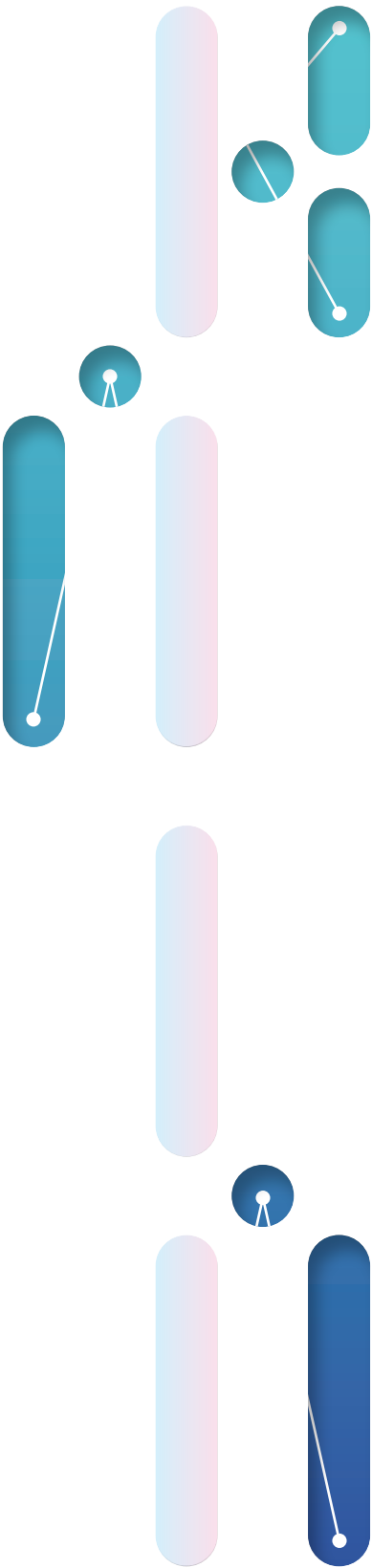
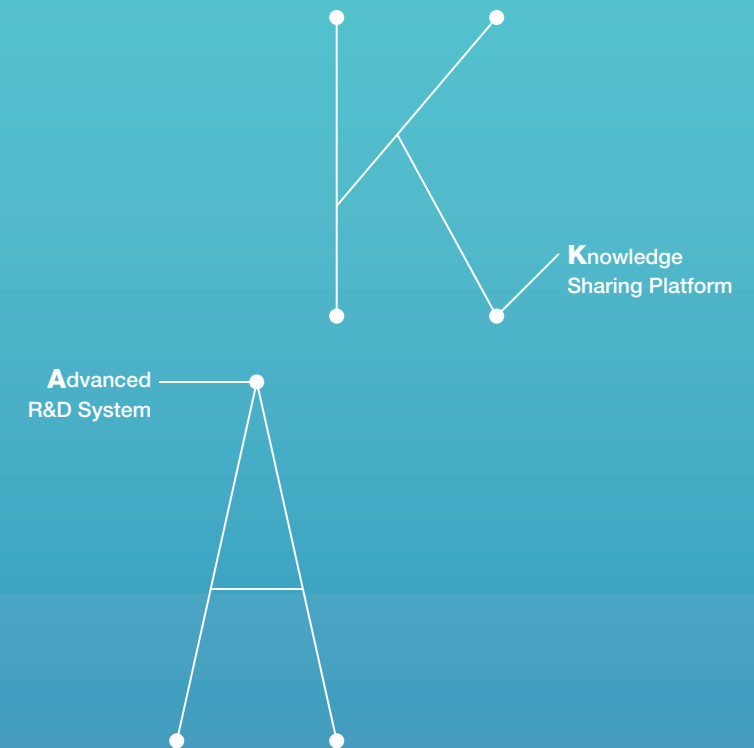
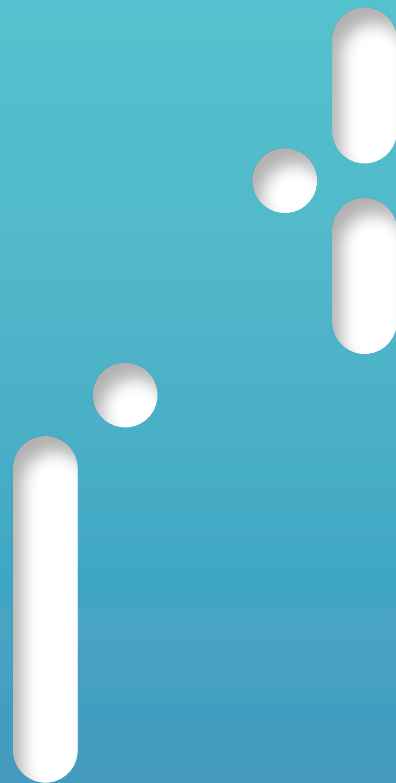


