

NAVER LABS

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01 Overview

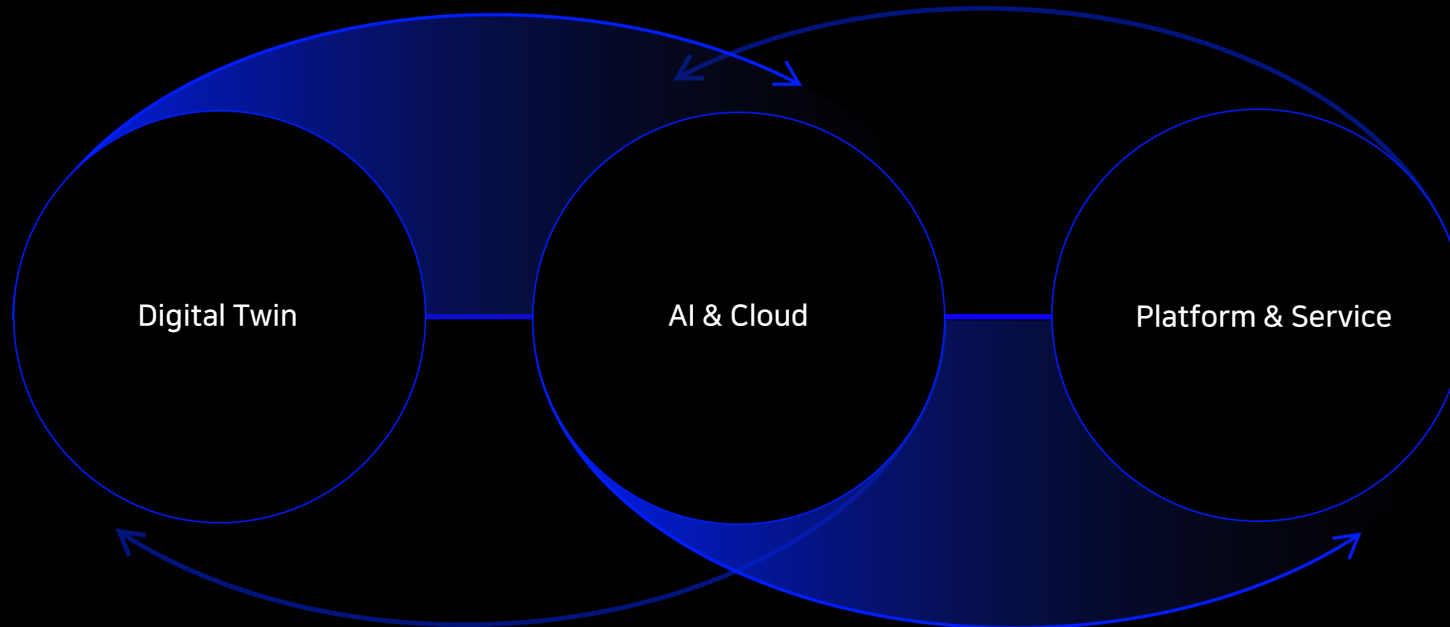
NAVER LABS is NAVER's future technology research institute.

It prepares NAVER's future service platform through technologies such as robotics, physical AI, spatial intelligence, digital twins, and AR/VR.

Technological Convergence

Convergence is our key R&D strategy and competitive edge.

NAVER LABS is creating a new future space by organically connecting different domains such as digital twin, AI, cloud, 5G, robotics, autonomous driving, and AR, and breaking down the boundaries between them.





From research to commercialization, End-to-End Solutions

We provide highly complete solutions from research on core technologies, demonstrations and updates using testbeds, and to cloud commercialization. Our solutions contain both the robotics, digital twin, AI, and 5G technologies and the developmental and operational know-how for services.



Massive Tech Convergence Testbed

With 1784, the world's first robot-friendly building and GAK Sejong, a hyperscale data center the size of 41 soccer fields, as testbeds, we create a virtuous cycle of rapid demonstration and service provision of the most advanced technologies.



