Nusantara National Capital Authority

Nusantara

Indonesia's Smart and Sustainable Forest City

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Building Smart and Green Nusantara Capital City

Bali, 10 November 2022

From Jakarta to Nusantara

Nusantara's Scope of Development

Total Area
Land & Water IKN
324.332 Ha

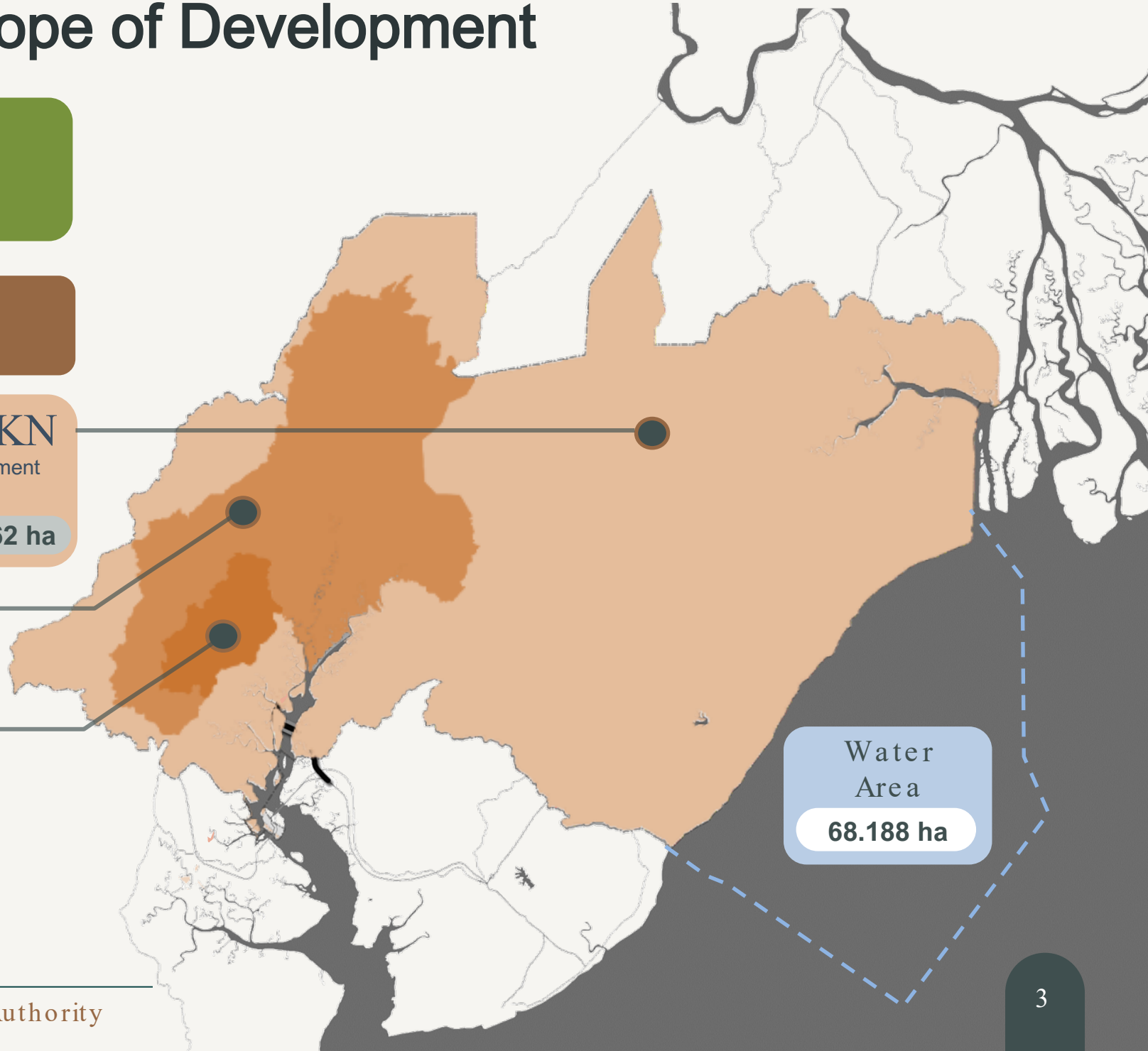
Land Area
256.142 ha

KIKN
Urban Area
56.180 ha

+

KP-IKN
Development Area
199.962 ha

KIPP
Government Core Area
6.671 ha



Water Area
68.188 ha

9 Economic Generators

