KAIA

Korea Agency for
Infrastructure Technology
Advancement

CONTENTS

A leading institution
that actively prepares for the future and drives innovation

Greetings,

I am Jeong-Hee Kim, President of the Korea Agency for Infrastructure Technology Advancement(KAIA).

The future of land, infrastructure and transport stands at a decisive juncture, propelled by artificial intelligence(AI) and other cutting-edge technologies. As sustainability and technological sophistication emerge as core pillars of national competitiveness, society envisions greener, more intelligent cities, alongside modes of mobility that unite sky and ground with seamless connectivity.

KAIA is meeting these imperatives by harnessing AI in concert with advanced technological capabilities. We are accelerating the pace and depth of infrastructure innovation and redefining the boundaries of movement through autonomous vehicles, Urban Air Mobility (UAM) and the hyperloop. In parallel, we are spearheading the adoption of eco-friendly and carbon-reduction technologies, shaping a truly sustainable national territory.

Our endeavors extend beyond innovation alone.

The technologies we cultivate will help to create safe, convenient and future-ready living environments for generations to come.

I warmly invite you to join us on this journey, as we open new horizons for the nation’s land, infrastructure and transport.

With my sincere appreciation,

김 경 희

Jeong-Hee Kim
President, KAIA

PART 1

FUTURE BY KAIA

Foreseen Advantages and the Future State of Change by 2032

Fostering Future Strategic Technologies

Securing world-class technologies at a top-three global standard

4 technologies

Establishing an Industrial Foundation

Training the next generation of researchers

5,000 people

Strengthening Technological Competence

Achieving Global Top 5 status in land, infrastructure and transport science and technology

G5

Fostering Emerging Industries

Achieving technology commercialization goals

5,000 cases

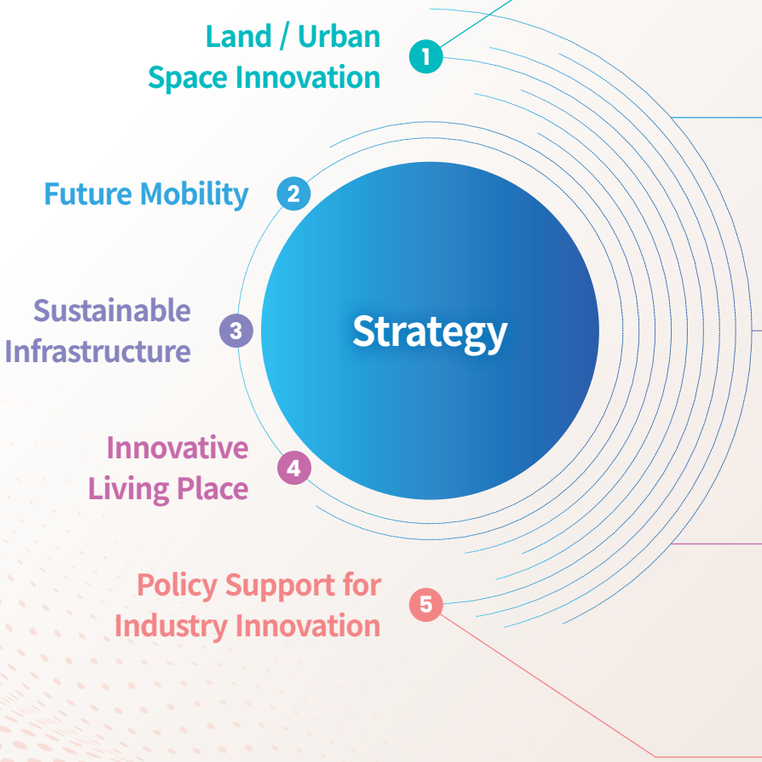
50%

Enhancement of Public Safety and Convenience

Reduction of accident rate in the construction and transport sectors

R&D Strategy

KAIA develops R&D projects to address current issues and prepares for the future in the land and transportation sectors.



Key Directions

	Digital & AI Transformation	Climate Change & Net Zero	Public Safety & Convenience
Technical Task 1	1 Open Digital Space	1 Meta Green Smart City	1 Social Crisis and Safety Service
Technical Task 2	2 Innovative & Intelligent Mobility	2 Net Zero Mobility	2 Inclusive and Safe Mobility
Technical Task 3	3 Construction 4.0	3 Eco-Plant and Hydrogen City	3 SOC Resilience
Technical Task 4	4 Industrial Cluster and Community-hub	4 Net Zero Smart Building	4 Safe and Well-being Housing

Policy Task

1. Mission-oriented & Innovative R&D System
2. Private-led Innovation & Dissemination of R&D Outcomes
3. Data Ecosystem & Knowledge Sharing Library
4. Manpower Training & Advanced R&D Infrastructure
5. R&D-based Regional Development & International Cooperation

R&D Direction

KAIA will embed the innovation-driven DNA in the land, infrastructure and transport sector and lead future growth by enhancing the industrial structure.

