



INVESTMENT
OPPORTUNITIES
IN KOREA

Aerospace



KOTRA 20-160

Investment Opportunities in Korea _ Aerospace

Publisher	KOTRA	Writer	Investment Public Relations Team, KOTRA
Date of Publication	May 2020	Reference	Korea Aerospace Research Institute www.kari.re.kr
Contact information (Call)	(82-2) 1600-7119		(Jun-Woo Park)
Official website	www.kotra.or.kr www.investkorea.org	ISBN	979-11-6490-393-1 (93320)

Copyright © 2020 KOTRA. All rights reserved.



Contents

01. Industry Trends	4
1.1 Market Trends in Korea	6
1.2 Industrial Competitiveness	11
1.3 Promising Fields in Korea	14
02. Foreign Direct Investment Trends	17
2.1 Foreign Direct Investment Status	18
2.2 Success Cases of Major Foreign-Invested Companies	18
03. Policy and Locations	19
3.1 Key Policies and Incentives	20
3.2 Major Locations	22
04. Potential Partners	25
4.1 List of Related Companies	26
4.2 Related Associations	29

* Figures on the report show the likely adjustment of average yearly currency rates from Korean Won (KRW) to the US dollar (USD). A rate adjustment is adopted particularly reflecting the recent average market variations to eliminate the valuation effects arising from movements in exchange rates in case when the data expressed shows an annual growth rate on the paper.

* Rate adjusted figures are rounded off, but the sum is correct down or up to the decimal when the rounded values are not equal to the adjustment.

INVESTMENT
OPPORTUNITIES
IN KOREA

Aerospace



01

Industry Trends

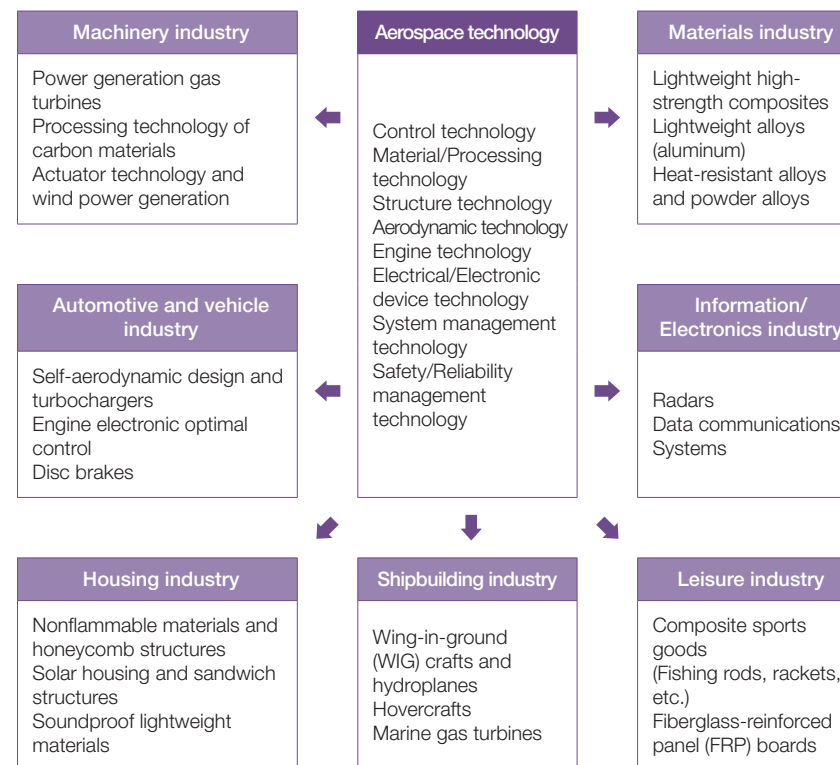


Definition and Classification

Aerospace Industry Definition and Features

- (Definition) The aerospace industry involves the production activities in the aviation and space industries, such as producing aircraft, space aircraft, and related accessories and materials.
- (Features) It is a technology-intensive and high value-added industry.
 - The aerospace industry requires cooperation among various fields, such as aviation, physics, mathematics, machinery and materials, avionics, communications, software, etc.
 - The aerospace industry has a big ripple effect on the development of various industries, such as the automotive, electrical, and medical industries.