Government Core Area
KIPP

Economic and Financial Center
West IKN

Renewable Energy Area
South IKN

Tourism and Leisure
East IKN 1

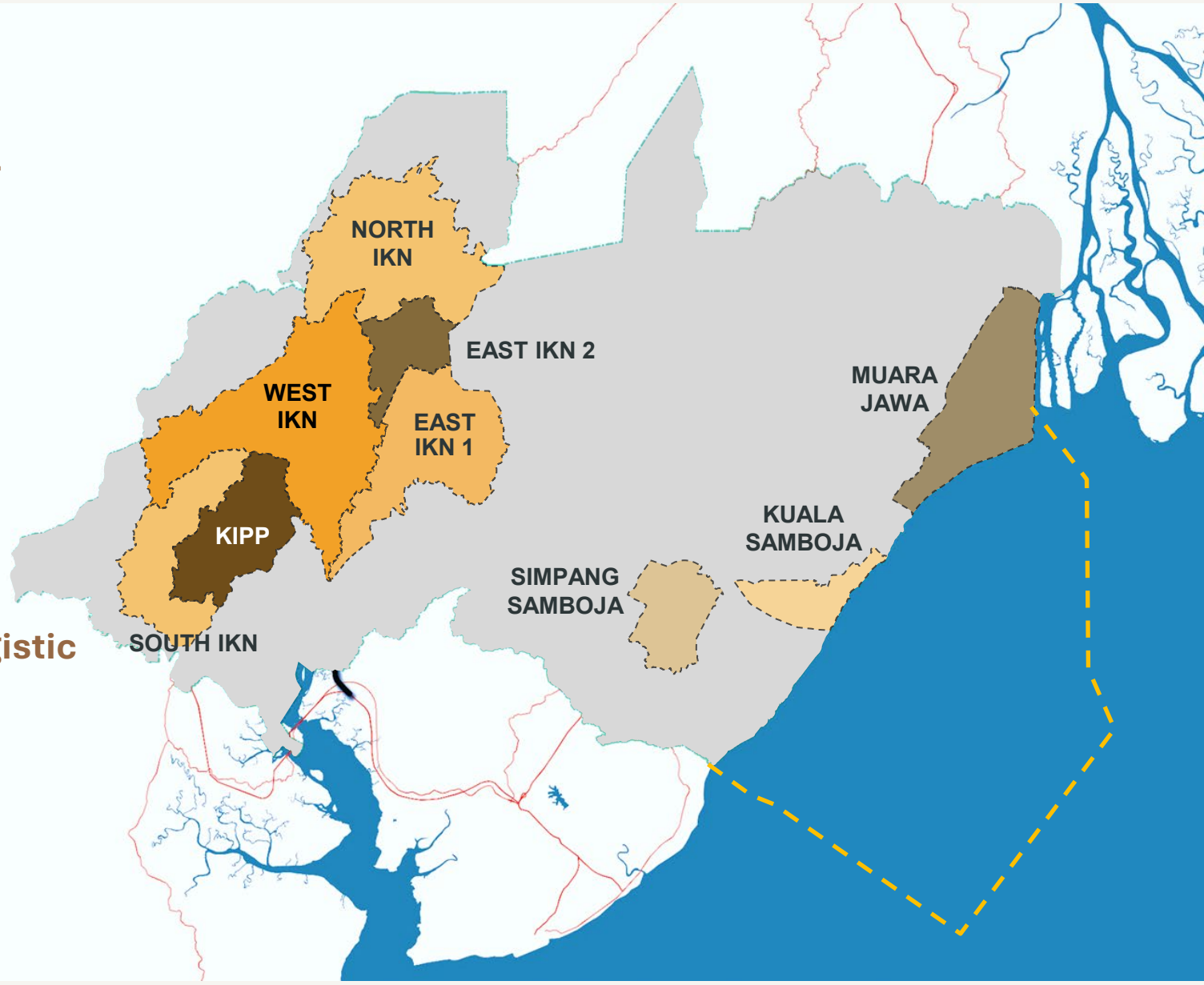
Education Services
North IKN

Innovation and Research
East IKN 2

Agro-commodities, Trade & Logistic
Simpang Samboja

Agriculture Industry
Kuala Samboja

Fisheries and Agricultural
Muara Jawa



Nusantara: Sustainable Forest City

Tropical forest are preserved as a carbon sink
and built area are controlled to minimalize emission and footprint

