

Power of Korea Innovation

Korea Agency for
Infrastructure Technology Advancement



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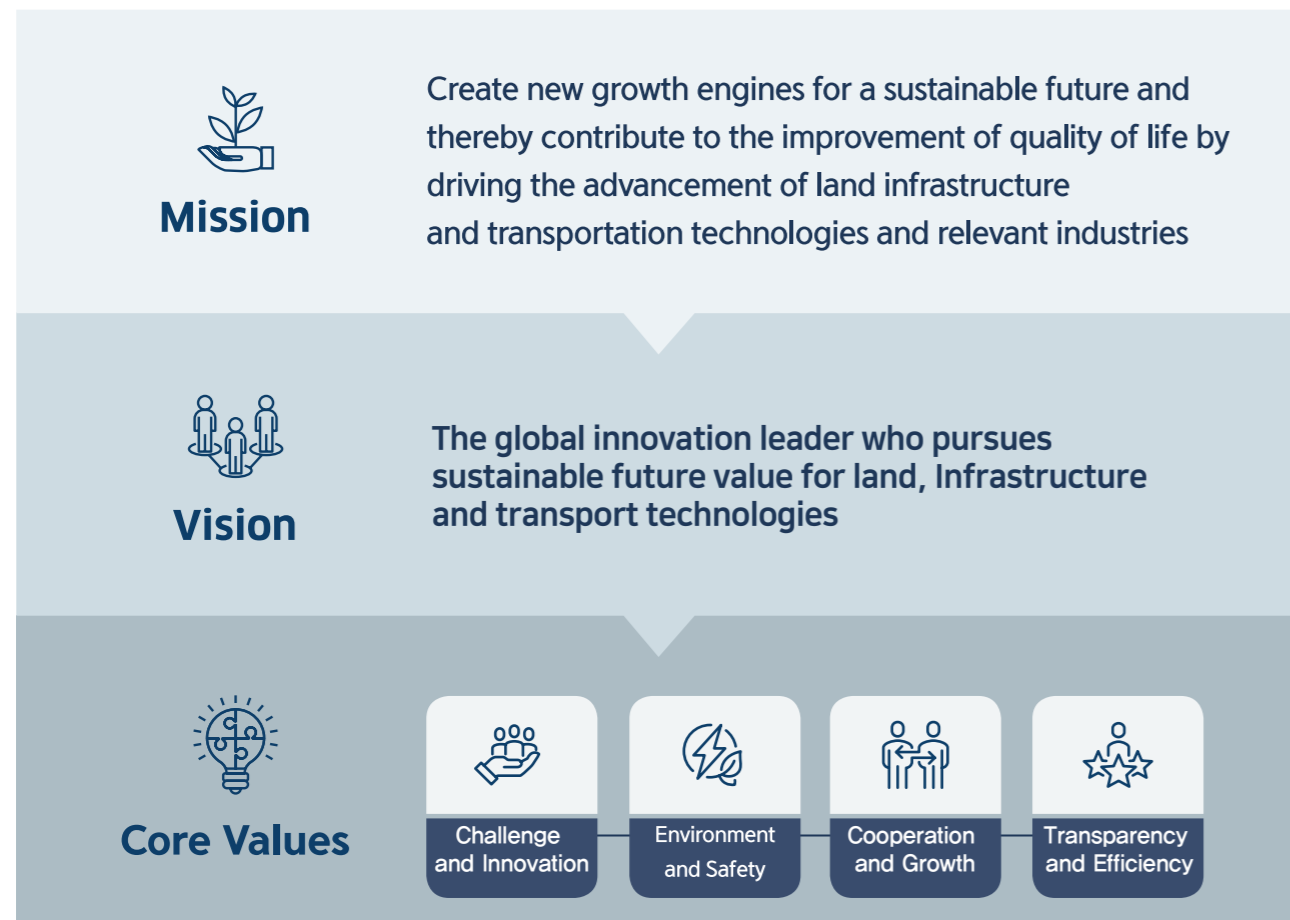
Paving the way for Dynamic Korea!

KAIA will help you enjoy
a smarter lifestyle in all corners of Korea.

KAIA

Korea Agency for Infrastructure Technology Advancement

Affiliated with the Ministry of Land, Infrastructure and Transport, KAIA is in charge of planning, management, and evaluation of R&D projects along with assessment and valuation of new technology.