Between Korea and Europe, AI R&D Network

Excellent developers and researchers from Korea and Europe form a global research network. Brilliant minds from more than 26 countries come together to collaborate on a wide range of technologies, including AI, robotics, vision, and more.

02

Tech & Research

With the most original and advanced technology,
we create new connections between people, machines, spaces, and information

Robot & Physical AI

Vision & Spatial AI

Digital Twin

Platform & OS

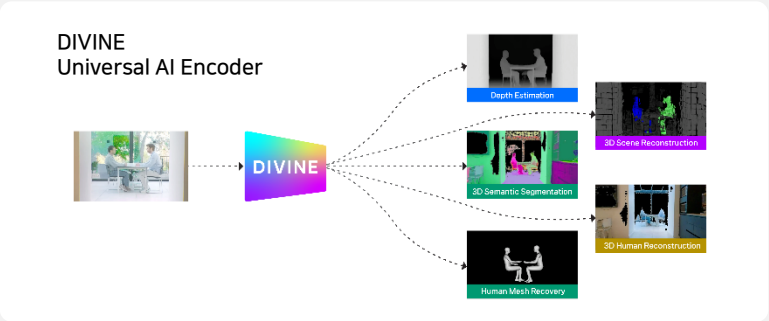
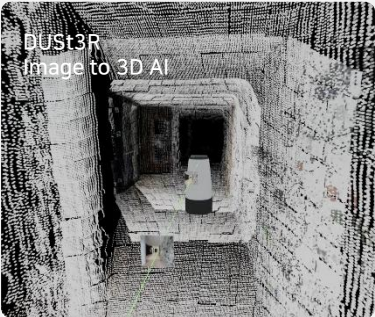


Robot & Physical AI

Robotic technologies are researched to enable natural coexistence with humans in everyday spaces. By leveraging AI that learns a robot’s vision, behavior, and interaction, key technologies for robot popularization are developed through the integration of autonomous driving platforms and human interaction technologies.

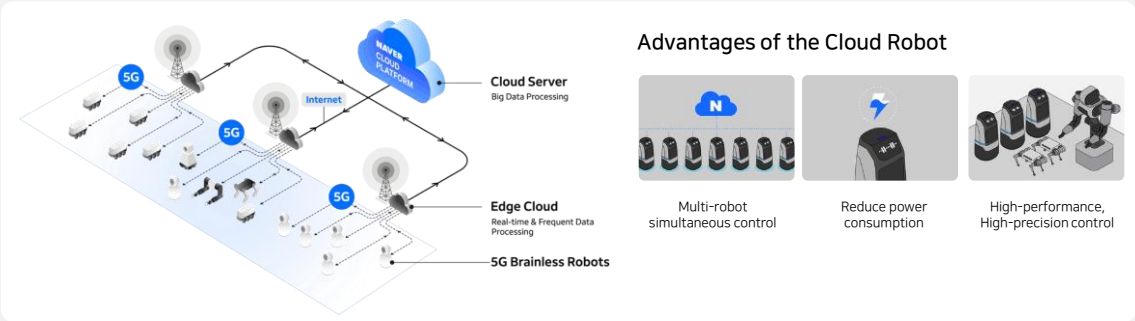
AI for Robotics

Robots are trained to see, move, and communicate using AI, while cloud-based physical AI expands the ability of multiple robots to share intelligence.



Cloud Robotics

A proprietary cloud-based autonomous robot platform is developed, validated in diverse environments, and continuously enhanced for real-world services.



Robot HW Platforms & Human-Robot Interaction

HRI (Human-Robot Interaction) technologies are studied to improve user experience through optimal design, socially compliant navigation, and intuitive communication using expressions and lighting.



Rookie



Nuri



GaRo



SeRo



ALT-B



AMBIDEX

Vision & Spatial AI

Spatial AI technologies are researched to recognize and understand 3D spaces and interact with surrounding environments using AI-based vision.

Mapping & Localization

Various spaces are accurately constructed in 3D using self-developed mapping robots and devices, alongside research on precise indoor and outdoor localization based on Vision AI.