Major Industries Benefiting from Aerospace Technology



Source: Korea Aerospace Industries Association (KAIA)

History of the Korean Aerospace Industry

- (Aviation industry) The development of independent Korean models began with the KT-1, a basic trainer; T-50, a supersonic trainer; and Korea Utility Helicopter (KUH), a mobile helicopter. Exporting these models to seven countries opened an era for the aircraft industry to play an active role in export-led industrialization in the 2010s.
- (Space industry) Since the launch of the Korean Institute of Technology Satellite-1 (KITSAT-1) in 1992, Korea has continued space development activities and has recently succeeded in a trial launch of the Nuri (November 2018). So far, Korea has successfully developed 15 kinds of space aircraft, including multipurpose satellites, geostationary satellites, etc.

1.1

Market Trends in Korea

Revenue status in the aerospace industry

- (Aviation industry) The aerospace industry grew rapidly by 28% in 2015 but has been stagnant since 2017.
- (Space industry) The space industry has been steadily increasing in revenue since 2013, and the space market is expected to grow with the expansion of commercial utilization according to the opening of the New Space Era.

Revenue in the Aerospace Industry (2015–2017)

(Unit: USD million)

Classification		2013	2014	2015	2016	2017
Aviation	Revenue	4,155	4,559	5,851	6,115	4,664
	Growth rate	-	9.7%	28.3%	4.5%	-23.7%
Space	Revenue	1,894	2,263	2,272	2,538	3,099
	Growth rate	-	19.5%	0.4%	11.7%	22.1%

Source: Space Industry Survey (2018), Industrial Statistics System

Import and export of the aerospace industry

- (Aviation industry) Exports in this industry have been steadily increasing since 2013, but trade balance is in the red because of a higher proportion of imports.
- (Space industry) Exports in this industry temporarily declined in 2015, but imports have fallen sharply since 2014, thereby leading to a surplus in trade balance.

Import and Export of the Aerospace Industry (2015–2017)

(Unit: USD million)

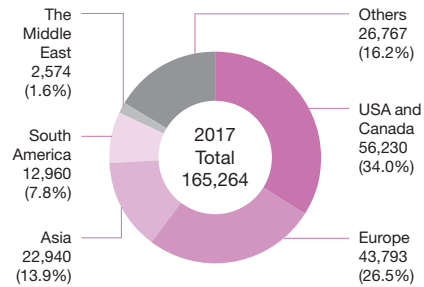
Classification		2013	2014	2015	2016	2017
Aviation	Export	2,360.91	2,252.96	2,333.02	2,357.00	3,179.89
	Import	5,008.82	4,538.91	5,349.05	5,509.00	3,691.87
	Trade balance	-2,647.91	-2,285.95	-3,016.03	-3,152.00	-511.98
Space	Export	887.43	1,100.95	833.82	987.99	1,608.01
	Import	884.00	1,010.85	686.58	545.61	572.29
	Trade balance	3.43	90.10	147.24	442.38	1,035.72

Source: Space Industry Survey (2018), Industrial Statistics System

- In 2017, Korea's main export destinations in the space industry were the United States and Canada, with USD 5.47 million (34%), followed by Europe, Asia, South America, etc.
- In 2017, Korea's main import partners in the space industry were the United States and Canada, the same as its export partners, accounting for USD 412 million (72%), while the rest of the imports were from Europe and Asia.

Main Export Partners in the Space Industry in 2017

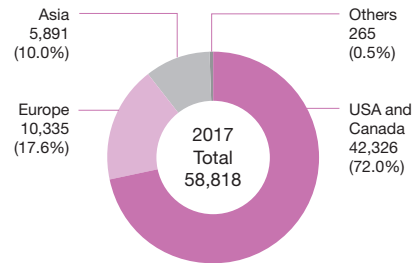
(Unit: USD 10 thousand)



Source: Space Industry Survey (2018)

Main Import Partners in the Space Industry in 2017

(Unit: USD 10 thousand)



Status of companies in the aerospace industry

- (Aviation industry) In Korea, about 100 companies are engaged in the aviation industry, and 42% are aircraft companies, accounting for 70% of the total export amount.
- (Space industry) In Korea, there are 326 space-related companies, with satellite services and equipment companies occupying the largest proportion as they account for 44% of the total.