Human-Centered
Space
Future-Oriented
Innovation





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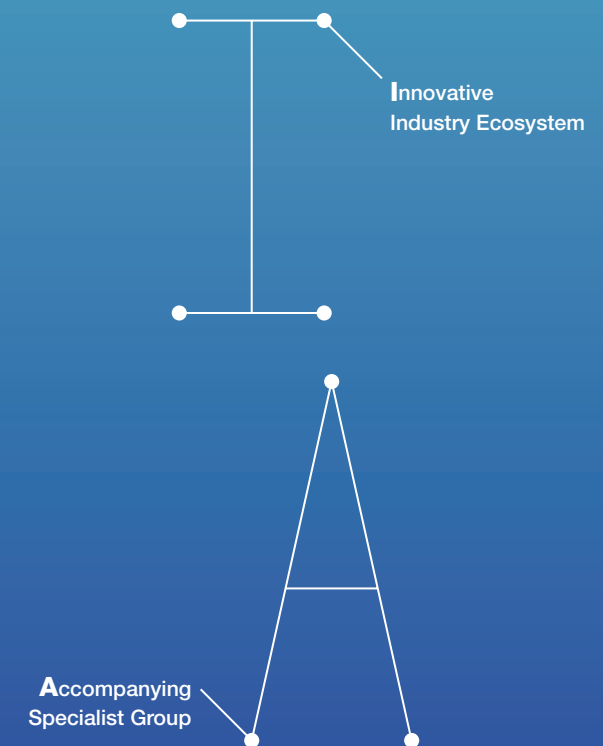
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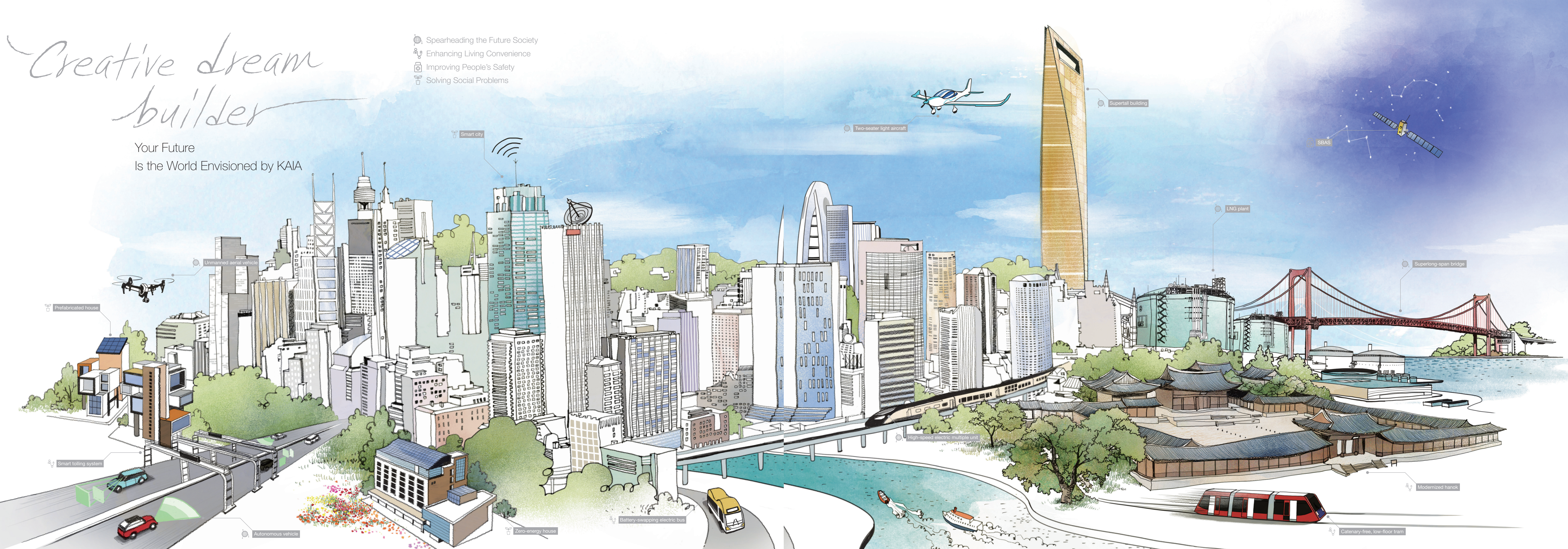
Land, Infrastructure,
and Transport R&D's
Only Unchanging Standard
Is You