Visual Localization (VL) tested in complex environments

3D / HD Mapping Devices



M series



T series



P series

XR Services

Technologies required for future spatial-based services—including Naver services, robotics, next-generation XR (AR, VR, MR), autonomous driving, and smart cities—are actively studied.



VR Service



AR Navigation



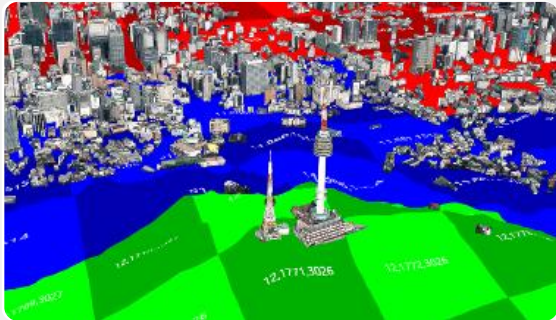
3D Panorama

Digital Twin

Digital twin technologies are researched to accurately replicate city-scale environments in digital form.

City-Scale 3D Modeling

Urban 3D models are enhanced in completeness and usability by restoring and generating areas that are difficult to verify through aerial imagery using AI.



Urban Scenario Simulation

A city-level digital twin platform provides a foundation for simulating administrative operations, urban planning, disaster response, and other future services in virtual environments.



Entire cities are rapidly and accurately implemented as 3D models using aerial imagery, AI-based mapping, and large-scale distributed processing technologies.

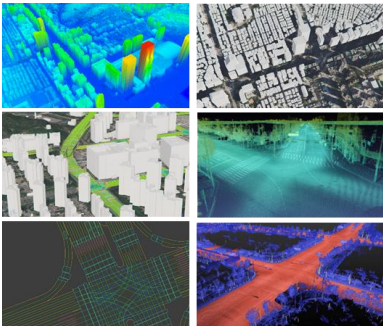


Moving the real world to the digital world

We create 3D models of the entire city through ALIKE, a digital twin creation solution developed by NAVER LABS. The models can be used to create innovative services such as service robots, autonomous driving, AR/VR, smart buildings, and smart cities, by building digital worlds identical to the real world.

A unique and efficient way to create data

We collect and process data of the entire city through a unique method that utilizes aerial imagery, AI, and MMS. The integrated production of key data, such as 3D models of cities, road layouts, and HD maps, dramatically reduces production time and process while increasing accuracy and efficiency.



High scalability based on NAVER Cloud Platform

Digital twin data creation, processing, and API creation, are all fully managed in the cloud. This reduces the need to make large investments in the initial stages of a new digital twin-based business while allowing clients to access the most up-to-date equipment, algorithms, and web-based console despite paying only for the resources used.

Platform & OS

Platforms, operating systems, and OS technologies are developed for multiple robotic services, enabling robots to function as a unified system across interconnected environments rather than as isolated machines.



Multi-Robot Intelligence System

A multi-robot platform for controlling/managing/monitoring multiple heterogenous robots moving inside a large space, in real-time. ARC brain takes over the movement, planning, and processing of robots and can integrate with facilities such as elevators to provide reliable robot service.



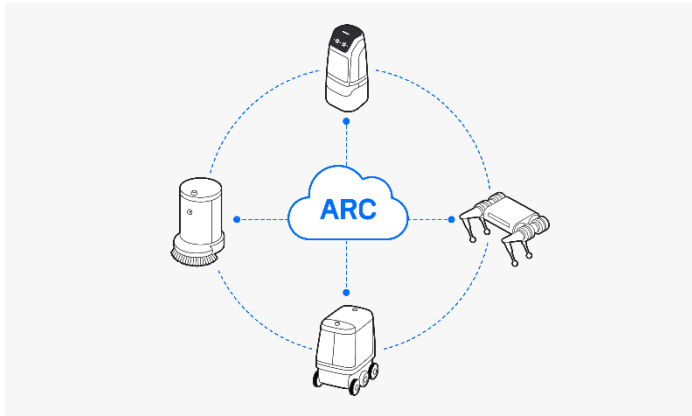
Vision-Based Localization System

We offer AI localization technology that can be used to build indoor and outdoor digital twins and can be applied to AR, robots, smart buildings, etc. as a NAVER Cloud Platform product. Using the service enables users to create digital twin data of large indoor spaces, such as large malls, buildings, and airports, as well as nearby outdoor spaces accessed on foot.