65%
Tropical Forest through Reforestation

10%
Parks and food production area

25%
Urban built area

Goal: To become carbon -neutral city by 2045

Nusantara's Development Phases

I 2022-2024

Initial transfer of selected government offices

II 2025-2029

Build the Nusantara as a strong and resilient core area

III 2030-2034

Continuing the development of the Nusantara in a more progressive manner

IV 2035-2039

Build the entire infrastructure and ecosystem of the three cities to accelerate the development of Kalimantan

V 2040-2045

Establishing a reputation as a "World City for All"

By 2024: A fully-functional city ecosystem in the core area

Elements of Nusantara, A Modern City of the Future

Green

Smart

Inclusive

Resilient

Sustainable

Nusantara: Smart City

Dynamic, inclusive, and ready for the future: A city supported by technology as the accelerator to increase productivity and life quality

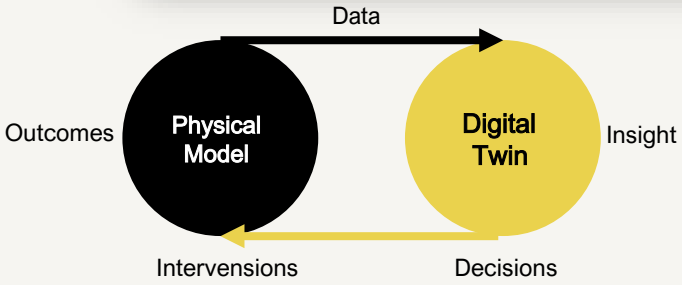
Layers of Nusantara's Smart City

Application	Smart Governance	Smart Transportation and Mobility	Smart Living	Smart Natural Resources and Energy	Smart Industry and Human Resources	Smart Built Environment and Infrastructure
				Smart City		
Active Infrastructure				 Command Center and Data Center		
			Fiber Optic Cable Network Fixed Broadband Infrastructure		BTS 5G NSA Mobile Broadband Infrastructure	
Passive Infrastructure				Physical Infrastructure (*e.g., Multi Utility Tunnel*)		

Digital Twin

A digital representation of an object or physical infrastructure system that is connected and communicates with each other

Source : Autodesk



Development of Digital - Twin in all construction phases (initiation, planning, execution, and operation)

Increasing **effectiveness and efficiency in** construction acceleration and realization with the help of Digital-Twin in monitoring activities

Implementation of Digital-Twin and other digital data integration into information that continuously produces vibrant and resilient cities

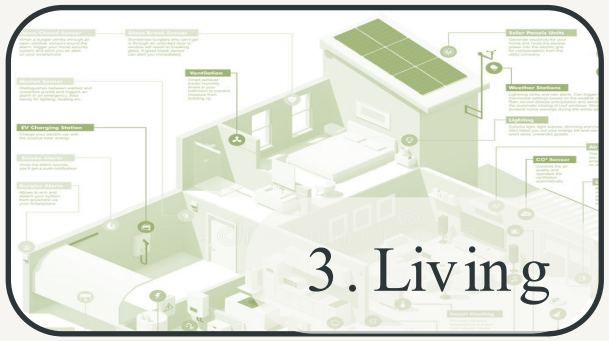
Smart City Components

1. Governance

- Digital Identification
- Data Exchange Layer
- Application's Layer

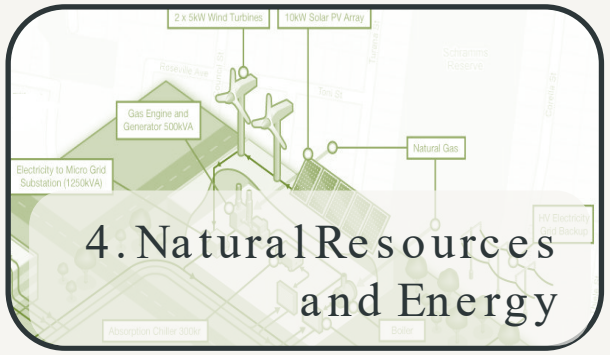
2. Transportation and Mobility

- Transportation operation
- Traffic and Info System
- City Logistics



3. Living

- Pollution Control
- Public Safety
- Health and Welfare
- Public Spaces Management



4. Natural Resources and Energy

- Energy Management
- Public Lighting
- Renewable energy
- Waste Management
- Water Management
- Smart Farm