A human-oriented technology hub
That fills all of your spaces
With new values
We will make it come true at
Land, Infrastructure, and Transport R&D

Creative Dream builder

Your Future
Is the World Envisioned by KAIA

-  Spearheading the Future Society
-  Enhancing Living Convenience
-  Improving People's Safety
-  Solving Social Problems



Prefabricated house

Unmanned aerial vehicle

Smart city

Two-seater light aircraft

Supertall building

SBAS

LNG plant

Superlong-span bridge

High-speed electric multiple unit

Battery-swapping electric bus

Zero-energy house

Autonomous vehicle

Smart tolling system

Modernized hanok

Catenary-free, low-floor tram

Advanced technologies that
turn imagination into reality

Heading toward
a bright tomorrow



We lead the future of land,
infrastructure, and transport industries
with world-class technology

Automatic Immigration
Clearance System



- Developed the world's first automatic immigration clearance system
- 52 machines in operation at the Incheon International Airport

Tunnel-Boring Machine (TBM)
Cutterhead



- Developed the world's seventh TBM cutterhead

Super concrete



- Developed Ultra High Performance Concrete (UHPC) materials and structural technology and constructed the world's first UHPC road cable-stayed bridge and unstructured shell structures
- Built the entrance bridge of Legoland in Chuncheon and the Healing Place on Ulleung Island(2017)

High-Speed Electric Multiple Unit



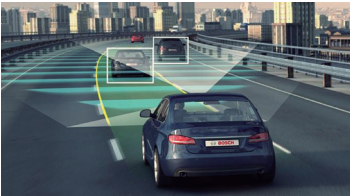
- Developed a commercialized technology for high-speed EMU, with a maximum speed of 421.4 km/hr (the fourth of its kind in the world)
- Received the Prime Minister's Award (the National Grand Prize in Technology) and was contracted to supply 130 models for commercial use

Urban Transit Maglev Train



- Commercialized the world's second urban transit maglev train
- Maximum speed of 110 km/hr; opened the Incheon International Airport Line (2016)

Autonomous Vehicle



- Constructed K-city, a virtual city where autonomous vehicles will be tested(2018)

Two-Seater Light Aircraft



- Local production of two-seater light aircraft (KLA-100)
- Successful first flight (2017)

LNG Plant



- Developed technology for building the world's largest LNG storage tank (270 million liters)
- KOGAS applied the final design to build three plants at its Samcheok receiving terminal (2017)

Superlong-Span Bridge

(Suspension bridge cable construction equipment)



- Domestic production of construction equipment for suspension bridge cables
- Applied to the Yi Sun-sin Bridge(2011), the Third Bosphorus Bridge in Turkey(2016), and design of the world's longest suspension bridge in Turkey, the Çanakkale bridge(2018)

Supertall Building Design and
Construction Technologies



- Applied to the Lotte World Tower (2016) and the Kingdom Tower in Saudi Arabia(2015)

Enhancing Living Convenience

Everyday technologies that
you can feel with your senses
Presenting you with more
convenient means of living



We enhance your quality of life
through convenient transport services,
pleasant residential environments,
and technologies
you can experience firsthand

Battery-Swapping Electric
Bus System



- Developed and commercialized the battery swapping electric bus system
- Operates 2 buses in Pohang ; introduced/ operates four lines and 23 buses in Jeju (2016)

Baggage Handling System



- Developed the Self Bag Drop System for airport baggage
- Applied to city airport terminals in Korea (2016)

Catenary-free Low-Floor Tram



- Developed technology for the commercial use of catenary-free low-floor trams
- Exported to the cities of Izmir (2014) and Antalya (2015) in Turkey

Smart Tolling System



- Commercialized toll payment technology using a wireless communication and image recognition system
- Applied to tollgates in West Busan, South Incheon, West Yeongam, South Suncheon, and North Daegu

Online Electric Vehicle (OLEV) Bus



- Developed the world's first OLEV bus
- Operates in Gumi, Sejong, etc., and selected as one of the Top 10 Emerging Technologies for 2013 at the Davos Forum (2013)

Food Waste Zero System



- Developed technology that grinds food waste and composts it within residential complexes
- Applied the system to Suseo LH apartment complex in Gangnam, Seoul



Modernized Hanok

- Developed low-cost lightweight Korean earthen tile, high-performance walls, windows and doors, and other technologies for entry-level modernized hanok
- Built the hanok pilot village in Gangneung, the Hanok Technology Exhibition Hall in Suwon, and modernized hanok-style public buildings in Sunchang (2016)