Web Platform-Based Robot OS

ARC mind is an OS that provides an environment for web developers to easily develop robotic services. It features a highly scalable development environment based on a web platform, robot-specific web APIs for hardware control, and various solutions from the NAVER Cloud Platform.



03

Highlight

With the world's first robot-friendly building '1784' and hyperscale data center 'GAK Sejong' as testbeds, we create a virtuous cycle of rapidly demonstrating and servicing the most advanced technologies.



1784

Gak Sejong

Highlight

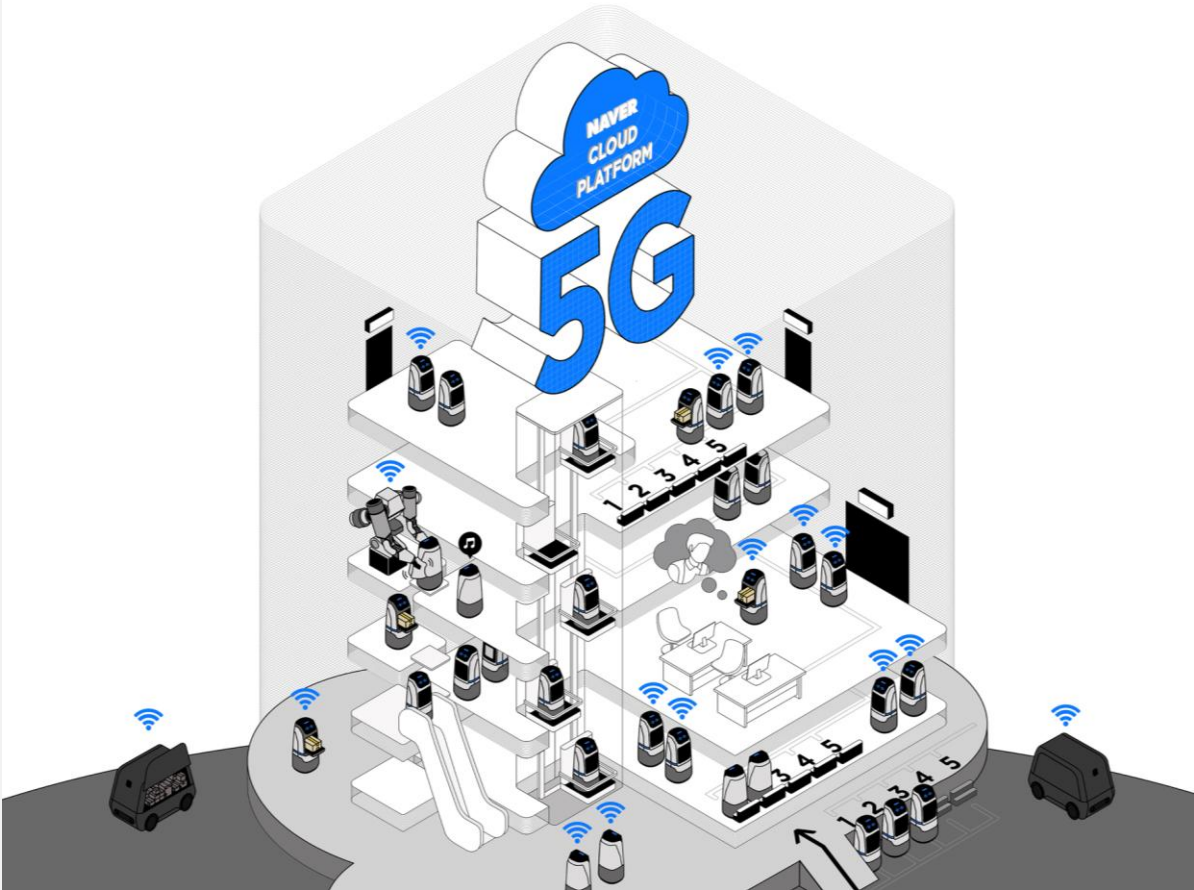
1784 The world's first robot-friendly building

NAVER's second headquarters, 1784, is a tech convergence building where technologies such as robotics, autonomous driving, AI, 5G, and cloud come together. The key solutions for the most advanced buildings of the future are applied in every location.