01 R&D Projects

02 R&D Planning

03 R&D Management, Evaluation, and Commercialization

04 Support for Industrial Promotion and Commercialization

05 Assessment & Certification

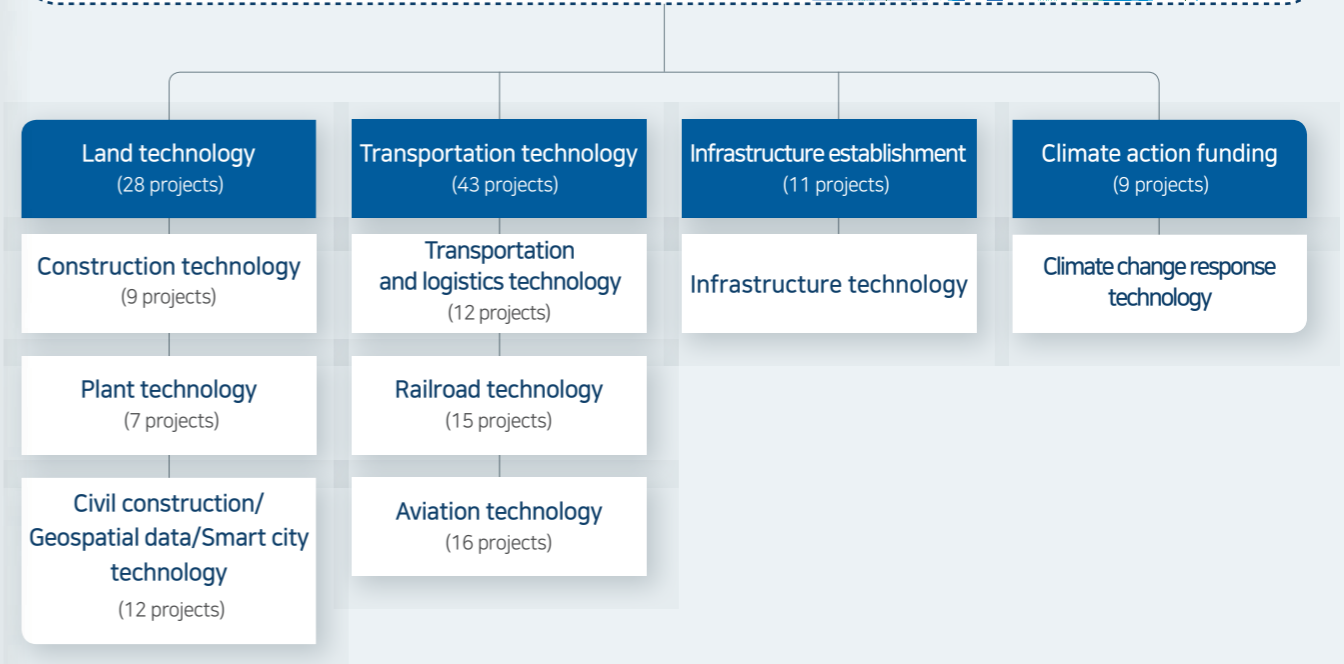
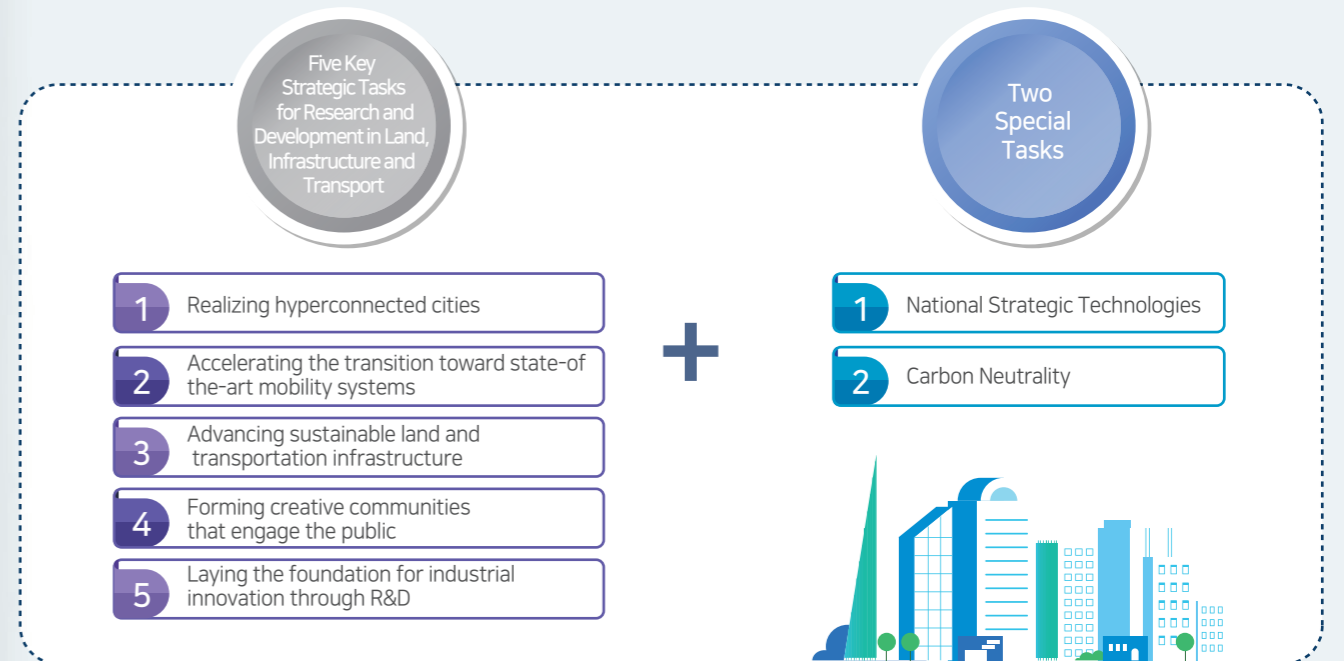
06 Cultivation of Experts