Improving People's Safety & Solving Social Problems

14

Reliable technologies that
you can trust and with which
you feel at ease

Being responsible
for people's safety



We are thorough in preventing
disasters, catastrophes, and
various unexpected accidents

High-Performance Fiber Reinforced Cement Composite Materials



- Acquired technology for manufacturing high-performance fiber-reinforced cement composite materials capable of improving the explosion—proof performance by 2.5 times and reducing structural thickness and weight by 50% compared to existing technology

Vertical Platform Screen Door



- A platform screen door system that can be installed irrespective of train door positions
- Signed a pilot installation contract with the French National Railway Company (2017)

Damping device for seismic retrofit of existing buildings



- Developed composite dampers (steel·friction) for seismic retrofit of residential & commercial facilities
- Applied to Jeju Fire Service Training Corps and Institute for Unification Education(2017)



We set people free from social
problems like climate change

High function housing focusing on living (WINC-Free 4 housing)



- Developed technology, such as infilling floor buffer materials, to improve four major defects (noise, indoor pollution, condensation, water leakage) in apartments
- Applied to an apartment in Ilsan, Goyang (2018)and under construction of an apartment in Ayang, Anseong (2020)

Prefabricated Housing



- Developed a prefabricated housing technology with high economic feasibility and residential performance
- Built test sites in Gayang-dong, Seoul, and Dujong-dong, Cheonan



Zero-Energy Housing

- Secured design and construction technology for zero-energy housing
- Constructed a multifamily housing in the Nowon District of Seoul and was certified by the International Passive House Association in Germany (2017)

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KAJIA
BROCHURE

R&D Fields

The Korea Agency for Infrastructure Technology Advancement (KAIA) is the sole institution in Korea that specializes in land, infrastructure, and transport R&D. It conducts R&D planning, management, and evaluation; certification on new technologies of construction, transport and logistics; and, value assessment and trading of technologies. KAIA is always doing its best to improve the quality of people’s lives by interconnecting technologies, human beings, and the society, and to strengthen national competitiveness.

Construction Technologies

KAIA supports the enhancement of safety in social infrastructure, buildings, rivers, etc., along with low-energy and high-efficiency space creation and management technologies and high value-added construction technologies.

- Smart Civil Infrastructure Research Program**
Developing core technologies to ensure safety, high-added value, modernization, and global leadership of Social Overhead Capital facilities at all stages (design, construction, maintenance, and dismantling)
- Advanced Water Management Research Program**
Developing core technologies for the utilization and management of sustainable river facilities and the safety against flood responding to water disaster
- Industrial Facilities and Infrastructure Research Program**
Increasing domestic applications and competitiveness in winning foreign contracts for plant construction projects through the development of core processes, preliminary design, testing, and development of technologies required for building industrial facilities and infrastructure
- Large-scale Hydrogen Liquefaction Plant Technology Research Program**
Developing hydrogen liquefaction processes and core facilities to enhance efficiency of production, storage, transport and utilization of hydrogen
- Architecture and Urban Development Research Program**
Developing technologies to create new building cultures such as supertall buildings, promote urban regeneration, establish safe living environments, and reduce greenhouse gases to enhance vitality of urban areas
- Residential Environment Research Program**
Developing housing technologies to create residential spaces that people can experience as pleasant, durable, and safe

- Energy Efficient Low-carbon Architectural and Building Technology Research Program**
Green remodeling and building microgrid-based optimal energy sharing communities to reduce greenhouse gases
- Urban Declining Area Regenerative Capacity-Enhancing Technology Research Program**
Developing solution technologies such as prediction and analysis of safety risks for regeneration of urban declining areas including old low-rise residential areas and downtowns
- Land Space Information Research Program**
Providing efficient and systematic production and processing of land space information, and promoting people's convenience and industry development through various utilization/convergent service technologies involving land space information
- Spatial Information-based Immersive 3D Contents and Mixed-Reality Technology Research Program**
Establishing organic cooperation system that converges national high-precision spatial information and other industrial technologies and developing core technologies to provide immersive 3D urban models
- Smart City Innovation Growth Engine Program**
Creating Smart City innovation model for sustainable growth and improving the quality of people's lives
- Satellite Information Utilization Center Establishment Program**
Developing satellite information utilization technologies for efficient operation of Next Generation Satellite I and II (Land Observation Satellites) to be launched in 2019 and 2020