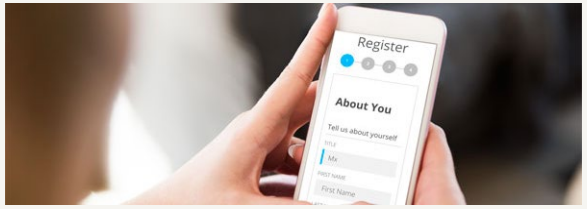
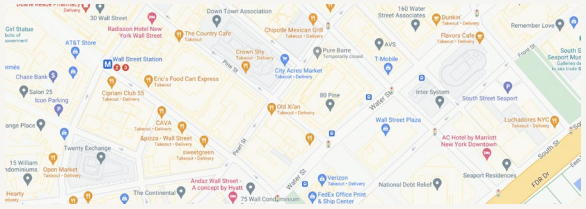
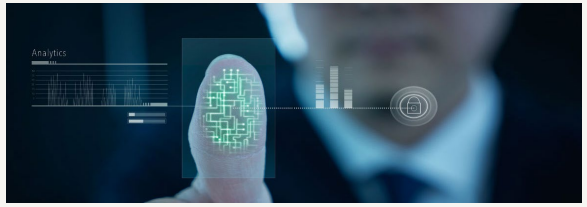
5. Industry and Human Resources

- Smart Education
- Smart Tourism
- Digital Social Platform
- Citizen Service Collaboration
- Digital Payment System
- Urban Citizen Living Lab
- Technological Demonstration Center
- Local SME's Support Platform

6. Built Environment and Infrastructure

- Facility Management
- Building Management
- Propagation of Internet Access

1. Governance

Digital Identification	Data Exchange Layer	Application's Layer
		
Civil Registers	GIS Based Control	Smart Permit
		
Secure ID Documents and Readers	City Integrated Operation Center	Smart Administration
		
Digital Identities	Centralized Citizen Reporting System	E-Procurement

Smart City Components

2. Transportation and Mobility

2.1 Transportation Operation

Public Transportation Hub

Smart Logistic, Drone System

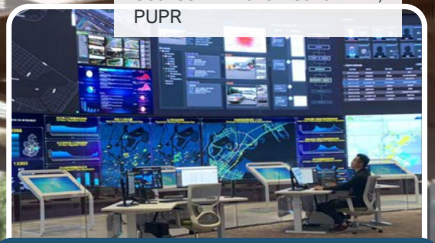
Autonomous Driving System

- *Autonomous BRT*
- *Autonomous Minibus*
- *Autonomous taxi*
- *Taxi drones*

Commercial Vehicle Operation System

- *Weight in motion system*
- *Vehicle-size monitoring*

Source : Buku Saku IKN, PUPR



Advanced Public Transportation System

- *Fleet tracking system*
- *IoT-based Bus*
- *Fleet management system*
- *Public transportation information apps*
- *Fleet management system*

Source : MassTransitMag

Electronic Payment System

- *Account-based ticketing*
- *E-Card ticketing*

Smart Payment System

Autonomous Minibus

Smart City Components

2. Transportation and Mobility

2.2 Traffic and Info Safety

Source : Kemenhub

Incident Management System

- *CCTV surveillance*
- *Traffic and vehicle sensors*
- *Incident detection apps system*
- *Incident management system control room*

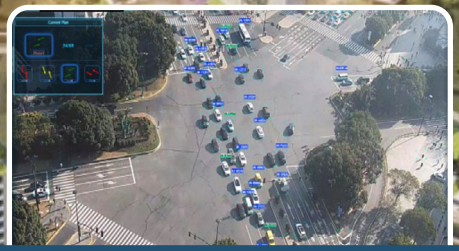
BRT Dedicated Lane

Source : Advantech

Advanced Parking Management System

- *Pre-booked parking slot*
- *Parking surveillance system*
- *Parking violation management*
- *Parking information system*
- *Electronic parking payments*
- *Dynamic pricing configurations*

Parking Information System



Advanced Traffic Management System

- *Multi-modal, Multi-agency Command Control Center*
- *Dashboard management system*
- *Video analytics and surveillance*
- *Smart signalling*
- *Electronic Traffic Law Enforcement (ETLE)*