Business 01

R&D Projects

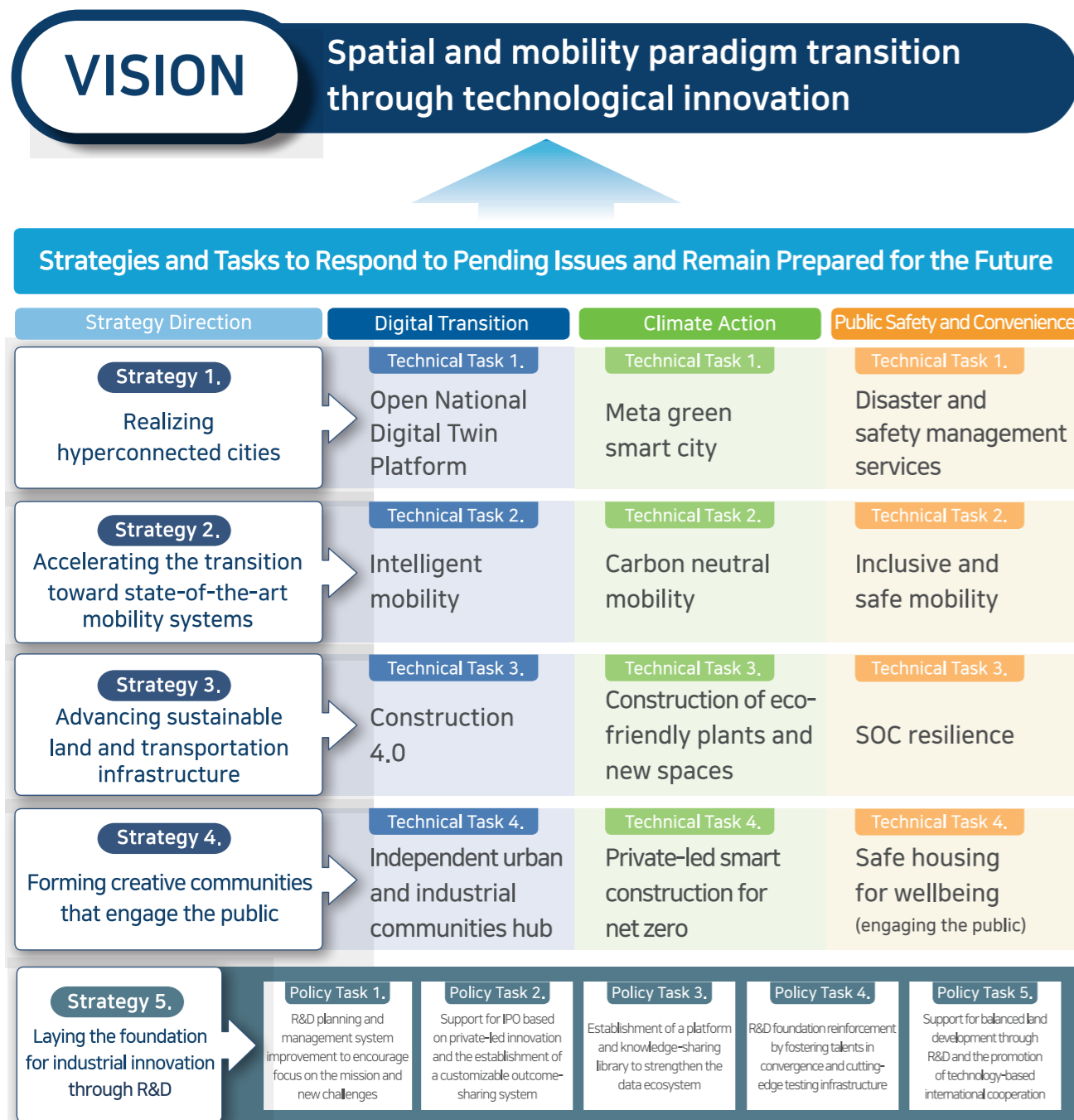
KAIA supports 91 R&D projects related to land infrastructure and transport technologies based on our national R&D action plans in 2024

Primary Focus for Research and Development in Land, Infrastructure and transport for 2024



Business 02
R&D Planning

KAIA focuses on engaging in forward-looking R&D projects to offer breakthroughs for issues that affect our future.



12 S.T.A.R. (Strategic Technologies and Advanced Research) Programs

① Fostering new industries and taking the lead in the global arena through mobility innovation

Autonomous and Cooperative Mobility

Developing technologies to advance the user environment for services and infrastructure related to autonomous and cooperative driving

- * Preparing services to advance the safety and everyday use of autonomous vehicles (commercialization of autonomous shuttles by 2025, commercialization of Level 4 autonomous vehicles by 2027, and universalization of Level 4 autonomous vehicles by 2035)
- ** Maintaining the nation's top 3 position along with Japan and Germany through the world's third release of a commercial Level 3 autonomous vehicle (April 2023) and preemptively securing Level 4 autonomous driving technology to reinforce the foothold as an unmatched leader

Urban Air Mobility (UAM)

Developing safe transportation technologies and traffic management systems to foster the K-UAM industry

- * Achieving the commercialization of K-UAM by 2025 and its universalization by 2035 by securing key technologies and transportation and operation systems with their technological superiority, safety, and acceptability tested
- ** Aiming to rise into the global top 3 by 2032 from the current top 7 position (following the US, Singapore, the Netherlands, the UK, Australia, and China)

High-Speed Hypertube

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

- * Securing subsonic high-speed train technology (enabling a 20-minute trip from Seoul to Busan) by 2030 and achieving its 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 key technologies by 2030

User-Oriented Mobility

Developing mobility as a service (MaaS) technology to enable users to access information and services for multiple types of mobility (from personally-owned vehicles to public transportation and autonomous vehicles)

- * Offering personalized transport services in real time, enabling seamless transfers, and realizing travel to all corners of the nation within 3 hours

Digital Logistics System

Developing technology to connect logistics with data-based mobility (autonomous delivery robots, trucks, aircraft, urban railroads, etc.)

- * Realizing logistics transition to automation (unmanned delivery, etc.) and reducing the nation's logistics costs by 10% (2030)

12 S.T.A.R. (Strategic Technologies and Advanced Research) Programs

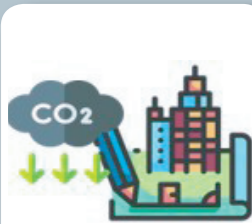
- ② Responding to climate change and achieving carbon neutrality by promoting the use of renewable energy in the urban and construction sectors



Carbon Neutral Cities

Developing and verifying technologies for the creation, operation, and management of carbon neutral cities (urban energy independence, resource circulation and utilization, carbon absorption and capture, carbon reduction in the building and transportation sectors, etc.)