Transport Technologies

- KAIA supports the establishment of ICT-convergent/integrated road, railway, and logistical infrastructure and the strengthening of linkages between modes of transport and transport welfare technologies that expand the convenience and accessibility of transport.
- Transport and Logistics Research Program(General)**
Reducing deaths caused by traffic accidents, improving traffic congestion, and reducing logistics costs, along with reducing emissions and providing convenient transport services for a pleasant road environment
- Transport and Logistics Research Program(Road)**
Developing road traffic technology for the advancement of road safety management, improvement of traffic congestion and establishment of comfortable road environment
- Connected Automated Driving Safety and Infrastructure in Urban Roads Research Program**
Developing core technology and dynamic mapping technology to implement connected automated driving(level 4 or higher) based on Vehicle to Everything (V2X) communication in downtown areas
- Smart Road Lighting Platform Development & Empirical Study on Test-bed**
Developing smart road lighting technology to provide risk information through the collection and supply of road environment information
- Railroad Technology Research Program**
Developing new-type railway system, train control technology for high-speed railway and core railway components for rapid and safe railway system
- Smart Railway Vehicle Maintenance Technology Research Program**
Developing real-time condition diagnosis and customized active maintenance technology based on automation of railway vehicle sensing and analysis
- Subway Particulate Matter Reduction Technology Research Program**
Developing real-time monitoring, forecast and reduction technology of particulate matters based on big data and AI for securing the living health of subway customers

Infrastructure Building

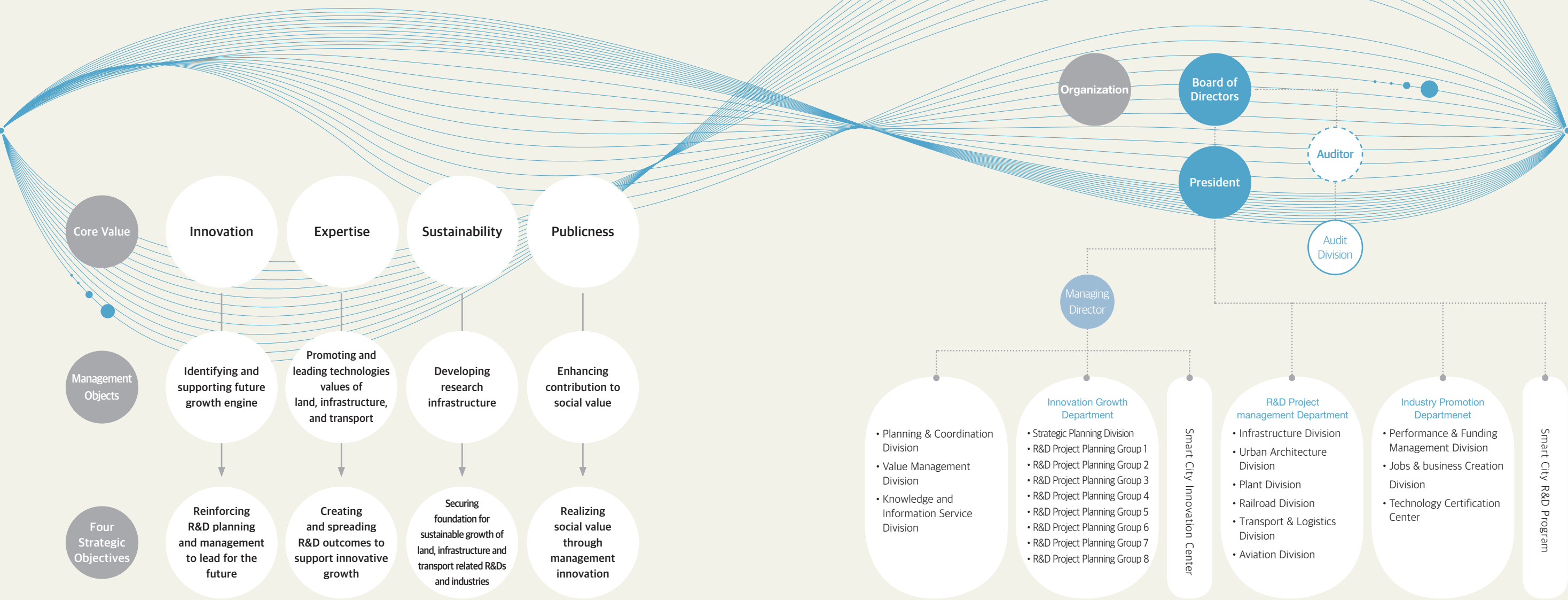
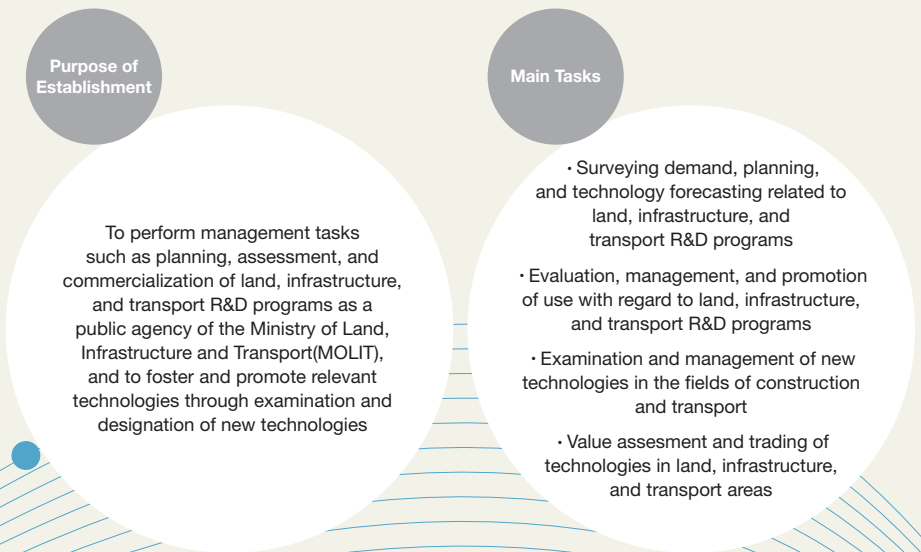
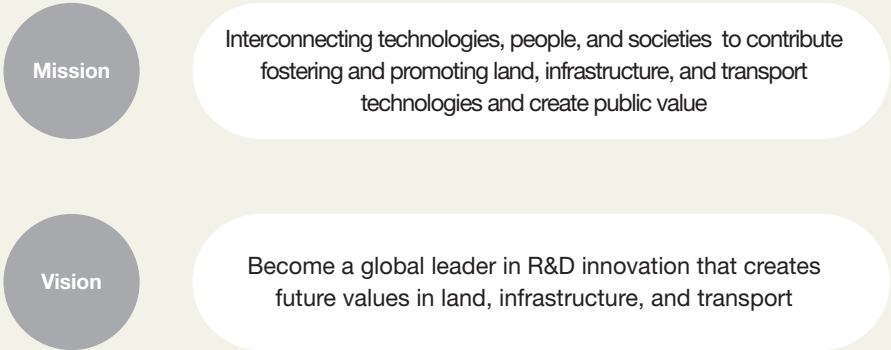
KAIA supports the development of basic source technologies and technology commercialization to create the basis for future growth, and the cultivation of regionally specialized technologies to enable regionally balanced development.