K Fostering National Strategic Technologies

Intensive investment in the advancement of core national strategic technologies—such as next-generation mobility and hydrogen—and the discovery of emerging areas, including secondary batteries.

A Expanding Innovation-Driven and Pioneering R&D

Targeted support for bold and transformative R&D that can drive structural shifts in future land, infrastructure and transport industries, with a particular emphasis on AI-driven technological leadership and the cultivation of new industries.

Securing Carbon-Neutral Technologies

Development of technologies to reduce carbon emissions across buildings, transport, urban and territorial planning and global field trials, while enhancing global competitiveness in carbon neutrality.

I Expanding R&D in international cooperation and Talent Development

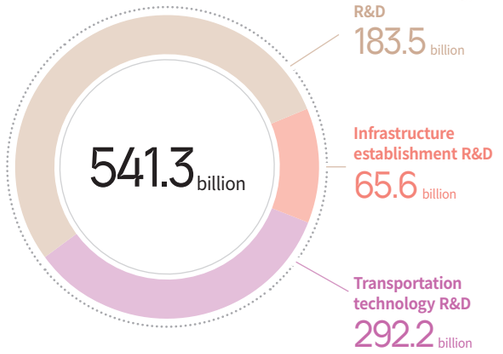
Expansion of investment in global R&D initiatives and interdisciplinary talent development, to boost the global reach and impact of Korean land and transport technologies.

A Strengthening Core Mission-Oriented R&D of the Ministry

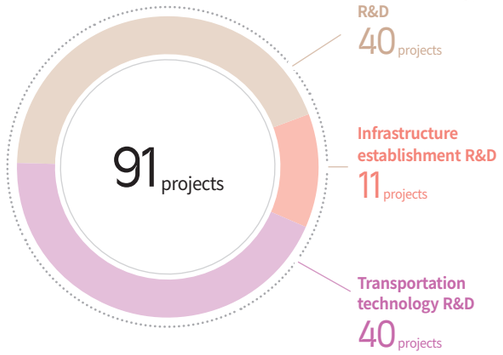
Reinforcement of R&D focused on the Ministry's core mandates, including the construction and maintenance of SOC(Social Overhead Capital), resolution of national challenges and the creation of safer and more convenient living environments for the public.

In 2025, the Republic of Korea has earmarked KRW 541.3 billion for R&D initiatives in the land, infrastructure and transport sectors.