- * Accomplishing the national GHG emissions reduction target by verifying the validity of the Korean-style carbon neutral city model (through the creation of "hydrogen cities" for at least 10% of the nation's local governments by 2030)



Net Zero Infrastructure

Securing technologies to realize energy-plus houses and net zero buildings and their operation to accelerate the transition to a carbon neutral construction industry

- * Contributing to the transition to carbon neutrality by distributing energy-plus houses that eliminate concerns over rising heating expenses and reducing carbon emissions by 32.8% (equivalent to 35 million tons) by 2030 compared to 2018



Liquid Hydrogen Infrastructure

Developing technologies for hydrogen energy production, storage, and transportation to ensure the supply of hydrogen energy in large volumes for densely populated areas including cities

- * Contributing to the promotion of a hydrogen economy by securing liquid hydrogen technologies for the safe and affordable supply of hydrogen energy in large volumes for cities



12 S.T.A.R. (Strategic Technologies and Advanced Research) Programs

- ③ Ensuring safety at construction sites, reducing construction costs, and promoting advancement into overseas markets with high added value



Geospatial Digital Twin

Developing key technologies to monitor a wide range of data in real time by reflecting real-world land shapes (underground, aboveground, and ground surface)

- * Providing real-time location information directly related to the safety and convenience of everyday life and promoting the advancement of new industries involving autonomous mobility and hyperconnected smart cities based on 3D precision (centimeter-level) location information



Hyperconnected Smart Cities

Verifying the validity of Korea's next-generation, sustainable smart city model by developing the cyber physical system and achieving hyperconnectivity and hyperintelligence

- * Maintaining the nation's global top 3 position and securing preemptive technologies to remain an unmatched leader by further advancing and distributing smart cities
- ** Digitalizing urban infrastructure and establishing data-based urban information platforms to ensure universal access to a certain level of urban services



Smart Construction

Securing key technologies through the digitalization of the entire life cycle of buildings and SOC facilities to accelerate the adoption of ICT-based business models by the construction industry

- * Contributing to the expansion of overseas project-winning through the digital transition of the construction industry (productivity improved by 16% and fatalities reduced by 50%) and the reinforcement of technological competitiveness



Smart Building

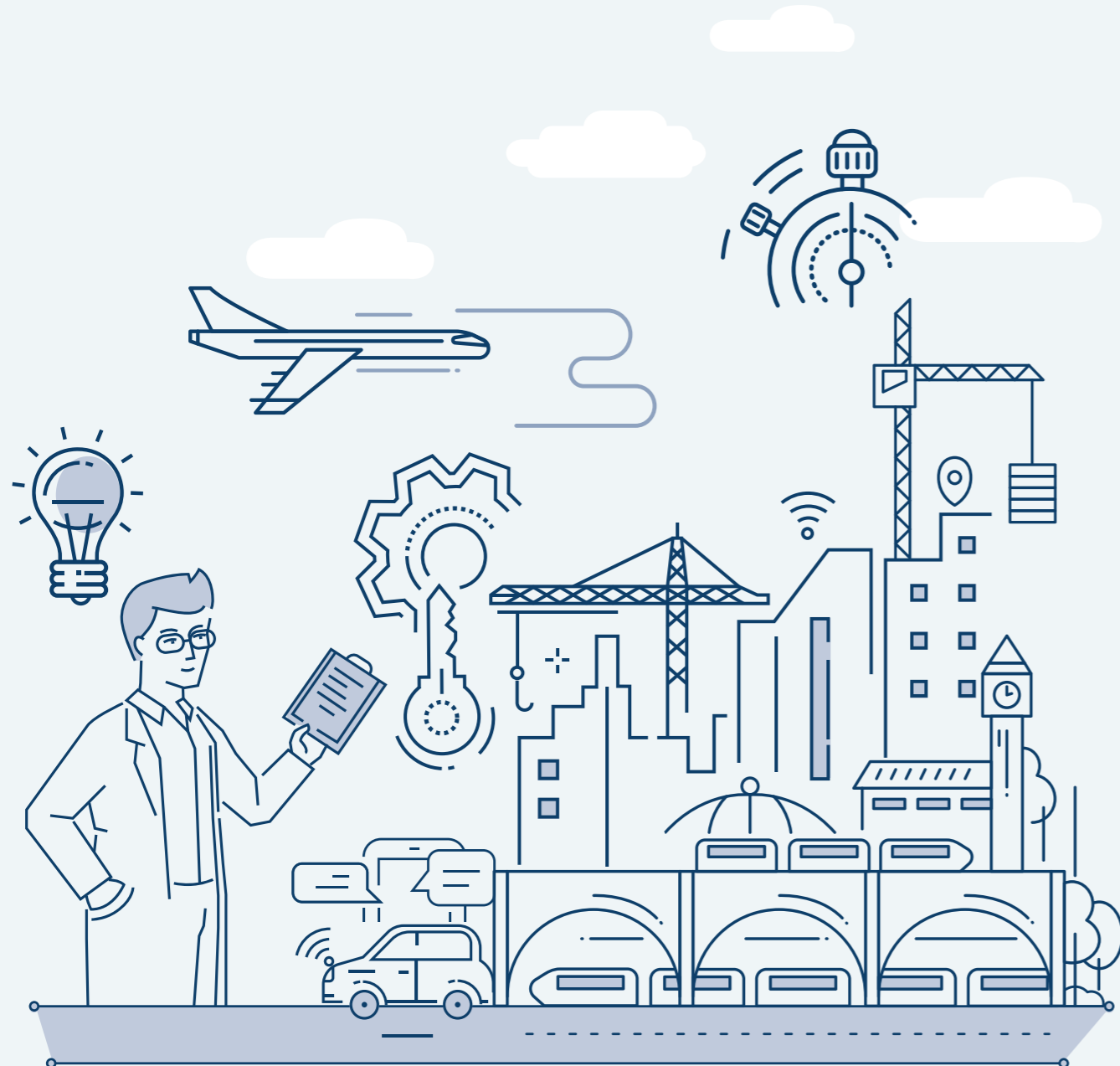
Developing and verifying key technologies for realizing smart buildings where state-of-the-art smart services such as robots, automated aircraft, autonomous vehicles, and remote care are available