Status of Companies in the Aviation Industry by Area

Areas	No. of companies	Major companies
Overall systems	2	Korean Aerospace Industries (KAI) and Korean Air
Aircraft airframes	45	Aerospace Technology of Korea (ASTK), Sacheon Aerospace Manufacturing Ind. Co., Ltd. (SAMCO), Yulkok, Hize Aero, etc.
Avionics	24	LIG Nex1, Hanwha Systems, etc.
Parts/Equipment	15	HYUNDAI WIA, etc.
Propulsion systems	5	Hanwha Techwin, Korea Lost Wax, etc.
Drones	5	Uconsystem, Korean Air, KAI, etc.
Total	106	-

Source: KAIA (2019)

Note: Some companies are listed more than once.

Status of Companies in the Space Industry by Area

Areas		Number of companies	Major companies
Satellite production		63	LIG Nex1, AP Satellite, KAI, Satrec Initiative, DACC Aerospace, etc.
Projectile production		65	Vitzro Nextech, Hanwha Machinery Division, Hanwha Aerospace, DACC Aerospace, etc.
Ground equipment	Ground stations and test facilities	35	High Gain Antenna, Satrec Initiative, CAMTIC, etc.
	Launchpads and test facilities	58	Hyundai Heavy Industries, Sung Jin Aero, etc.
Space insurance companies		8	KB Insurance, DB Insurance, Lotte Insurance, Meritz Fire & Marine Insurance, Samsung Fire & Marine Insurance, Hanwha Insurance, Hyundai Marine & Fire Insurance, Heungkuk Fire & Marine Insurance, etc.
Use of satellite services and equipment	Remote sensing	30	Samah Aerial Survey, GEOSTORY, Pixoneer Geomatics, etc.
	Satellite broadcasting	66	KT Skylife, Hanwoori Industry, KNS Inc., Dongyang IS, etc.
	Satellite navigation	55	Fine Digital, Mobile Appliance, i-Mercury, DIGEN, Fine Digital, Navcours, Essetel, Saehan Aero Survey, Arasafe, etc.
Scientific research	Earth science	9	Gaia3D, Space Environment Laboratory (SELAB), etc.
	Space and planetary science	6	Nara Space Technology, Shinhan TC, etc.
	Astronomy	4	ACE Lab, Space and Earth Technology System (SET System), etc.
Space exploration	Unmanned space exploration	8	Nara Space Technology, Space Solution, etc.
	Manned space exploration	0	-
Total		326	-

Source: KAIA (2019)

Note: Some companies are listed more than once.

Status of workforce in the aerospace industry

- (Aviation industry) The aviation industry workforce grew steadily up until 2016 but temporarily stagnated in 2017. In the space industry, workforce growth was high until 2015 and has been growing steadily since then.
- (Space industry) The workforce in the aerospace industry is dominated by that of the space industry, thereby showing a steep rise.

Workforce Status in the Aerospace Industry

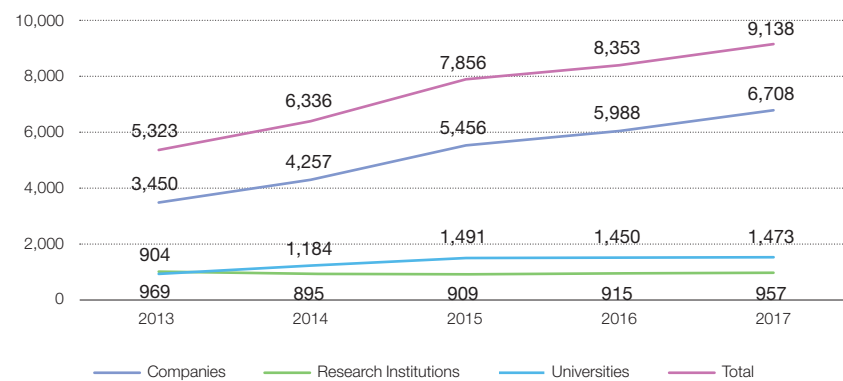
(Unit: persons)

Classification		2013	2014	2015	2016	2017
Aviation	Revenue	13,757	14,695	15,365	16,763	16,892
	Growth rate	-	7%	5%	9%	1%
Space	Revenue	5,323	6,336	7,856	8,353	9,138
	Growth rate	-	19%	24%	6%	9%

Source: Space Industry Survey (2018), Bank of Korea

Composition of Workforce Related to the Space Industry in 2017

(Unit: persons)



Source: Space Industry Survey (2018)