- Aviation Technology Research Program**
Developing aviation safety technologies for efficient prevention of air accidents and management of air transport demand
- Unmanned Aerial Vehicle Safety Research Program**
Developing a safe navigation and traffic management system to activate the new growth of the civilian unmanned vehicle industry, and operating an integrated pilot program
- Light Civil Helicopter Certification Research Program**
Establishing a national certification system to secure aircraft stability and for use in international aviation safety agreements, and conducting a pilot certification of light civil helicopters (LCHs)
- A Research Program of Repaired Parts and Its Continuing Air-worthiness Certification Technology for Aircraft Landing Gear & Winglet**
Developing maintenance technology and establishment of certification system for aircraft equipment and parts
- A Research Program of Airworthiness Certification Technology for Optional Piloted Personal Air Vehicle**
Developing airworthiness certification and safety operation of the flying vehicle in future, such as Optionally Piloted Personal Air Vehicle(OPPAV)
- A Research Program of Certification and Continuing Airworthiness Technology for Unmanned Aerial Vehicle System**
Developing certification system for unmanned operation of small-size fixed-wing aircraft
- Big Data-Based Aviation Safety Management and Security Certification Technology Research Program**
Developing intelligent air safety management system and aviation security certification technology based on big data for responding to and implementing domestic aviation security policies
- Unmanned Vehicle and SW Platform Research Program related to Public Procurement for Innovation**
Developing unmanned vehicle and SW platform reflecting the needs of public institutions such as river management and railway facilities inspection

- Construction and Transport Technology Advancement Research Program**
Developing core source technologies and establishing a research infrastructure for the promotion of construction and transport technologies
- Tech Business Support Program**
Cultivating small and medium businesses in the construction and transport sectors as global enterprises, and creating jobs
- Regional Development Research Program**
Establishing a sustainable construction and transport R&D hub through regionally based R&D centers that cultivate local research personnel and develop regionally specialized technologies
- R&D Project Planning Program**
Finding and planning future core technologies to foster growth that will pave the way for future construction and transport technologies
- Research Achievement Utilization Support Program**
Inspecting the reliability of technologies to support the market entry of research achievements in construction and transport, transferring public technologies, promoting connections between local and foreign clients, etc.