- * Distributing buildings equipped with facilities and structural elements that enable the smooth operation of automated aircraft and logistics robots and realizing "last-inch service" that ensures the seamless provision of various solutions inside and outside of the building

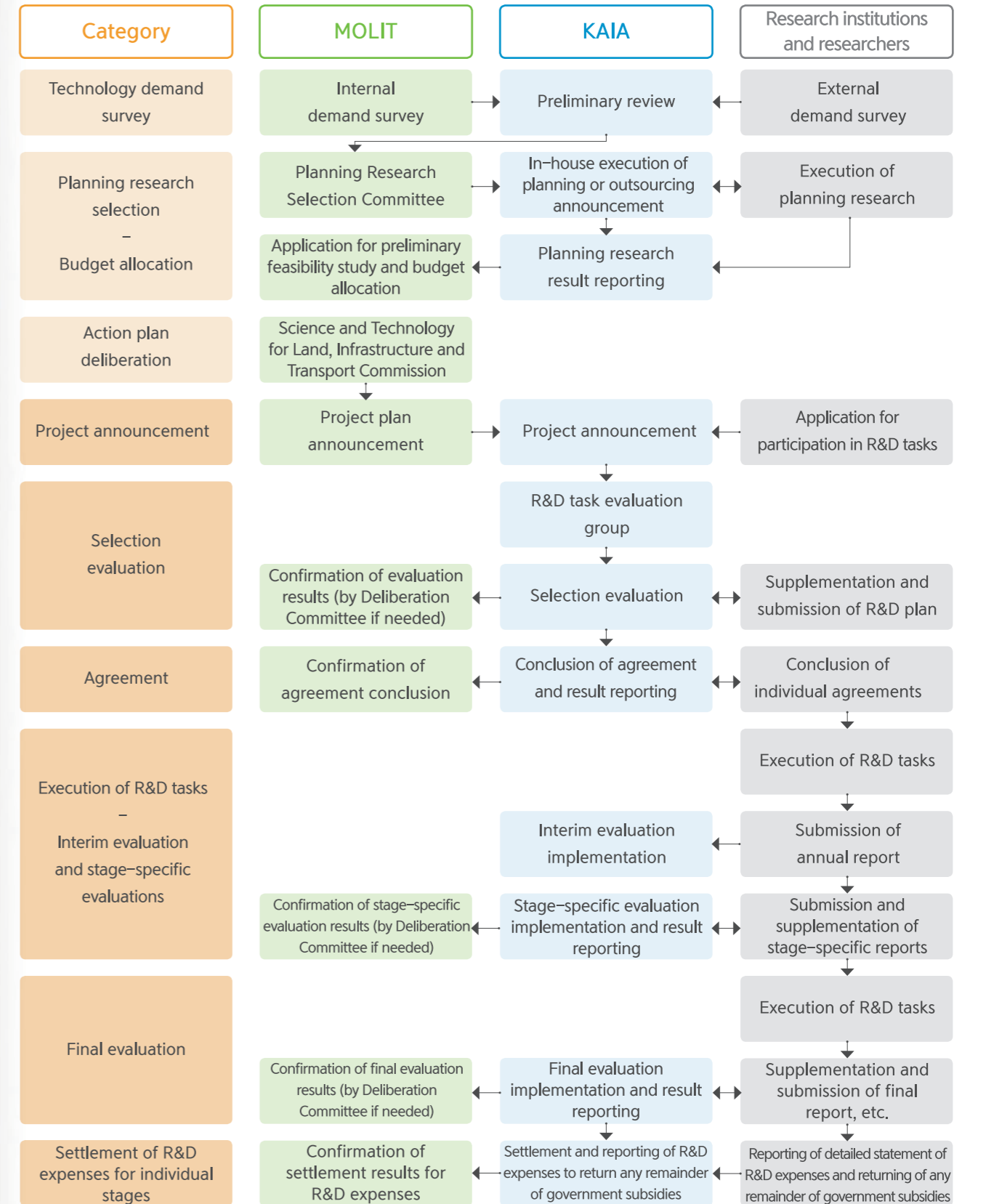
Business 03

R&D Management, Evaluation, and Commercialization

KAIA makes innovative technologies accessible through project management and evaluation of R&D projects in the land, infrastructure and transport sector.



R&D Project Management and Evaluation System



Major Outcomes of R&D Commercialization

R&D aimed at fostering new growth engines

We continue to reinforce our foothold by achieving world-class technological prowess.



R&D 01

Highrise Design Automation and Lift Installation Technology

Jeddah Tower (Saudi Arabia, 2015), Lotte World Tower (Korea, 2016), LCT The Sharp Landmark Tower (Korea, 2019), and Block H6 of Community 1-5 of Sejong City (Korea, 2019)

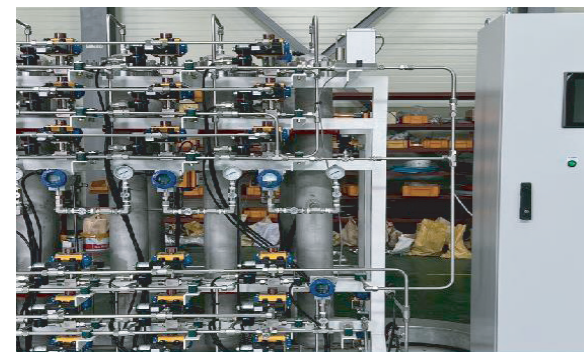


R&D 02

Low-Cost, Long-Lifespan 180Mpa-Capacity Super Concrete

Legoland Korea Resort's access bridge (2017) and Estancia Reparadora Kosmos (2017)

Award : Transportation Planning Excellence Award from the US Federal Highway Administration (2019)



R&D 03

Blue Hydrogen and Synthetic Natural Gas Plant

World-class synthetic natural gas production efficiency (carbon transition rate: 95.6%, gasification efficiency: 66.9%) (2022)



R&D 04

Autonomous Vehicle Testing City (K-City)

The world's largest testing site (approximately 364,000m²) equipped with a 5G-based real-world road environment established in 2018

R&D to achieve technological independence

We support the development of technologies to nurture small hidden champions and help achieve technological independence for key materials and parts to drive economic growth.