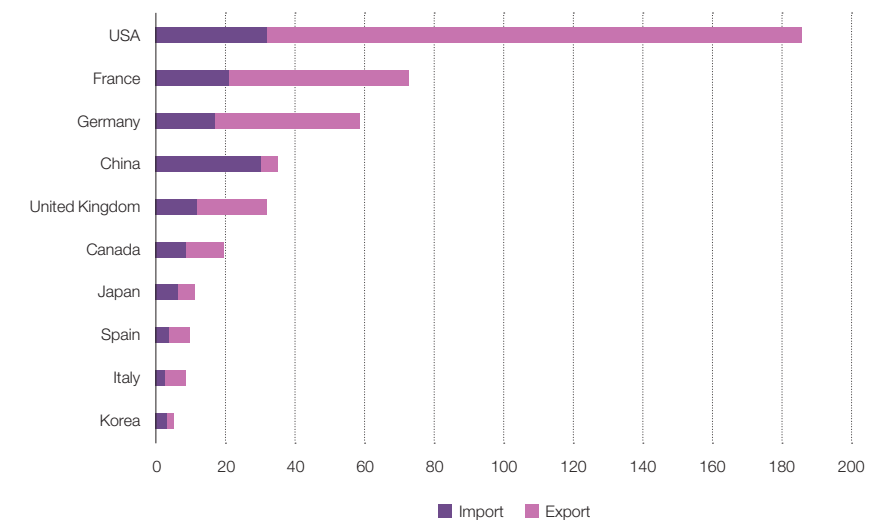
1.2 Industrial Competitiveness

Korea's status in the global aerospace industry

- As of 2018, Korea's trade volume was about USD 5.6 billion.

Main Trade Partners and Volumes in the Aerospace Industry (2018)

(Unit: USD billion)



Source: Korea Aerospace Research Institute

- The technology level of the Korea Aerospace Research Institute (KARI), Korea's aerospace research institute, is 67.5% of most advanced countries.

Classification	Competitiveness of KARI compared with overseas organizations
Summary	<ul style="list-style-type: none"> • KARI, which was launched 20 to 30 years later than advanced foreign aerospace organizations, made small investments in 7 of the 10 areas where NASA has invested. - KARI's workforce, budget, and research fund per capita are 1/19, 1/35, and 1/2 of those of NASA (as of 2015), respectively. • In the aerospace area, Korea's technological level is 67.5% of the top developed countries. ※ USA (100%) > EU (93.1%) > Japan (84.5%) > China (81.5%) > Korea (67.5%)
Aviation	<ul style="list-style-type: none"> • The institute secured the world's second tiltrotor* technology through the successful development of a smart drone (2012), and for the third time in the world, it successfully flew into the stratosphere using an electrical aerial vehicle (EAV) (2016). * Tiltrotor: Planes with vertical takeoff and landing capabilities • Compared to the top developed countries, Korea's technology level is 79.3% in the research-based intelligent UAV industry and 67.7% in the futuristic manned aircraft industry.
Satellite	<ul style="list-style-type: none"> • With the launch of multipurpose satellite no. 3 (2012), Korea became the world's fourth provider of the commercial submeter optical imaging services, and then with the launch of multipurpose satellite no. 5 (2013), the country started the synthetic aperture radar (SAR) imaging services for the fifth time in the world. • The level of Korea's satellite technology is about 70% of the top developed countries.
Use of satellites	<ul style="list-style-type: none"> • NASA requires more than 99.2% of ground-level service success rates. KARI meets this requirement in its operations of multipurpose satellites 2, 3, 3A, and 5 and Chollian 1, thereby maintaining their mission success rates of around 99.5%. • Korea's level of technology in satellite operation and utilization is estimated to be around 70%–78.5% of the top developed countries.
Projectile	<ul style="list-style-type: none"> • As of 2018, nine countries have their own launching capability, and six of them can launch practical (1t or more) satellites (Israel, Iran, and North Korea can launch satellites weighing 300 kg or less on their own). - The countries that succeeded in launching a satellite with their own launching capability include Russia (1957), the United States (1958), Europe (France, etc. 1965), China and Japan (1970), the United Kingdom (1971), India (1980), Israel (1988), Iran (2009), North Korea (2012). The United Kingdom, however, currently does not have the technology. - The countries that are investing in projectile-related technologies to launch satellites weighing less than 500kg include Argentina, Brazil, Indonesia, and Turkey. • Korea's level of technology in space projectile development is 66% of the United States' level.