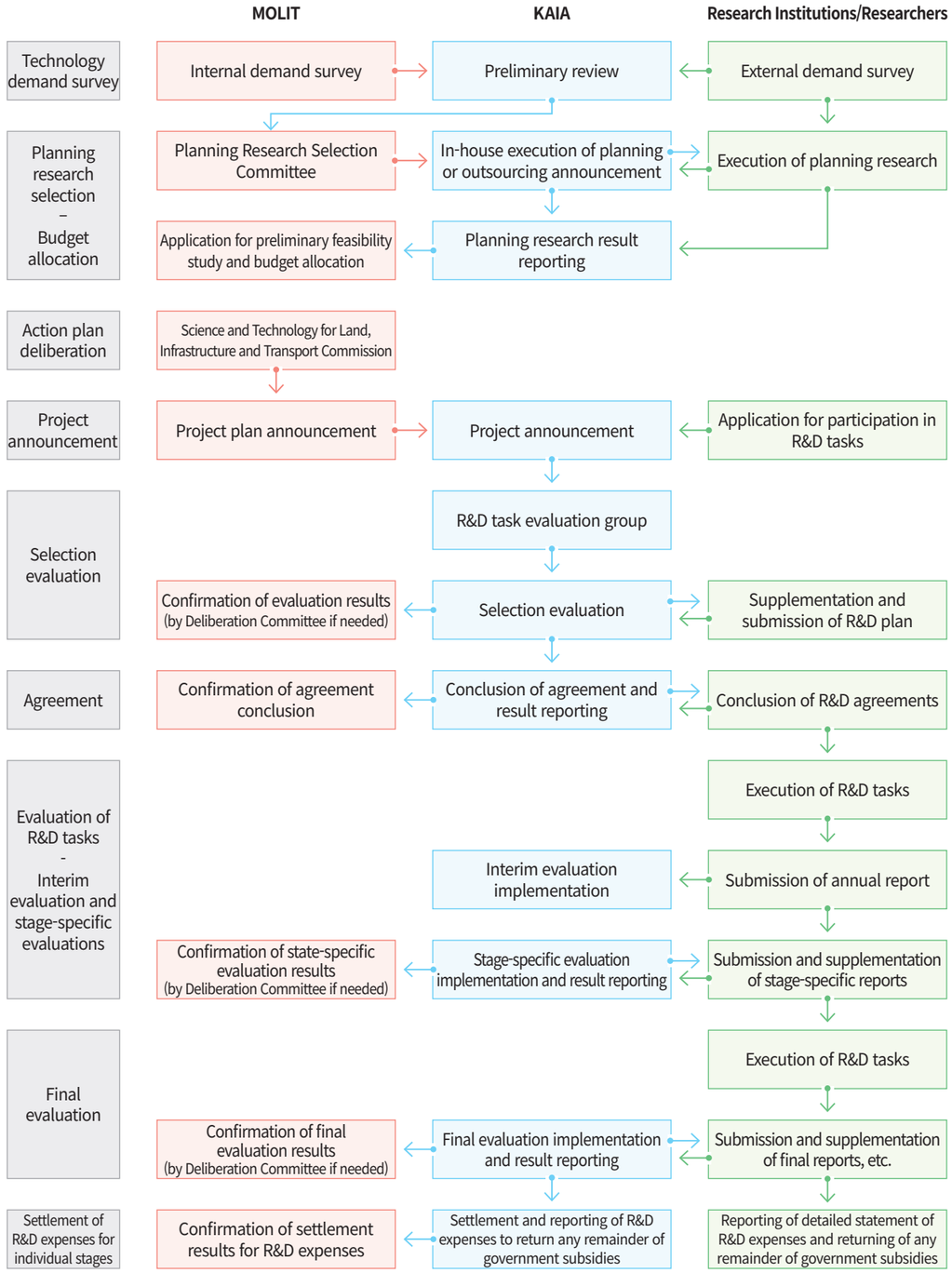
Investment in R&D by Sector (KRW)



Number of R&D Projects by Sector



R&D Procedure



R&D
S.T.A.R Program

KAIA will focus on supporting
12 key breakthrough technologies
that are expected to bring
fundamental changes across industries.

*S.T.A.R Strategic Technologies and Advanced Research

#1 Mobility Innovation

01

Autonomous Driving

Developing technologies to advance the user environment for commercial services and infrastructure to operate autonomous driving mobility

- Autonomous shuttle commercialization by 2025, Level 4 autonomy by 2027, mainstream by 2035
- Achieving technological supremacy in Level 4 autonomy

02

Urban Air Mobility(UAM)

Developing safety certification operational and traffic management systems suitable for deployment in urban centers in order to advance the K-UAM industry

- Establishing the foundation for UAM advancement by developing core technologies for a safe operational framework—such as AI-based air navigation and traffic management systems—proven in terms of technical feasibility, safety and public acceptability, to support the full-scale urban integration of K-UAM
- Aiming to rise into global top4 entry from the top 7 (following the US, China, UK, Singapore, Australia and Netherlands)

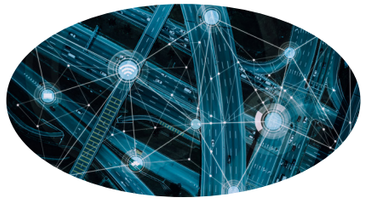
03

Hypertube

Developing an autonomous and ultra-high-speed (over 1,000km/h) railroad for the safe and eco-friendly transportation of passengers and cargo

- Securing the key technologies for subsonic ultra-high-speed train, enabling a 20-minute trip from Seoul to Busan by 2030 and verification of commercialization by 2037 to develop a new mode of intercontinental transportation
- Aiming to join the ranks of the global top 3 along with the US and China by securing the key technologies by 2030

04



User-Oriented Mobility

Developing mobility as a service(MaaS) technology to enable users to access information and services for multiple types of mobility

- Offering personalized transport services in real time, enabling seamless transfers and realizing travel to all corners of the nation within 2 hours

05

Digital Logistics System

Developing technology to connect logistics with data-based future mobility (autonomous delivery robots, trucks and UAM)

- Realizing transition of logistics system from labor-intensive to automated logistics, including unmanned delivery services, reducing national logistics cost by 10% by 2030