R&D 01

High-speed Electric Multiple Unit(HEMU)

- Concluding agreements to deliver 114 cars for quasi-high-speed EMU-250 (\$273 mil.) and 16 cars for high-speed EMU-320 (\$45 mil.) in 2016
- Operating on Gyeongjeon Line, Jungang Line, Seohae Line, and Jungbunaeryuk Line (2020)

Award : Prime Minister's prize at Korea Technology Awards



R&D 02

Overseas Verification of K-Smart City

Advancing into 11 countries including the US for the verification of the K-Smart City model
Creating a fund of \$377 mil. (2022)



R&D to resolve social issues

We contribute to the convenience and safety of everyday life by developing technologies to prevent and respond to accidents, disasters, and climate change.



R&D 01

Foreign Object Detection System for Airport Runways

Applied to Runway 2 of Incheon International Airport in 2020 and contributing to the prevention of accidents related to foreign objects (tire fragments, bolts, gravel, etc.)



R&D 02

Zero-Energy Housing

- 121 households of the zero-energy apartment complex in Nowon-gu, Seoul (2017)
- Rated the highest in Green Standard for Energy and Environmental Design (2017) and certified by Passivhaus Institut of Germany (2018)

Business 04

Support for Industrial Promotion and Commercialization

KAIA strives to realize coprosperity and inclusion by engaging in diverse activities to promote the growth of small ventures and startups, such as providing financial aid and commercialization support.

■ Start-up Accelerating Program

We provide startup planning services (mentoring, investment attraction, etc.) for prospective startups (seven years or less since their foundation) in the land and transportation sector.

* Startup planning: Support for the growth of startups through education and mentoring, investment attraction, marketing capacity reinforcement, sales channel expansion, networking, etc.

■ Innovative Product Program

We screen outstanding products showcased by SMEs that are recognized to be forward-looking and beneficial to the public and designate them as “innovative products” to facilitate their market entry and procurement.

-The benefits of this program include direct contracting with the government and support for entry into the public procurement market.

■ Technology Financing Support

We provide consulting for private investors and connect SMEs in the land, infrastructure and transportation sector with financial institutions to achieve technology financing.



■ Technology Evaluation

We evaluate technologies of SMEs and assign them economic value with accuracy based on our technology evaluation model tailored for the land, infrastructure and transportation sector.



■ Regulatory Sandbox and Innovation Ecosystem for Smart City

KAIA examines various forms of red tape hindering the launch of innovative technologies and services within the selected cities for national smart city pilot projects to come up with measures for improvement. It also provides support for new technology demonstration expenses through the innovation ecosystem creation program.

■ ESG Management through Community Outreach Programs

We operate diverse community outreach programs based on our strengths, including the “R&D Job Experience Class” to help youth experience the world of R&D, “KAIA Matching Grant” to encourage employees’ donations for the underprivileged, and “House Repair Volunteer” to help enhance the living conditions of low-income households.

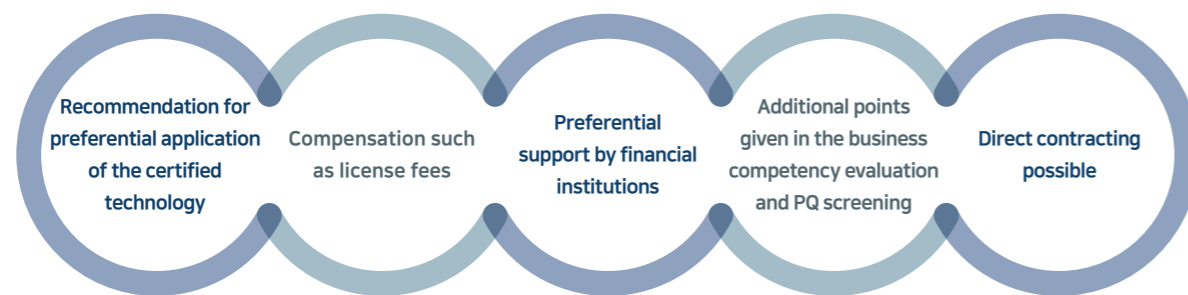


Business 05 Assessment & Certification

As a land, and transportation technology certification specialist, KAIA is responsible for the designation of new technologies for the construction, transportation, and logistics sector and green certification evaluation, as well as the certification of transportation cards that can be universally used across the nation.



■ New Technology Certification Benefits



We also provide customized education for SMEs to more easily benefit from the new technology designation program in the construction, transportation, and logistics sector.

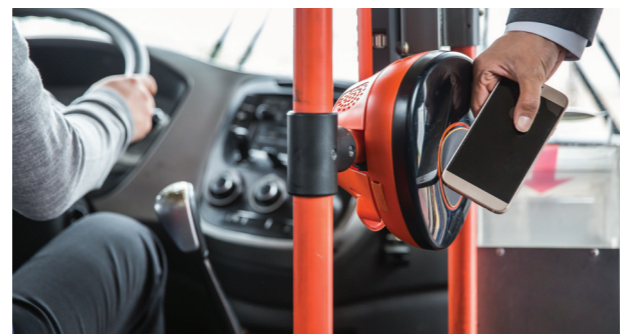
■ Green Certification Benefits

Companies with green certification for technologies and products can receive preferential financial aid, preferential treatment in bidding for government-funded construction projects, and additional points in the new technology designation program in the construction, transportation, and logistics sector.



■ Benefits of Transport Pass Certification

Public transport and pass operators can secure nationwide interoperable service areas for the public transit pass.