Source : Kumparan

Advanced Traveller Information System

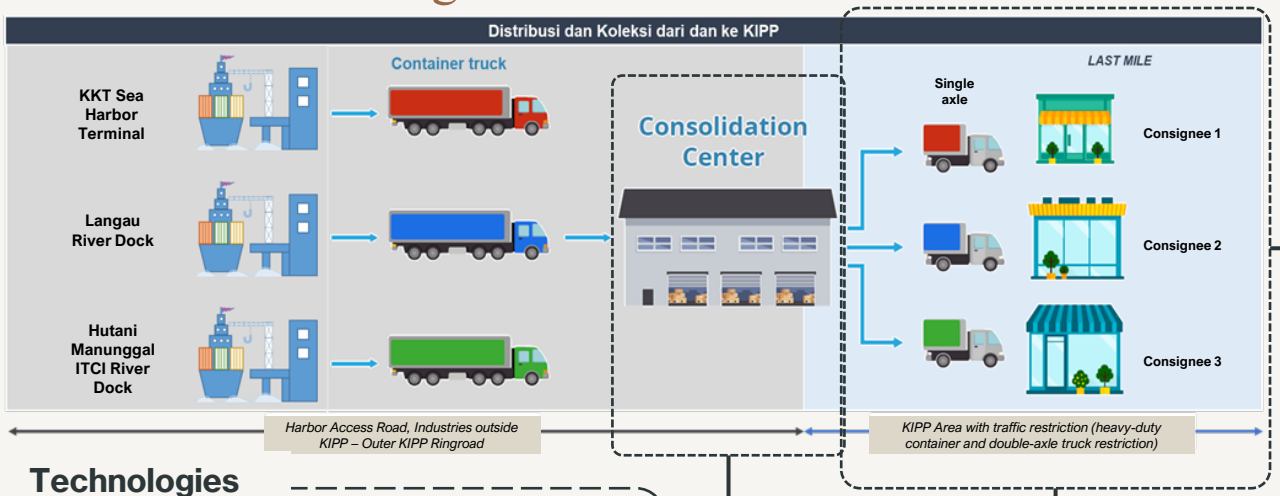
- *Traffic counting control unit*
- *Passenger information system*
- *Traffic monitoring system*
- *Public transport user & crowd management system*