#2 Realization of Carbon Neutrality

06

Carbon-Neutral City

Development and demonstration of technologies for the development, operation and management of carbon-neutral cities, including urban energy self-sufficiency, resource recycling, carbon absorption and capture and carbon reduction in buildings and transportation

· Achieving the targets for reducing national greenhouse gas by demonstrating Korean-style carbon-neutral city models, including the rollout of hydrogen cities in over 10% of local governments nationwide by 2030

07

Net Zero Building

Securing technologies for implementation, operation and management of energy-plus homes and net zero buildings to support the transition to a carbon-neutral construction industry ecosystem

· Contributing to carbon neutrality by distributing energy-plus homes with no heating costs and reducing carbon emissions by 32.8% (equivalent to 35 million tons) compared to the level in 2018

08

Hydrogen Liquefaction

Development of infrastructure technologies for the production, storage and transportation of hydrogen energy to supply large-scale hydrogen to large-scale complexes

· Securing liquefied hydrogen technology capable of supplying large volumes of hydrogen safely and affordably within cities and promoting the adoption of liquefied hydrogen to contribute to the revitalization of the hydrogen economy

#3 Digitalization in Construction

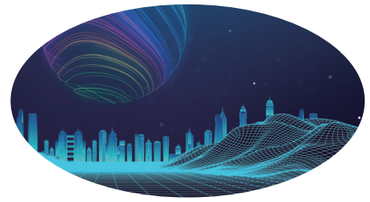
09

Spatial Intelligence

Development of core technologies that reflect real-world national terrain(underground, ground and surface) in virtual space to enable real-time monitoring of various data

· Providing real-time location information directly linked to public safety and daily life and driving new autonomous mobility industries with high-precision (centimeter-level) 3D location data, thereby offering a foundation for hyperconnected smart cities

10



Hyperconnected Smart Cities

Demonstration of next-generation city models through the development of cyber-physical systems, hyperconnected intelligence and development of sustainable smart city models

· Aiming to maintain the nation's top 3 position and reinforce the foothold as an unmatched leader in technology through the advancement and expansion of smart cities

· Digital transition of urban infrastructure to ensure universal access to a basic level of urban services and establish diverse data-driven urban information platforms

11

Smart Construction

Development of core technologies for transitioning the construction industry to an ICT-based business model through the digitalization of the entire lifecycle of construction and SOC facilities

· Achievement of a 16% increase in productivity, reduction of fatalities by 50% and enhancement of competitiveness to expand overseas construction orders through the digital transition of the construction industry

12

Smart Buildings

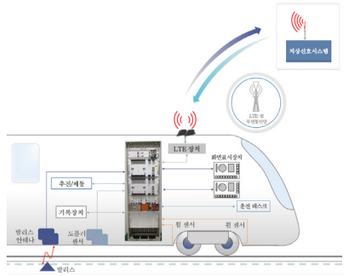
Development and demonstration of core technologies to realize smart buildings that seamlessly support advanced smart services such as robotics, UAM, autonomous vehicles and remote controls

· Supplying buildings equipped with the spatial design, structure and facilities needed to support the smooth operation of UAM and logistics robots and implementing 'last-inch services' that continuously provide various services both inside and outside buildings

R&D Highlights

Key Achievement Report

KAIA delivers distinguished R&D achievements
that drive future industrial advancement and enrich quality of life.



2 Korean Train Control System 2(KTCS-2) (2021)

- Nationwide implementation of KTCS-2 and railway wireless communication network
- Achieved approximately KRW 250 billion in cumulative sales

* Selected as a 2024 Outstanding Case in Land and Transport and winner of the IR52 Jang Young-Shil Award

1 Technology for localization of eco-friendly, high-capacity double-decker electric bus (2019)

Developed Korea's first double-decker electric bus and deployed it on metropolitan red bus routes

* Achieved KRW 35 billion in cumulative commercialization revenue

3 World-leading Active Mass Damper(AMD) technology (2021)

Developed multi-axis/multi-mode vibration control devices for optimal vibration control of structures such as skyscrapers and long-span bridges

* Applied to Incheon International Airport Terminal 2 Control Tower (2015) and Turkey's 1915 Çanakkale Bridge (2022)

4 Autonomous articulated bus operation control technology (2022)

World's first development of autonomous operation control technology for a 2-car, 100-passenger articulated bus

* Selected as one of the top 100 Outstanding National R&D Achievements of 2023

5 Unmanned and automated earthwork equipment (2023)

Developed core unmanned automation technologies for three types of earth-moving machinery (dozer, grader and roller), along with intelligent compaction systems