Source: 2018–2021 Research Performance Plan (2018), Korea Aerospace Research Institute

Note: The technology levels in the table are based on the Korea Institute of S&T Evaluation and Planning (KISTEP)'s 2016 Technology Level Evaluation, which is assumed to be the same as that of the KARI.

Investment status of private companies in the aerospace industry

- R&D, which is deemed to have high growth potential (technology-based), is a major area in Korea's aviation industry that companies invest in, accounting for 30% of total investment every year.
- Korean companies in the space industry spend more than 40% of their budget on R&D annually and are expected to grow rapidly based on their technologies.

Status of Investment in the Aviation and Space Industry by Private Domestic

(Unit: USD million)

Classification	Areas	2016	2017	2018	2019 (outlook)
Aviation	R&D	96.12(28%)	130.17(37%)	178.31(36%)	196.66(34%)
	Facilities and equipment	132.87	94.26	159.04	238.54
	Land and buildings	99.88	78.46	63.47	111.68
	Others	11.7	45.36	91.42	31.82
Subtotal		340.57	348.25	492.24	578.70
Space	R&D	7.70(77%)	8.13(47%)	2.78(48%)	13.26(45%)
	Facilities and equipment	1.05	1.21	0.41	3.87
	Land and buildings	1.26	7.98	2.5	12.01
	Others	0	0.02	0.15	0.25
Subtotal		10.01	17.34	5.84	29.39
Total		350.58	365.59	498.08	608.09

Source: KAlA

1.3

Promising Fields in Korea

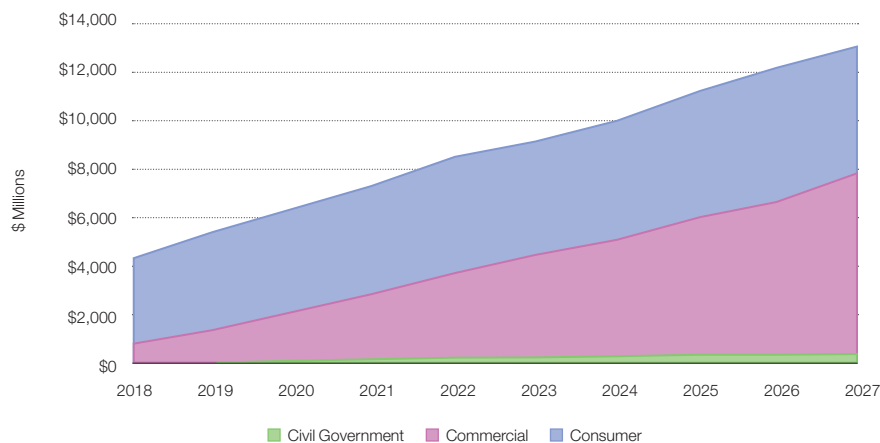
Drone

- According to the explosive growth of the global drone market, the Korean drone market is expected to grow in line with the government's policy* on fostering the drone industry.

* The First Comprehensive National Territorial Plan (2019)

- The global drone market is expected to grow at an average annual rate of about 13%, from USD 4.433 billion in 2018 to USD 13.128 billion in 2027.
- To expand the drone market, the Ministry of Land, Infrastructure and Transport (MOLIT) will uncover 3,700 units of public demand by 2021 in the fields of the national land survey, police work, and firefighting, and will actively support the procurement of excellent products.
- There are plans to establish drone testing centers (two locations) and a qualification test site for drone pilots in the Seoul Metropolitan Area.
- A project will begin for the development of a management system for remote and autonomous flight of drones using 5G and artificial intelligence (AI).

Global 5G Market Outlook (2018)



Source: Teal Group (2018)

Satellite

- (Satellites) The era of Space Internet has emerged because of the clustering of microsatellites, and technologies related to real-time monitoring and removal of waste need to be developed because of increasing space waste. Opportunities for private companies are expanding in line with the government's policy for the industrialization of satellite technology.
- (Information from satellites) As there is an expectation for satellite information to be used to solve people's problems, the need for the timely use of satellite information in the event of an emergency (such as a disaster or catastrophe) is increasing, along with the demand for personalized convergence and complex spatial information services.
 - Because access to real-time satellite images is improving, it can be developed and spread to various types of services. Accordingly, the market for civil-led satellite information is also expected to grow.
 - In line with the proliferation of a smart lifestyle focusing on personal media, the convergence of satellite information with the "Internet of Things" (IoT) technology will lead to the expansion of personalized services through the implementation of a new concept of spatial information services.