IoT-based Bus

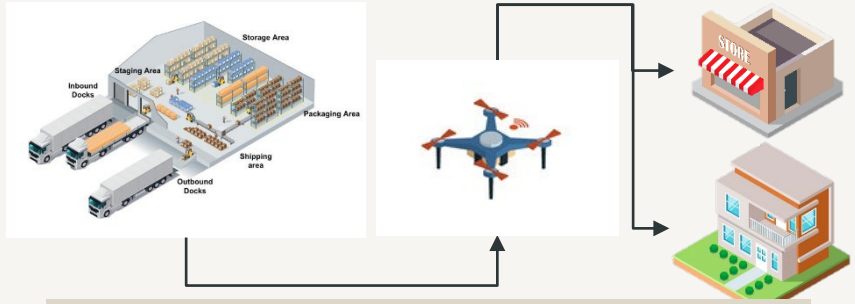
Traffic Monitoring System

2. Transportation and Mobility

2.3 Smart Logistics

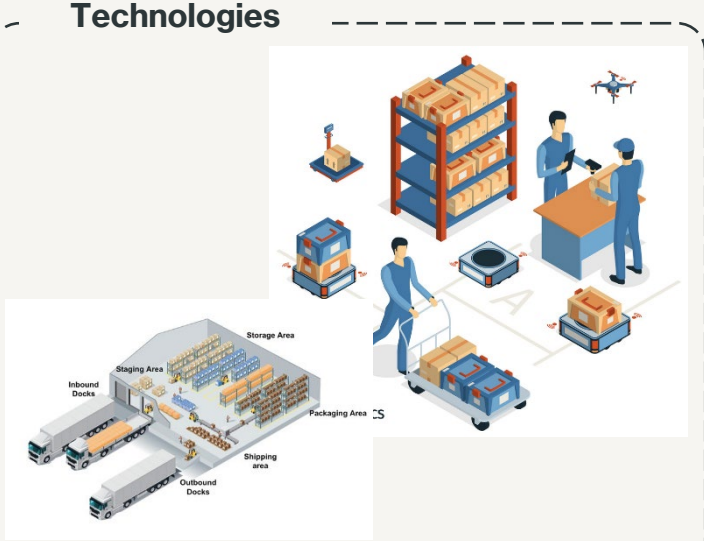


Technologies



Unmanned Air Vehicle Logistic Transportation

Technologies



Smart Warehouse

Smart labelling, fleet management system, warehouse robots

Delivery to the parcel logistic point

Shopping and semi-shopping districts as the parcel log point

Delivery from the parcel logistic point

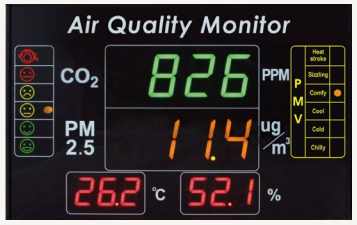
Delivery / Logistic Company

Source : Ministry of Transportatoin

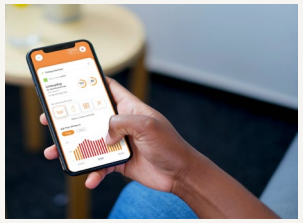
Smart City Components

3. Living

Pollution Sensors



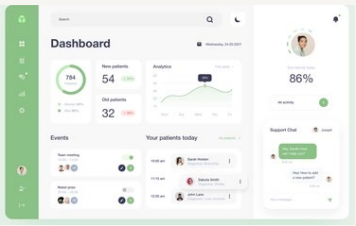
Pollution Monitoring



Live Report

Hologram Meeting

Emergency Response



Integrated Health Dashboard

Pollution Control

- Air Pollution Monitoring
- Air Pollution Controlling

Health and Welfare

- Telemedicine
- Emergency Response
- Smart Healthcare
- Smart Working

Public Safety

- Crisis Management
- Urban Safety and Mobility
- Disaster Prediction

Public Spaces Management

- Public Wifi
- Environmental Sensors
- Interactive Displays

Suspect Detection

Crowd Management

Integrated Command and Control Center

Live Density Report

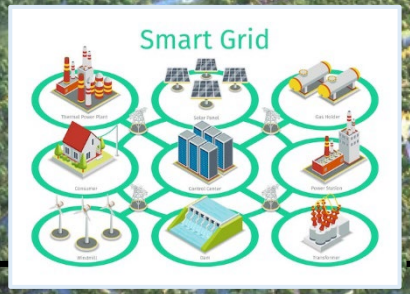
Environmental Display

Fiber Optic and Wifi

4. Natural Resources and Energy

4.1 Energy Management

- Smart Grid
- EV Charging Station
- Advanced meter infrastructure



4.2 Public Lighting

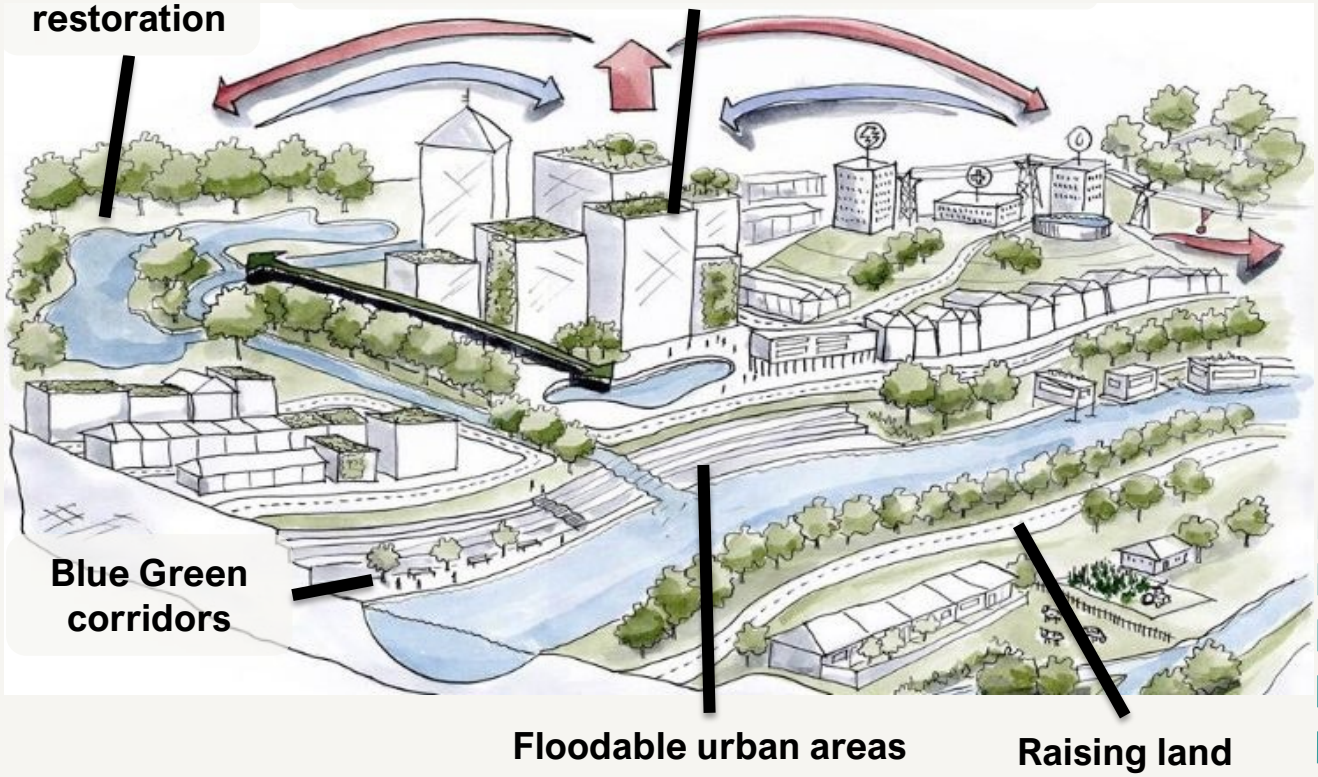
- Auto-Schedule Street Lightning
- Street Lightning Monitoring & Control
- Location Intelligence
- Alert Management
- Eco-Friendly Energy