Business 06 Cultivation of Experts

KAIA focuses on fostering relevant specialists to lay a strong foundation for the land and transportation industry and enhance its competitiveness.

■ Smart City Talent Cultivation program

To foster experts who can meet the needs of the smart city industry, KAIA has selected universities through open competition since 2009 to support master's and doctoral scholarships and research infrastructure.



■ Graduate School of Land and Transportation DNA+ Convergence Technology Project

We foster specialists in the convergence of innovative technologies (Big Data, Network, AI) and the land and transportation industries and design industry-academia cooperation programs.

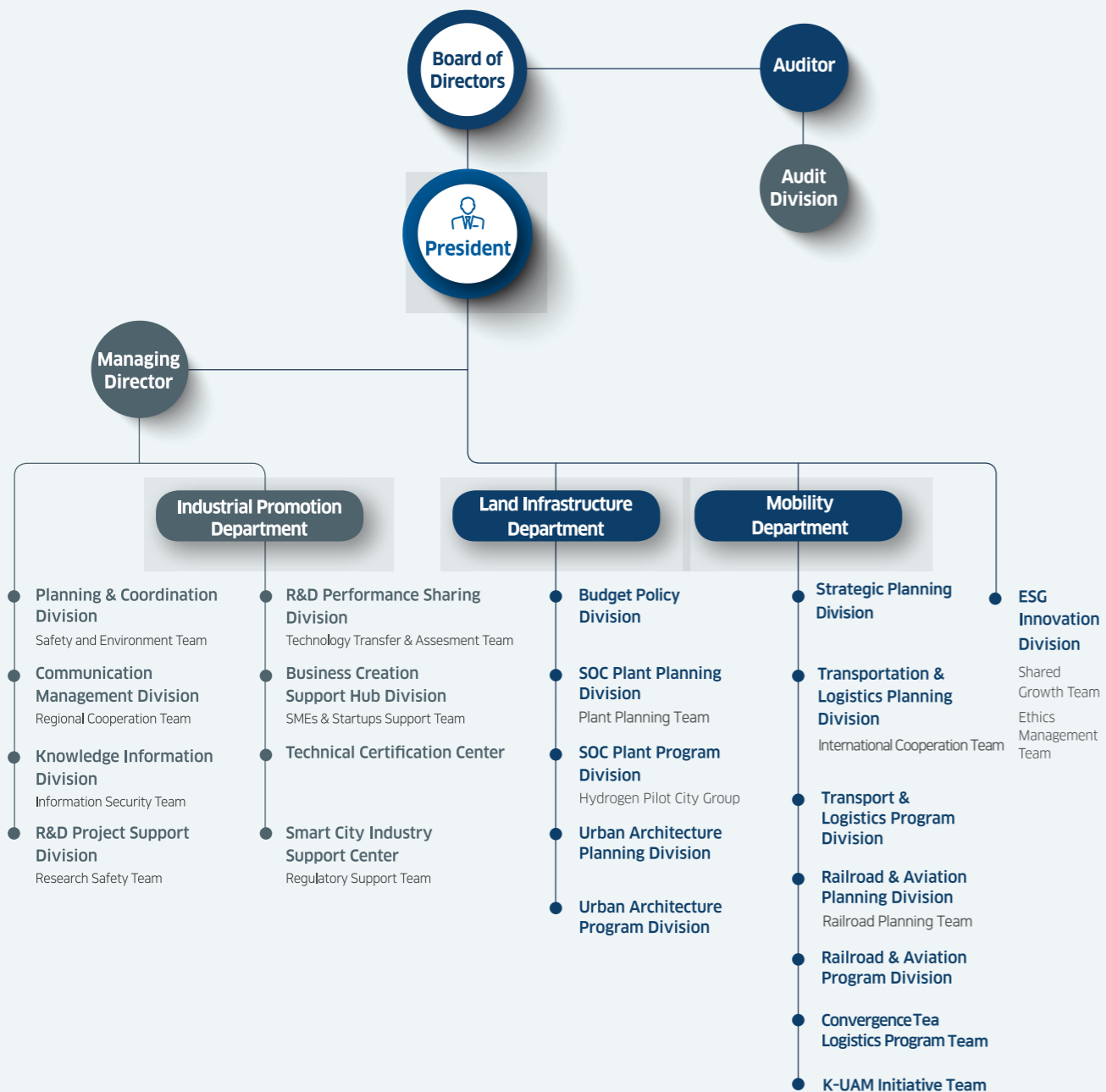
■ Construction Design Specialist Cultivation Project

This project provides financial aid for talents to receive training at overseas architectural firms and relevant research institutions to enhance the nation's competitiveness as a construction design powerhouse.



Organization

KAIA Organization



History

KAIA History

2002 ~ 2005	
2002. 12	• Korea Institute of Construction and Transport Technology Evaluation and Planning (KICTEP) established as a foundation
2003. 02	• Designated as a specialized institution for R&D programs in construction technology
05	• Designated as a specialized institution for assessment of new construction technologies
2004. 01	• Designated as a specialized institution for R&D programs in transport technology
2005. 10	• Established as a legal entity

2006 ~ 2010	
2006. 02	• Designated as a government-affiliated agency
2007. 04	• Designated as a quasi-governmental organization
2008. 11	• International Symposium on Land, Transport, and Marine Technology
2009. 03	• 1st New Construction Technologies Workshop
03	• Achieved first place in customer satisfaction among quasi-governmental organizations according to a survey by the Ministry of Strategy and Finance
2010. 04	• Designated as a specialized institution for assessment of new transport technologies
04	• Designated as an institution for assessment and certification of green technologies
06	• 1st Land, Transport, and Marine Technology Fair