Commercialization of Smart Safety Management (2024)

Developed an AI and digital twin technology-based system for hazard detection and response guidance in industrial sites

* Applied to Korea Land and Housing Corporation (LH) public housing development projects (2022)

6 Next-generation carry-on baggage security screening technology (2024)

Developed 3D-based fixed CT security screening technology

* Obtained European ECAC certification

7

8 Construction of hydrogen energy prosumer housing complex(2024)

Built a demonstration hydrogen townhouse complex capable of hydrogen production, storage and utilization based on renewable energy such as solar power

Startup & SME* Support Program

*Small and medium-sized enterprises

Business Support Hub

KAIA is realizing the values of mutual growth and inclusiveness
by providing customized, step-by-step support for SMEs and venture companies
from preliminary startup stages to global expansion.

Major Achievements over the Past 3 Years

Participating startups	Total investment attracted by supported companies	Cumulative sales of supported companies	New jobs created by supported companies
123	KRW 95.6 billion	KRW 57.6 billion	510

Startup & SME Scale Up Road Map

Pre-startup
1. Startup Support Center
2. Startup Planning Program

Technology Development
Relay-Based R&D Program for Technology Commercialization

Technology Certification
1. Innovative Products
2. New Technologies in Construction, Transport and Logistics

Investment Linkage
1. Investment Pitching Sessions
2. Technology Finance(Loan) Linkage
3. Premier 1000

Domestic Market Entry
Buyer Briefing Sessions

Global Market Entry
1. Overseas Export Consultations
2. Global Accelerating Programs

Publicity
Promotional activities for the Business Support Hub platform

Startup and Business Support

- **Startup Support Center**
  Provides dedicated incubation facilities for startups in the land and transport sectors, together with support programs for technology financing and access to domestic and international markets
- **Startup Planning Program(N.E.X.T Challenge*)**
  Supports the commercialization capacity of startups possessing innovative ideas and technologies in the land and transport sectors through tailored initiatives such as business capability diagnostics, bespoke mentoring, investment readiness(IR) consulting and demonstration days(Demo Days)

  * Network, Experts, eXperience, Training and Challenge

Financial Support

- **Investment Pitching Session**
  Facilitates private investment(including VC and CVC) and networking opportunities to help SMEs and venture companies in the land and transport sectors secure commercialization funding
- **Technology Finance(loan) Linkage**
  Provides financial linkage support for SMEs and venture companies possessing new technologies in the land and transport sectors by recommending them as priority candidates for loan programs offered by financial institutions
- **Premier 1000**
  Delivers tailored inter-ministerial financial and non-financial support to innovative SMEs and mid-sized enterprises with high growth potential, including top-tier preferential benefits from policy financial institutions and assistance in accessing overseas markets

Support for Development of Outstanding Technologies

- **Relay-Based R&D Program for Technology Commercialization**
  Advances the commercialization of technologies held or transferred by SMEs and venture companies, with government R&D funding of up to KRW 900 million per project

Support for Creating Public Demand

- **Innovative Product**
  Facilitates early market entry and integration into public procurement channels by designating SME products with recognised innovation and public value as 'Innovative Product'.
- **New Technology in Construction, Transport and Logistics**
  Promotes access to public markets by designating technologies that are either developed domestically for the first time or adapted/improved from overseas sources as 'New Technology', thereby enabling preferential application, purchase recommendations and mandatory inclusion in public-sector designs

Domestic and Global Market Expansion

- **Buyer Briefing Session**
  One-on-one consultation meetings between SMEs & venture companies and procurement agencies to help outstanding land and transportation technologies enter the domestic market
- **Overseas Export Consultation**
  One-on-one business matching with overseas buyers, linkage with international exhibitions
- **Global Accelerating (Global Market Expansion Program, GMEP)**
  Supports the entry of land and transportation sector startups into European markets by assisting with PoC, investment, establishing legal entities, generating sales and securing intellectual property

International Cooperation Program

International Cooperation Program

KAIA is building a global R&D foundation in the land and transportation sectors and supporting the global growth and technological dissemination of Korean companies.