5G Robot & Cloud System

1784 operates about 100 service robots that are connected to the cloud via 5G. A cloud system named ARC controls all of these robots to provide a variety of services, including package, drink, lunch, and convenience store delivery.



Human-Friendly Robot Interaction

We conduct research for the coexistence between humans and robots. We have codified our findings at 1784 into a set of guidelines called Natural Human-Robot Interaction (NHRI).



ROBOPORT

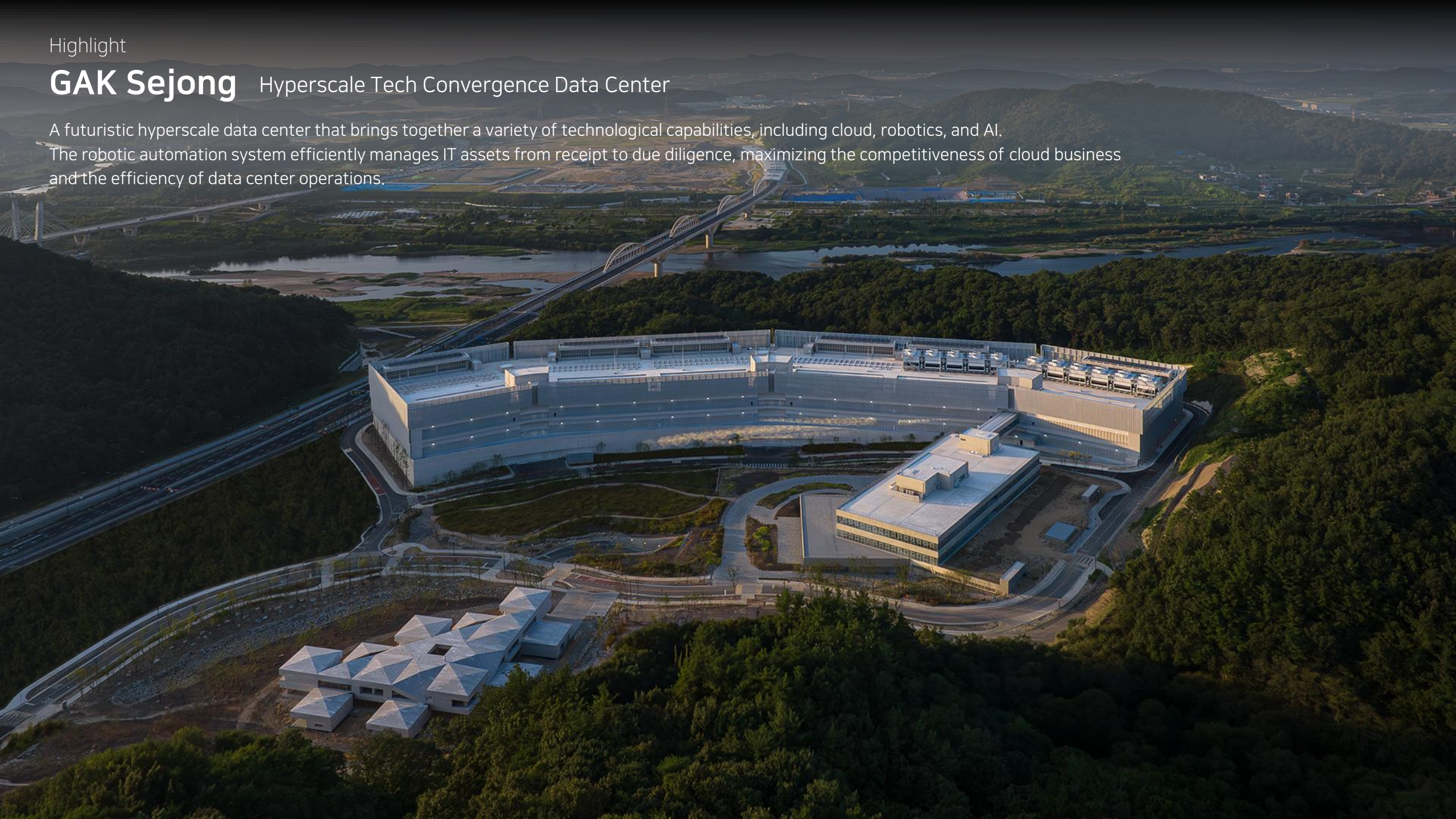
The world's first robot-only elevator allows robots to move freely between floors. It runs across all floors, from the second basement level to the rooftop, maximizing vertical movement speed and efficiency for robots in the 1784 building.