2011 ~ 2016	
2012. 12	• Awarded NTIS Data Quality Assessment Grand Prize
2013. 04	• Renamed as Korea Agency for Infrastructure Technology Advancement (KAIA)
2015. 09	• Selected as the top-ranking institution in human resources development
2016. 06	• Land, Infrastructure, and Transport Science and Technology Development Act (legal basis for KAIA) was enforced
06	• 1st KAIA Academy
12	• Designated as an institution for technology assessment
12	• Certified as a family-friendly institution

2017 ~ 2023	
2017. 09	• Smart City Business Fair
2018. 11	• 1st Land, Infrastructure, and Transport Good Job Fair
11	• Designated as a technology trading organization
12	• Designated as a specialized institution for examining excellent new logistics technologies
2019. 01	• Designated as a support institution for Smart City Service
06	• Received Grade A in the 2018 Management Evaluation of Public Institutions
12	• Established "Land and Transport Innovation Account" in Korea Fund of Funds
2020. 12	• Designated as the land and transportation corporation support hub and outstanding R&D and innovative product evaluation institution
2021. 04	• Designated as the institution for fostering construction service specialists
2023. 02	• Categorized as "other public institution"

Partners

KAIA Domestic Partners

Konkuk University Industrial-Academic Cooperation Foundation	Foundation of Agricultural Technology Commercialization and Transfer	Innopolis Foundation	Korea Institute of Science and Technology	Korea New & Renewable Energy Association
The Construction Economic Daily	Daegu Metropolitan City	Yozma Group Korea	Korea Advanced Institute of Science and Technology	Korea Institute of Energy Technology Evaluation and Planning
Gyeonggi Urban Innovation Corporation	Daegu Metropolitan Transit Corporation	Incheon Free Economic Zone (IFEZ) Authority	Korea Institute of Science and Technology Information	Korea Internet & Security Agency
Kyungpook National University	Daegu Center for Creative Economy & Innovation	Incheon International Airport Corporation	Korea Science & Technology Holdings	Electronics and Telecommunications Research Institute
Korea University Research & Business Foundation	Daejeon Express Transit Corporation	Incheon Transit Corporation	Korea Tourism Organization	Korea Radio Promotion Association
Goyang City	Korea Trade-Investment Promotion Agency	Woori Investment Bank Co. Ltd.	Korea Transport Institute	Korea Information Society Agency
Goyang Industry Promotion Agency	LX	Korea Automotive Technology Institute	LX	Korea Intellectual Property Strategy Agency
Ministry of Employment and Labor, Goyang District Office	Myongji University Industry and Academia Cooperation Foundation	Korea Institute of Materials Science	Korea Institute of Finance	Korea Railroad Research Institute
Spatial Information Industry Promotion Institute	Mirae Holdings	Association of Korea Creative Economy Innovation Centers	Korea Institute of Machinery & Materials	Korea Rolling Stock Industries Association
Airport Railroad Co. Ltd.	Busan Institute of Science and Technology Evaluation and Planning	Incheon International Airport Corporation	Korea Enterprise Data	Korea Creative Content Agency
The Commercializations Promotion Agency for R&D Outcomes	Busan Metropolitan City	Korean Government Legal Service	Korea Basic Science Institute	Korea Land and Housing Corporation
Science and Technology Policy Institute	Busan Transportation Corporation	Noroo Kiban Co., Ltd.	Korea Expressway Corporation	Korea Research Institute of Standards and Science
Gwangju Metropolitan Rapid Transit Corporation	Busan IT Industry Promotion Agency	KINTEX	Korea Trade Insurance Corporation	Korea Institute of Marine Science & Technology Promotion
Korea Transport Safety Authority	Tide Institute	LG Uplus Corp	Korea Invention Promotion Association	Korea Overseas Infrastructure & Urban Development Corporation
National Library of Korea	Korea Institute for Industrial Economics & Trade	SR Co. Ltd.	Korea Health Industry Development Institute	Korea Research Institute of Chemical Technology
Agency for Defense Development	Office of Strategic R&D Planning	Korea Housing & Urban Guarantee Corporation	Korea IoT Association	Korea Environmental Industry & Technology Institute
Korea Research Institute for Human Settlements	Seoul National University of Science and Technology Foundation for Research and Business	Korea Technology and Information Promotion Agency for SMEs	Korea Institute for Advancement of Technology	Hanyang University Industry-University Cooperation Foundation
National Geographic Information Institute	Seoul Institute of Technology	Korea Small Business Institute	Korea Industrial Technology Association	Korea Institute of Marine Science & Technology Promotion
National Assembly Library of Korea	Seoul National University R&DB Foundation	Industrial Bank of Korea	Korea Evaluation Institute of Industrial Technology	International Contractors Association of Korea
Korea Technology Finance Corporation	Seoul Metro	Korea Federation of SMEs	Korea Development Bank	Hyundai Rotem Co. Ltd.
NICE Information Service Co. Ltd.	University of Seoul	Korea SMEs and Startups Agency	Korea Research Institute of Bioscience and Biotechnology	Frost & Sullivan
Neo Trans Co., Ltd	Sungkyunkwan University Research & Business Foundation	Fintech Center Korea	Korea Institute of Industrial Technology	Industrial Bank of Korea
Green Technology Center	Smart City Association of Local Autonomous Entities	Hana Bank	Korea Software Industry Association	Korea Development Bank
Agriculture, Forestry and Fisheries Credit Guarantee Fund	New Growth Policy and Finance Association	Korea Appraisal Board	K-water	
Korea Institute of Planning and Evaluation for Technology in Food, Agriculture, and Forestry	Korea Credit Guarantee Fund	Korea Institute of Civil Engineering and Building Technology	Export-Import Bank of Korea	
		Korea Construction Engineers Association	Korea Smart City Association	
		Korea Conformity Laboratories	Korea Infrastructure Safety Corporation	
		Korea Airports Corporation	Korea Credit Information Services	
		Korea Institute of Science and Technology Evaluation and Planning		

Partners

KAIA Global Partners





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

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