KAIA Introduction



KAIA History



2000

- 2002. 12 • The Korea Institute of Construction and Transport Technology Evaluation and Planning(KICTEP) was established as a foundation
- 2003. 02 • It was designated as a specialist institution for R&D programs in construction technology
- 05 • It was designated as a specialist institution that examines new construction technologies
- 2004. 01 • It was designated as a specialized institution for R&D programs in transport technology



2005

- 2005. 10 • KICTEP was established as a legal entity
- 2006. 02 • It was designated as a government-affiliated institution
- 05 • It established a road map for R&D innovation in the construction and transport industries
- 2007. 04 • It was designated as a quasi-governmental organization
- 2008. 11 • The International Symposium on Land, Transport and Marine Technology was held
- 2009. 02 • The first New Construction Technologies Workshop was held
- 03 • KICTEP achieved first place in customer satisfaction among quasi-governmental organizations according to a survey by the Ministry of Strategy and Finance



2010

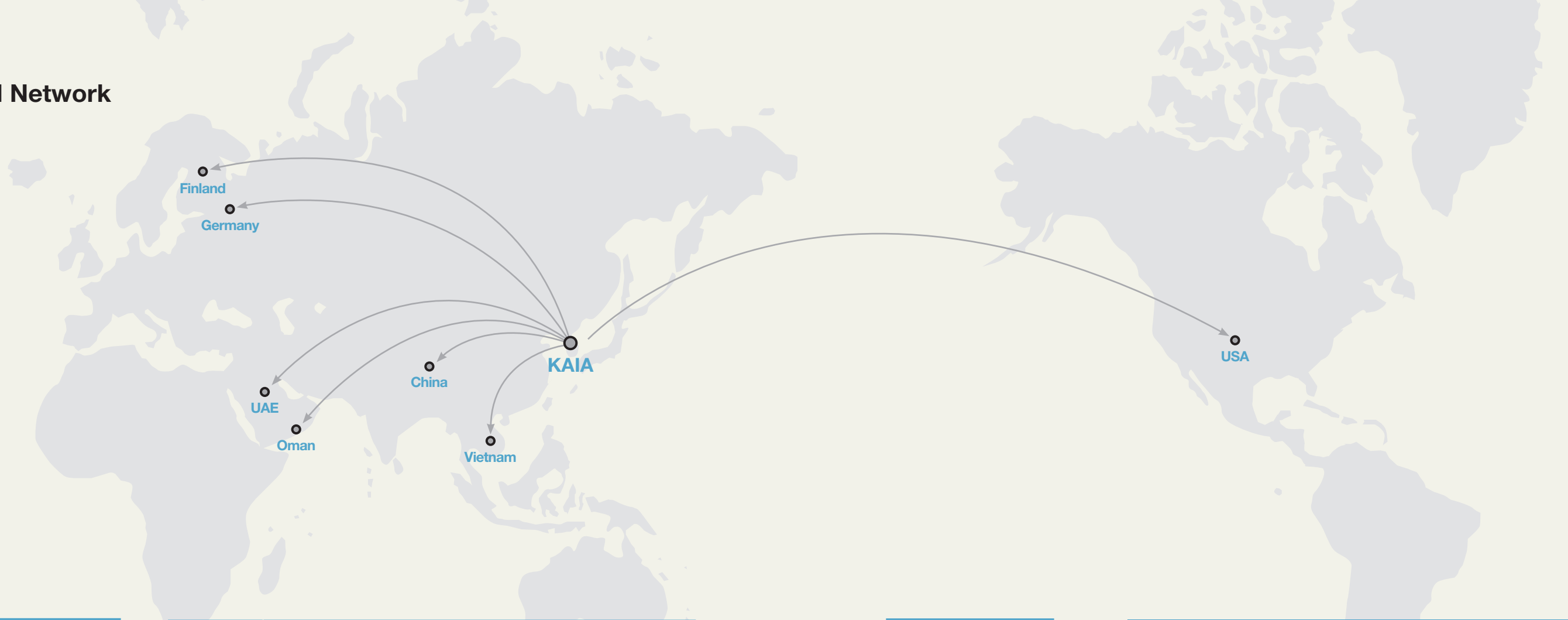
- 2010. 04 • It was designated as a specialist institution that examines new transport technologies
- It was designated as an assessment institution that certifies green technologies
- 06 • The first Land, Transport, and Marine Technology Fair was held
- 2012. 06 • The second Land, Transport, and Marine Technology Fair was held
- 12 • KICTEP was awarded the NTIS Data Quality Assessment Grand Prize
- 2013. 04 • KICTEP was renamed to become the Korea Agency for Infrastructure Technology Advancement(KAIA)
- 07 • The 2013 Land, Transport, and Marine Technology Fair was held
- 2014. 04 • The Global Desalination Research Center was launched
- 05 • The 2014 Land, Infrastructure, and Transport Technology Fair was held