4.3 Renewable Energies

- Solar PV
- Windmill
- Dam
- Passive Design Architecture

4. Natural Resources and Energy

4.4 Water Management



Source : Wageningen Environmental Research

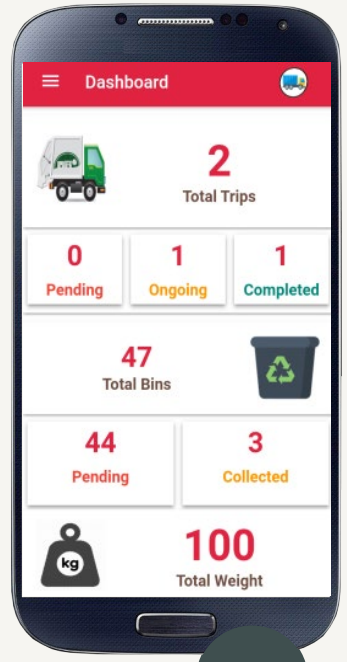
Water Quality Monitoring

- IoT
- Big data analytics
- Dashboards
- Public alerting
- Data visualization
- GIS modelling

4.5 Waste Management

- Smart bin management
- Location Intelligence
- Garbage Collection Scheduling
- Fleet Management
- Coordinate with Field Workforce Through Mobile Application

Source : Honeywell and Guardforce



4. Natural Resources and Energy

4.6 Smart Farm

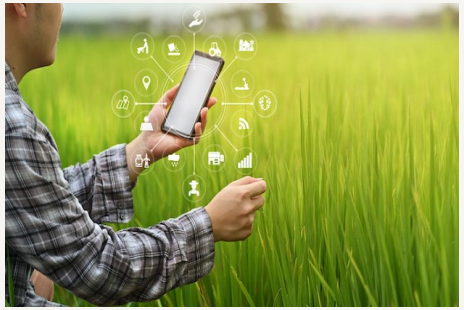
Soil Sensor

Sprankling system through drone

Plant Sensor and Weather Station

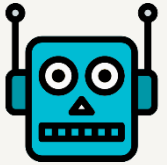
Agribots

Smart Tractor



Farming Data

Plant Sensor



Agribots

Smart Tractors

Drone

Weather Station

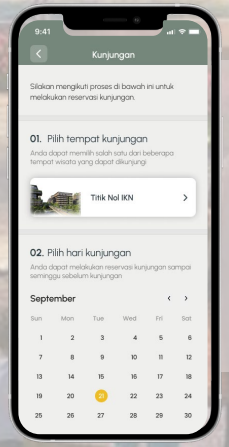
Farming Data

5. Industries and Human Resources (People)

5.1 Smart Education

- Academic Information System
- Digital Library
- E-learning Platform
- National Student Admission Platform
- Integrated Education Platform
- Professional & Skill Development Platform

5.2 Smart Tourism



- Visitor App
- Organizer's Management Systems
- Interactive Maps (2D & 3D)