Vision

Korea's land, infrastructure and transport technologies leading the global future

Goal

Global R&D collaboration for technological leadership and overseas expansion

I Bilateral Joint R&D

International joint research based on bilateral matching with partner countries designated through intergovernmental agreements

II Multilateral Joint R&D

Participation in Horizon Europe partnership programs(DUT and CET)

III Global Leading Tech. Joint R&D

Open-call R&D projects aimed at the early acquisition of advanced foreign technologies

IV Outbound joint R&D

Support for international collaborative research with overseas institutions, including feasibility studies, localisation and demonstration projects to facilitate the global market entry of domestic technologies

Global Cooperation Strategy

UK & EU

Carbon Neutral

- Climate neutral city
- Sustainable transportation

North America

Mobility

- Autonomous, connected and electric vehicle
- UAM, drone

ASEAN & Australia

Smart Construction

- SOC operation & management
- ITS (Intelligent Transportation System)
- Smart city

KAIA Global Partners

ASIA

1 China
- **Tsinghua University**
- **Dongguan RITS Innovation Center**
- **Xianyang Municipal Government**

2 Vietnam
- **NUCE** (National University of Civil Engineering of Vietnam)
- **UTC** (University of Transport and Communications)
- **ITST** (Institute of Transport Science and Technology)

Europe

3 England
- **Innovate UK**

4 Spain
- **CDTI** (The Centre for the Development of Industrial Technology)

5 Belgium
- **KERC** (Korea-EU Research Centre)

6 Netherlands
- **NLR** (Netherlands Aerospace Centre)
- **TNO** (Netherlands Organization for Applied Scientific Research)

7 Germany
- **Fraunhofer**

8 Portugal
- **BRAGA**

Middle East

9 Middle East
- **GDRC** (Global Desalination Research Center)
- **Masdar** (Abu Dhabi Future Energy Company PJSC-Masdar)
- **Masdar Institute**
- **MEDRC** (The Middle East Desalination Research Center)

North America

10 Canada
- **Alberta Innovates**
- **OCI** (Ontario Centre of Innovation)

11 USA
- **SRI International**
- **TRB** (Transportation Research Board of the National Academy of Sciences of the United States of America)
- **Korean-American Society of Civil and Environmental Engineers**
- **MITRE Corporation**
- **IC2 Institute** (Innovation, Creativity and Capital Institute)
- **TTI** (Texas A&M Transportation Institute)
- **NASA**

Evaluation & Certification

New Technology in Construction | New Technology in Transportation | New Technology in Logistics

KAIA operates a technology certification system to promote autonomous technology development by the private sector in the land and transportation sectors, thereby contributing to enhancing national competitiveness.

Green Certification

New Technology Certification

A system that certifies the excellence of technologies related to land, infrastructure and transport by evaluating their originality, practicality and field applicability and granting certification if they meet certain standards

Certification Field

Construction
Civil engineering, architecture and mechanical equipment

Transportation
Transport systems, facilities, operations and management

Logistics
Transportation, storage, loading/unloading, packaging, informatization and standardization

Benefits of Certification

01 Recommendation for preferential application and mandatory reflection in design

02 Compensation for technology development

03 Preferential funding support from financial institutions

04 Additional points awarded in capability evaluations and pre-qualification (PQ) assessments

05 Eligible for non-competitive contracting

Procedure

Application for designation → Reporting evaluation results

Technology developers
- Develop new technology
- Prepare the application form
- Provide promotional materials (upon designation)

KAIA
- Receives/rejects applications
- Operates the New Technology Evaluation Committee
- Promotes and manages certified technologies

MOLIT
- Overall management of the certification system
- Amends regulations and improves the system
- Designates and publicly announce new technologies

Issuance of certificate of new technology

Green Certification

A system designed to discover green technologies and enterprises, expand private sector participation in the green industry and establish a robust foundation for sustainable growth

Certification Field (Land & Transportation)

Green Technology
Technologies that minimize greenhouse gas and pollutant emissions

Green Products
Commercialized products developed for sale that incorporate certified green technologies

Green Specialized Enterprises
Companies whose revenue from green technologies accounts for more than 20% of total revenue

Benefits of Certification

Support for green industry financing → Support for market entry and marketing → Establishment of a foundation for commercialization of green technology → Construction of systems to promote commercialization

Procedure

step 1 Submission of application → step 2 On-site evaluation → step 3 Comprehensive evaluation → step 4 Assessment for Certification → step 5 Issuance of certificate

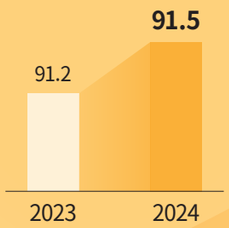
PART 2

KAIA NOW

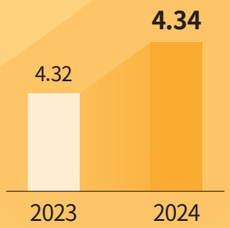
Enhanced **ESG Governance**
Delivering **Notable Outcomes**