Highlight

GAK Sejong Hyperscale Tech Convergence Data Center

A futuristic hyperscale data center that brings together a variety of technological capabilities, including cloud, robotics, and AI. The robotic automation system efficiently manages IT assets from receipt to due diligence, maximizing the competitiveness of cloud business and the efficiency of data center operations.

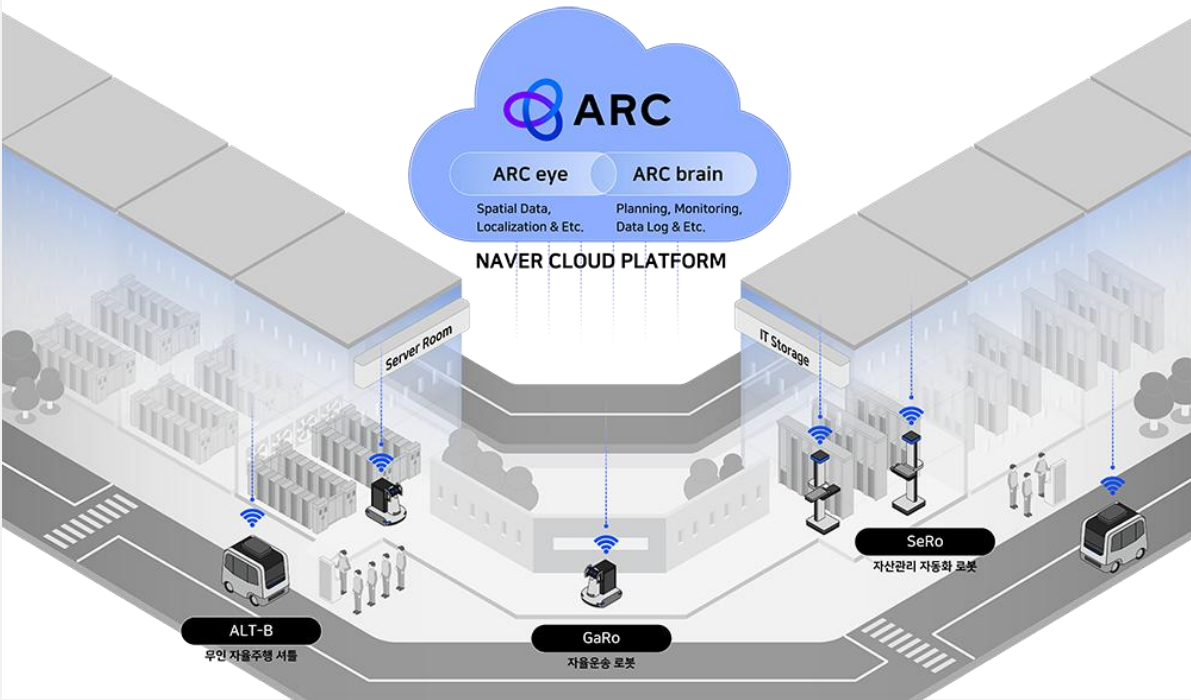


Highlight

Gak Sejong

The epitome of tech convergence, following 1784

If 1784 is a testbed for smart buildings where the most advanced technologies converge, GAK Sejong is a testbed for smart campuses for future industrial sites. Through automated systems, robots at GAK Sejong transport heavy assets, manage asset history, and improve the efficiency and productivity of data center operations. As a global outpost of smart city solutions, NAVER LABS is constantly updating innovative operations systems for future spaces based on unprecedented technologies and the data from GAK Sejong.