5.3 Digital Social Platform

5.4 Citizen Service Collaboration

5. Industries and Human Resources (People)

5.6 Digital Payment System

5.7 Local SME's Support Platform

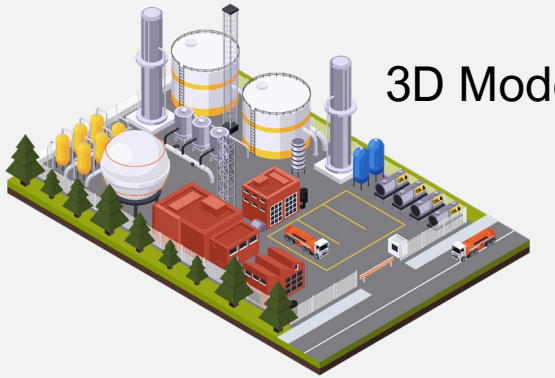
5.9 Urban Citizen Living Lab

5.8 Technological Demonstration Center

Integrated system for Increasing Economic Activities and Technological Capabilities through Digital Inclusivity

6. Built Environment and Infrastructure

Facility Management



3D Modelling

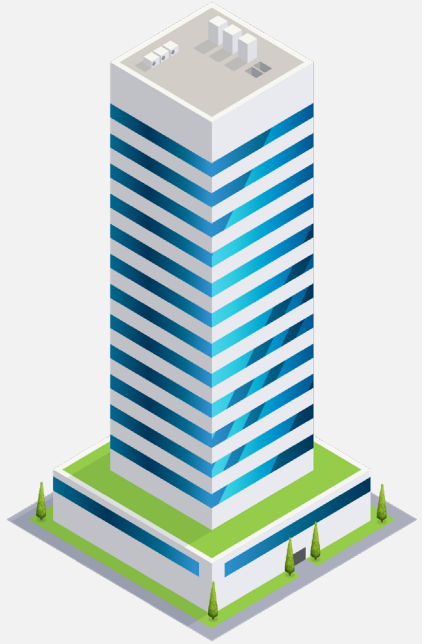
Propagation of Internet Access

Fiber Optic
Public Wi-fi

Building Management

Building Automation

Safety Management



IoT Appliances

Smart Parking

Economic Opportunities and Innovation

Government Core

Basic Infrastructure
- Drinking Water Supply
- Wastewater Management
- Solid Waste Management
- Raw Water Supply
- Housing

Energy Development
- Solar Power Development
- Floating PV Development on Sepaku Semoi Dam

Transportation
- BRT System
- *Intelligent Transport System & Transit System*
- Urban Freight Transport

Regional Infrastructure

Transportation
- New Capital City Toll Road Access
- Airport Line (Express Line) from Airport to KIPP
- Development of Kariangau and Semayang Port
- Expansion of Sepinggan Airport

Industries and the Economic Cluster

Smart City & Digital Hub
- **Industry 4.0 for Existing Sectors**
- **Smart City Technology**

21st Century Education
- Vocation Institutions
- Tertiary STEM Institution
- K-12 School

Sustainable Agri Industries
- Plant Based Protein
- Plant Extract
- Herbal and Nutritional Products

Integrated Pharmaceuticals
- Generic API
- Biosimilars

Inclusive Eco-Tourism & Wellness
- Eco-tourism & Wellness
- Wildless Experience
- Urban Tourism/Multi-Purpose Hotels
- Medical Tourism

Advanced Chemicals
- Petrochemicals
- Oleochemicals

Next Gen Renewable Manufacturing
- Solar PV Assembly
- Electric 2-wheelers Assembly

Disruptive Low Carbon Energy
- Biofuels
- Electrification, Digital and Rehabilitation in Mining

Nusantara's Funding Schemes and Potential Investment Opportunities

Nusantara's funding schemes, aside of the state budget, include

Public - Private Partnership	User payment or availability payment schemes; Government can provide guarantee, partial construction support or viability gap fund
Company Participation	SOE and private sector investments, SOE assignment from the government
International Financing	Grant/financing development of green and smart city from bilateral and multilateral agencies
Creative Financing & others	Blended financing, crowdfunding, carbon trading, philanthropy

Ease of Business in Nusantara

(Draft) Government Regulation on Investing in Nusantara

- Tax holiday for investment
- Tax holiday for office relocation
- Super tax-deduction for selected activities
- Special treatment on customs and excise
- Special tax treatment for financial center
- Special treatment for value-added tax

Setting up of Authority-Owned Enterprise

- To expedite B2B transaction processes with private sector

Community Empowerment – Smart and Digital Village

Developing the Nusantara Capital City as a **Smart City** with the active role of **local** communities in the **digital ecosystem**

Re-skilling and **up-skilling local** communities as an integral part of the development of Nusantara.

Community Empowerment at Bukit Raya Village, Penajam Paser Utara Regency

Digital Community Center at Bukit Raya Village, Penajam Paser Utara Regency

Nusantara
National Capital
Authority

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