Winner of the Consumer ESG Innovation Award

Achieved an A+ rating
in the ESG Management Index



Increased public awareness
and engagement with ESG



The highest rating in the Win-Win Growth Evaluation

The first institution under the Ministry of Land, Infrastructure and Transport to receive the highest rating in the Win-Win Growth Evaluation for four consecutive years

Accredited in Four pillars of Organizational Excellence

Certified in recruitment, HRD, family friendly and labor relations

Mission & Vision

Mission

Contributing to the creation of future growth engines and the improvement of the quality of life of the people through innovation and industrial advancement in land and transportation science and technology

Vision

A global innovation leader creating sustainable future value in land and transportation

Core Value	Strategic Goal
Surpass	Securing unmatched leading technologies in land and transportation
Perfect	Building a safe and eco-friendly national territory
Nonstop	Establishing the foundation for innovation in land and transportation industries
Variety	Leading ESG management through business innovation

History

Korea

December 2002
Establishment of the Korea Institute of Construction & Transportation Technology Evaluation and Planning (KICTEP) as a foundation

October 2005
Established as a statutory corporation under the name Korea Institute of Construction & Transportation Technology Evaluation and Planning

April 2007
Designated as a quasi-governmental institution

April 2013
Renamed to Korea Agency for Infrastructure Technology Advancement(KAIA)

Agency

Infrastructure **T**echnology **A**dvancement

January 2019
Designated as a Smart City Service Support Agency

November 2018
Designated as a technology transfer agency

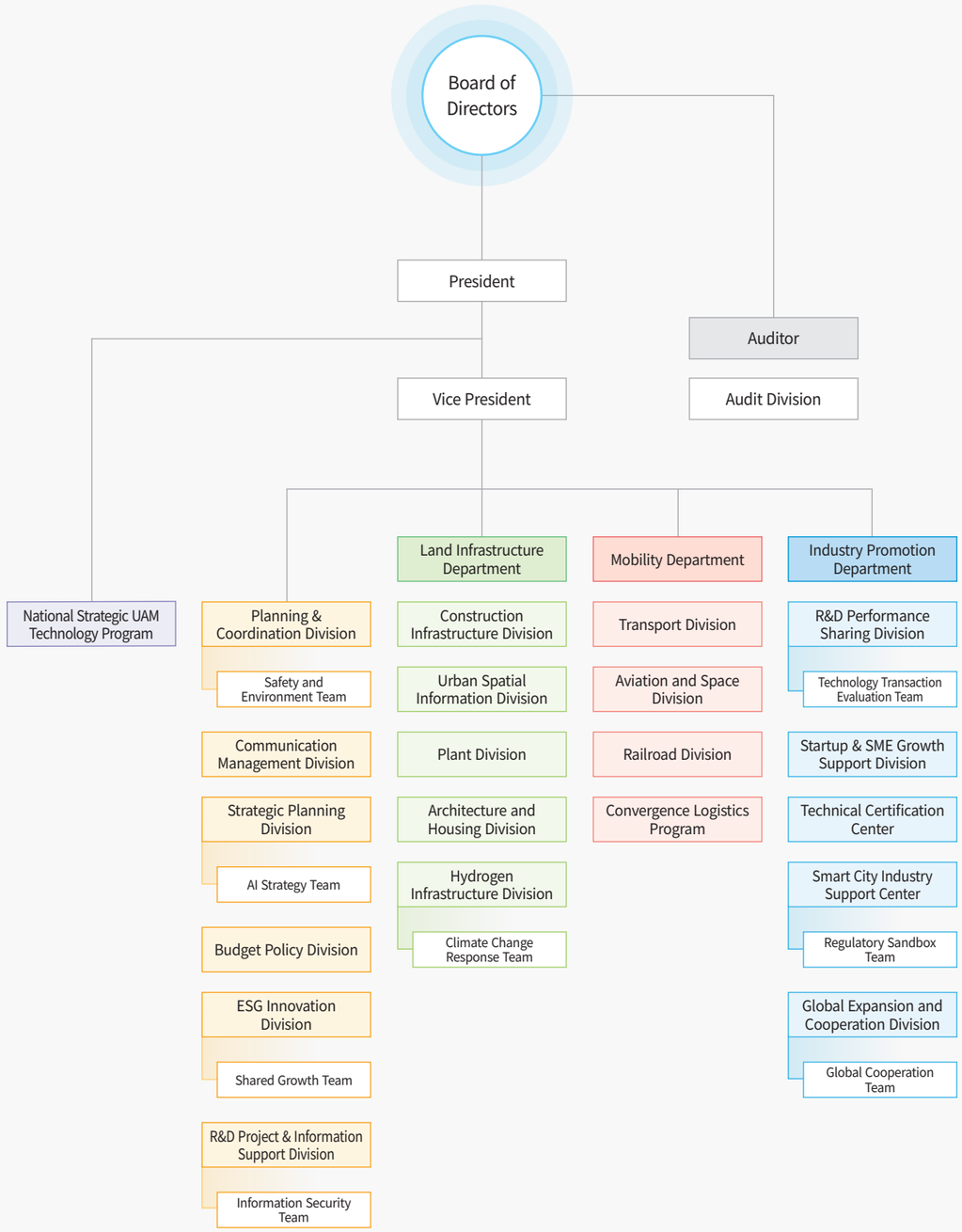
June 2016
Enforcement of the “Land and Transport Science and Technology Promotion Act”
(legal basis for the institution)
Designated as a technology evaluation agency