GaRo

Autonomous transportation robot that moves heavy servers and assets around the data center. It can carry loads of up to 400 kg and move quickly at a speed of 2 m/s.



SeRo

Asset management automation robot developed to safely and efficiently manage key assets in data centers. With precision control of 2-5mm, it can safely load assets without human intervention.



ROBOSTATION

A workstation where humans and robots can collaborate safely. People and the asset management automation robot 'GaRo' can safely exchange assets in separate areas to flexibly respond to changes in tasks.



ALT-B

A driverless, autonomous shuttle that connects key locations in the data center with full-stack autonomous technology. It precisely detects the surrounding environment with various sensors and drives safely.

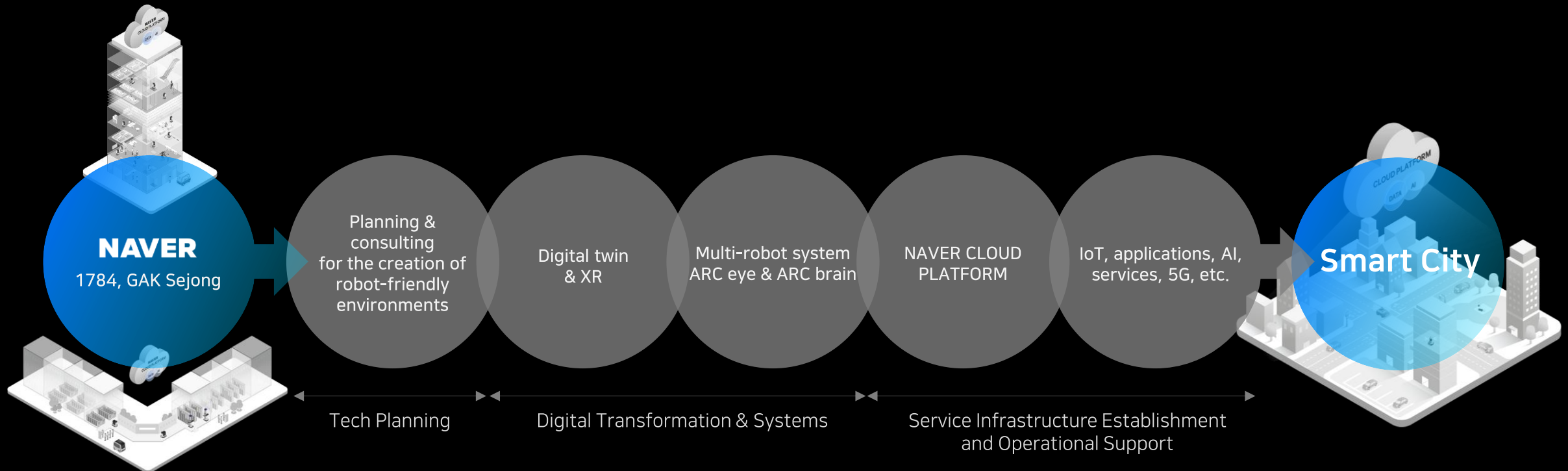


Tech convergence solution for **future smart cities**

NAVER LABS is proving its technological competitiveness in smart cities to the world

by internalizing the core technologies required to create future buildings, advanced infrastructure, and solutions-as-a-service.

With the technology and tech convergence know-how accumulated through 1784 and the data center, we will create new connections in various smart cities.



NAVER LABS

NAVER LABS Corp.

95, Jeongjail-ro, Bundang-gu,
Seongnam-si, Gyeonggi-do, Republic of Korea