_tr_hl=id&_x_tr_pto=tc

URBAN AIR MOBILITY/UAM INTEGRATION

Integrated Infrastructure	Air Traffic Management System	Connectivity with Multimodal Transportation	Regulatory Policies and Institutions

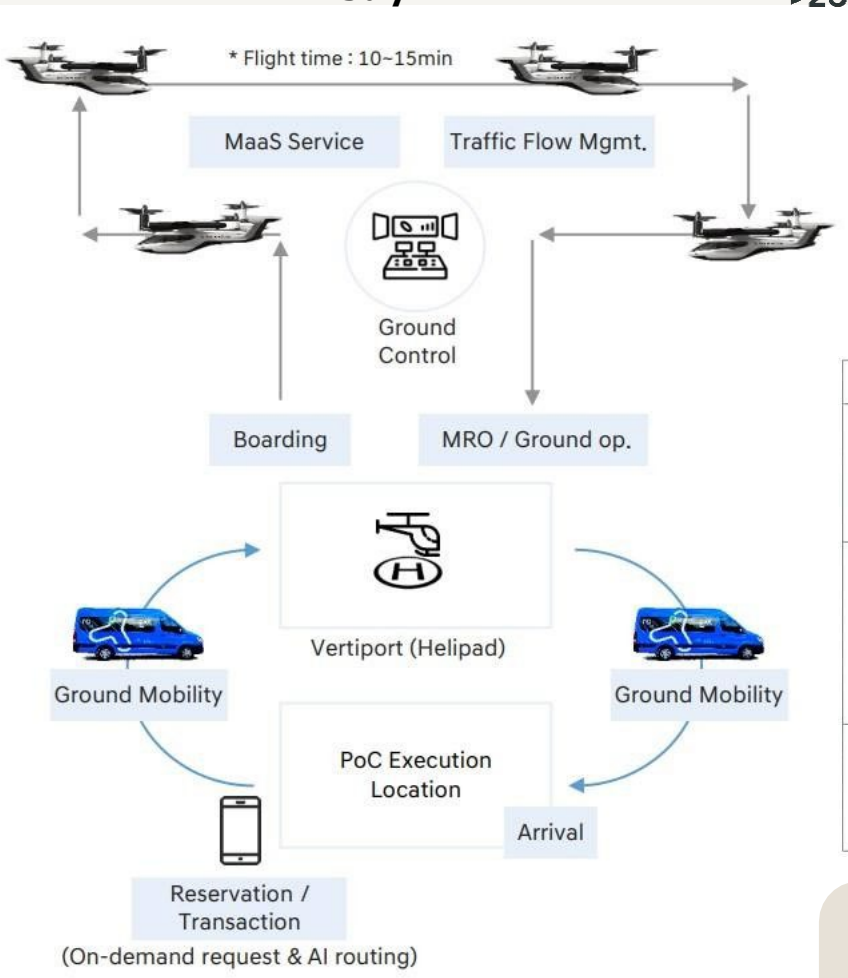
- ✓ Aviation Infrastructure
- ✓ Environmentally Friendly Air Vehicles
- ✓ Air Traffic Management System
- ✓ Accessibility and Connectivity
- ✓ Integration with Other Transportation Modes
- ✓ Regulations and Policies

Advanced Air Mobility (AAM)
Sky Taxi Collaboration

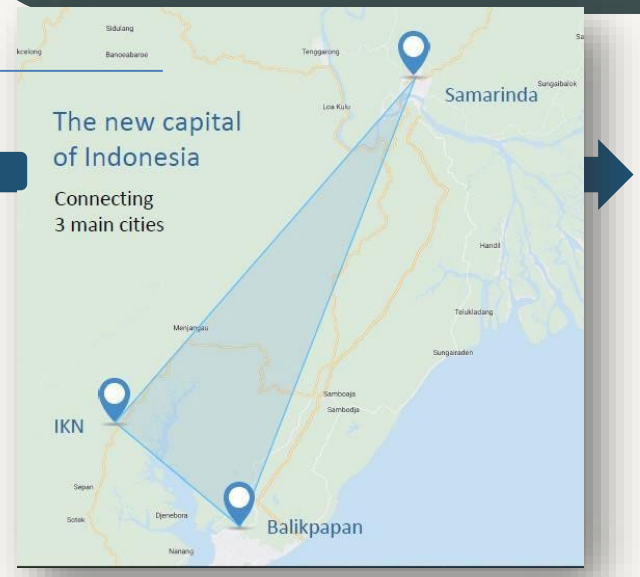
MoU — Nov'22 → PoC — July'24 → OPERATIONAL — >2024

Hyundai UAM Collaboration Scope in Nusantara

1. AAM Roadmap in IKN, including Proof of Concept implementation
2. Joint Studies and Research
3. Training and Knowledge Sharing
4. Agreement Development Implementation
5. Working Group Formation



Support for mobility-as-a-service in UAM/AAM operations and PoC



Plan by stage		Activity Objectives
Stage 1 (~2025)	Perform the PoC	• Execute investment for PoC • Joint study to propose policies that need to be supplemented
Stage 2 (2026 ~2028)	Demonstration service	• Establish AAM R&D centers • Research on technology in Indonesia • Create and verify the business model in Indonesia
Stage 3 (2029~)	Commercialization	• Develop relevant industries (e.g. Parts industry) • Create and expand the AAM ecosystem

Development of the AAM Research Center in Nusantara as a hub for AAM industry advancement in Southeast Asia

Advanced Air Mobility (AAM)

Development of the Sky Taxi Ecosystem

Advanced Air Mobility (AAM)

A demonstration of urban air mobility autonomous technology was conducted at **APT Pranoto Airport in Samarinda**, integrated with on-demand services. The advanced air mobility flight demonstration took place on **July 29, 2024,** operating autonomously in compliance with flight permit regulations, facility feasibility, and other ecosystem standards in Indonesia.

URBAN AIR MOBILITY: THE NEXT NORMAL?

- Doraemon as an inspiration for scientists and future generations
- Miraikan (Japan's National Museum of Emerging Science and Innovation)
  - Exhibit on "Doraemon's Scientific Future"
  - Examples of devices shown: Single-seat Helicopter, Invisibility Cape, and Virtual Reality

THANK YOU

Arigatou Gozaimasu

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