December 2020
Designated as an evaluation agency for excellent R&D innovative products at the Land and Transport Corporate Support Hub
Designated as the Land and Transport Corporate Support Hub

April 2021
Designated as a training institution for professionals in architectural services

February 2023
Designated as an Other Public Institution

Organization



Towards Sustainability

To help realize a society that everyone dreams of,
KAIA is leading meaningful change through ESG governance.

	Environment	Social	Governance	Research
Goals	Expand eco-friendly technology development by 20%	Maintain “Excellent” grade in Evaluation of Shared Growth	Maintain “S” grade in the KAIA ESG Index	Increase socioeconomic contribution of research outcomes by 10%
Strategies	Promote eco-friendly management with a future-oriented approach	Fulfill social responsibilities together with the public	Realize ethical and transparent management based on trust	Support sustainable, leading R&D initiatives
Achievements	- Implemented carbon-neutral R&D - Received “Grand Prize” for the World First Project in hydrogen cities	- Achieved “Excellent” rating in shared growth - Acquired four major management certifications; recruitment HRD, family-friendly and labor relations - Recognized for “Excellence” in Personal Information Protection	- Citizen participation in R&D - Improved customer satisfaction score - Achieved grade “A” in ESG management index and human rights impact assessment	- Discovered new core technologies for industrial transition R&D - Operation of chatbot, eligibility of verification and early warning systems - Promotion of international cooperative R&D initiatives and fostering convergent talents(DNA+ program)


Survey and Analysis with Citizens


Experiencing Research Outcomes

Briefing for Admission into DNA Graduate Program


Land and Transport Technology Expo with Families

Tailored Support Programs Using Organizational Strength and Employee Talents

With a warm heart, KAIA delivers not only technology
but also kindness to the places where support is most needed.

- Repair and donation of computers through in-house clubs
- Career experience programs and special lectures in R&D in land and transportation sectors for people with disabilities and youth
- R&D site tours for students and citizens

Mutual Cooperation for Community Development

KAIA is walking the path of coexistence,
breathing together with our local communities,
to warm the lives of our neighbors with compassion.

- Visits and donations to welfare facilities
- Participation in Anyang City’s corporate social contribution relay
- Improvements of housing environment for low-income families in the region

Community-based Outreach Programs

KAIA listens closely to the small moments of everyday life,
continuing a warm and heartfelt journey
alongside local communities.

- Meal sharing for local seniors
- Donation of agricultural products to local elderly and vulnerable groups
- Career mentoring and job information sessions for university student mentors at local study rooms

Where Innovation Begins,
Where Korea Leads

KAIA

KAIA is at the forefront of national R&D —
not simply advancing research, but creating meaningful and enduring impact.
Our mission is to drive innovation
in sustainable land development, safe and efficient transportation,
next-generation mobility and the transformation of urban environments.

Through innovation that deepens connectivity,
we strive to shape a better future —
where people, cities, industry and nature thrive in harmony.

KAIA
Korea Agency for
Infrastructure Technology
Advancement

KAIA NAVER BLOG YOUTUBE INSTAGRAM KAKAO FACEBOOK

Korea Agency for Infrastructure Technology Advancement(KAIA) is
an other public institution affiliated with the Ministry of Land, Infrastructure and Transport.

2~7, 9F, 286, Simin-daero, Dongan-gu, Anyang-si, Gyeonggi-do, 14066, Republic of Korea **TEL** +82-31-389-6313