2015

- 2015. 06 • The 2015 Land, Infrastructure and Transport Technology Fair was held
- 09 • KAIA was selected as 2015's top-ranking institution in human resources development
- 12 • The first issue of KAIA Insight was published
- 2016. 05 • The 2016 Land, Infrastructure, and Transport Technology Fair was held
- 06 • The Land, Infrastructure, and Transport Science and Technology Development Act (which provides the legal basis for the agency) was enforced
- The first KAIA Academy was held
- 12 • KAIA was designated as an institution for assessing the value of technologies in the fields of construction and transport
- It was designated as a family-friendly certification institution
- 2017. 05 • The Smart City Initiative was declared
- The 2017 Land, Infrastructure, and Transport Technology Fair was held
- 09 • The Smart City Business Fair was held
- 2018. 05 • The 2018 Land, Infrastructure, and Transport Technology Fair was held
- 11 • The first Land, Infrastructure and Transport Good Job Fair was held
- 11 • It was designated as a technology trading organization
- 2019. 01 • It was designated as a support institution for Smart City Service

Global Network



Foreign Partners

Country	Institutions
USA	Stanford Research Institute (SRI) International
	The Transport Research Board (TRB) of the National Academy of Sciences of the United States of America
	MITRE Corporation
	Korean–American Society of Civil and Environmental Engineers
	National Aeronautics and Space Administration (NASA)
	Texas A&M Transport Institute (TTI)
	Innovation, Creativity and Capital Institute (IC ² Institute)
Canada	Alberta Innovates
China	Tsinghua University
	Dongguan RITS Innovation Center
	Xianyang Municipal Government
Vietnam	National University of Civil Engineering of Vietnam (NUCE)
	UTC(University of Transport and Communications ITST(Institute of Transport Science and Technology)
Cambodia	Ministry of Rural Development
UAE	Global Desalination Research Center (GDRC)
	Abu Dhabi Future Energy Company PJSC (Masdar)
	Masdar Institute of Science and Technology (MIST)
Oman	The Middle East Desalination Research Center (MEDRC)
Germany	Fraunhofer
Finland	VTT Technical Research Centre of Finland

Local Partners

Institutions		
Korea Development Bank	University of Seoul	Korea Transport Institute
The Construction Economic Daily	Smart City Association of Local Autonomous Entities	Korea Enterprise Data
Gyeonggi Urban Innovation Corporation	New Growth Policy and Finance Association	Korea Desalination Plant Association
Kyungpook National University	Commercializations Promotion Agency for R&D Outcomes	Korea Expressway Corporation
Goyang City	Yozma Group Korea	Korea IoT Association
Goyang Industry Promotion Agency	Incheon Free Economic Zone (IFEZ) Authority	Korea Institute for Advancement of Technology
Ministry of Employment and Labor, Goyang District Office	Incheon International Airport Corporation	K-water
Korea Transport Safety Authority	National IT Industry Promotion Agency	Korea Smart City Association
National Library of Korea	Korean Government Legal Service	Korea Infrastructure Safety Corporation
Agency for Defense Development	LG Uplus Corp.	Korea Institute of Energy Technology Evaluation and Planning
Korea Research Institute for Human Settlements	Noroo Kiban Co., Ltd.	Korea Information Society Agency
Land, Infrastructure, and Transport Institute for Human Resources Development	KINTEX	Korea Intellectual Property Strategy Agency
National Assembly Library of Korea	Korea Housing & Urban Guarantee Corporation	Korail
Neo Trans Co., Ltd.	TIDE Institute	Korea Railroad Research Institute
Foundation of Agricultural Technology Commercialization and Transfer	Hana Bank	Korea Rail Network Authority
Daegu Metropolitan City	Korea Appraisal Board	Korea Rolling Stock Industries Association
Daegu Center for Creative Economy & Innovation	Korea Construction Engineers Association	Korea Land and Housing Corporation
Korea Trade–Investment Promotion Agency	Korea Conformity Laboratories	Korea Institute of Marine Science & Technology Promotion
Korea Land and Geospatial Informatix Corporation	Korea Airports Corporation	Korea Environmental Industry & Technology Institute
Busan Institute of Science and Technology Evaluation and Planning	Korea Institute of Science and Technology Evaluation and Planning	International Contractors Association of Korea
Busan Metropolitan City	Korea Institute of Science and Technology Information	Hyundai Rotem Co., Ltd.
Seoul Metro Corporation	Korea Tourism Organization	