Areas related to drones and personal aircraft

- (Aviation) There is an increasing need for personal aircraft to become a new means of transportation within the city and between cities. This demand is also expanding to related technologies, such as electric dispersion and control technology.
 - Related markets are expected to grow rapidly as the government expands its policy on fostering the drone industry.
- (Navigation system) Because of the increase in the use of drones and the emergence of personal aircraft, there is an increasing need to establish an integrated air traffic management system for each city.
 - With the establishment of independent satellite navigation systems, commercialization opportunities for various navigation technologies are increasing.

Areas related to space exploration

- (Projectile) The reuse and modularization of projectiles drastically reduced launch costs and cycles. As a result, transportation capacity to space is maximized, and commercial use related to space is activated.

Methods and Examples of Reducing Launch Costs of Space Projectiles

Classification	Detailed methods	Examples	Remarks
Recycling	One-stage recycling	Falcon/New Shepard	
	Tto-stage recycling	Dream Chaser/RLV-TD	Vertical takeoff, horizontal landing (VTHL)
	Engine recovery	Ariane 6/UULA	Drone flying method
Air launch	-	Pegasus/Launcher One, etc.	Air Launch System
Massive production	-	Ariane 6	
Modularization	-	Angara/CZ-5, 7/H-3	
Redesign	Part count reduction	H-3	
	Use of local parts		

Source: Global Aerospace Trends (2017)

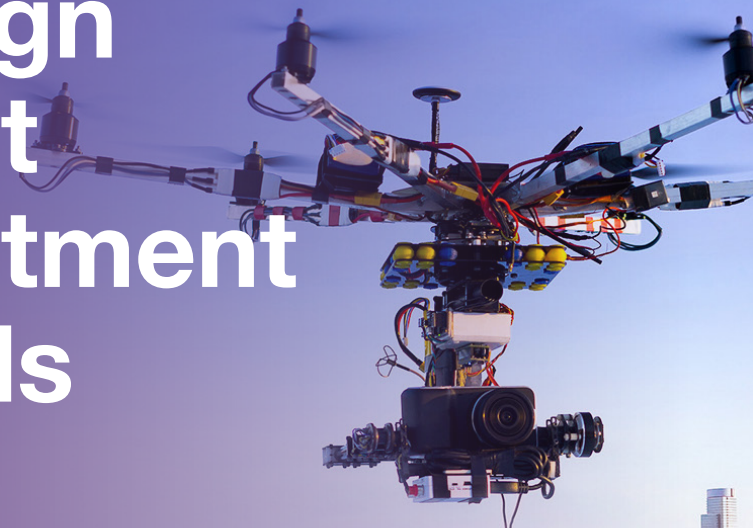
- (Space exploration) As more people around the world become interested in space, each country's capacity for space transport and the variety of demand for space exploration are increasing. In addition, the use of space resources is also increasing because of the need for alternative energy.

- According to a public survey* on aerospace, the major aerospace technologies considered by the public are space resource collection, space exploration, and space sunlight. Meanwhile, the expectations for aviation and space in 2050 are the universalization of space travel, sources of new energy and materials, and living in space.

* Survey on the Desirable Future of Aerospace in 2050 for Koreans (Korea Aerospace Research Institute, 2019)

- (Convergence) The convergence of the Fourth Industrial Revolution with aerospace technology can create more opportunities for technology in other industries, which can lead to the use of AI, innovative production processes, efficient maintenance, etc.

02 Foreign Direct Investment Trends



2.1

Foreign Direct Investment Status

- The foreign investment in the aerospace industry's manufacturing sector for the past five years amounts to USD 116 million—0.1% of the total investment amount.
- Because of the economies of scale and industry characteristics, such as vertical value chains, the performance in annual reports can be dependent on a few investments.

Statistics on Foreign Investments in the Aerospace Industry (2014–2018)

(Unit: EA, USD 1,000)

Classification*	2014		2015		2016		2017		2018		Total	
	No. of reports	Report amount	No. of reports	Report amount	No. of reports	Report amount	No. of reports	Report amount	No. of reports	Report amount	No. of reports	Report amount
Investment history	5	58,315	2	105	3	1,956	4	53,075	2	3,443	16	116,893

Source: Foreign Investment Statistics, the Ministry of Trade, Industry and Energy (MOTIE)

Note: The figures are the sum of "drone, aerospace, and auxiliary equipment manufacturing" and "drone and unmanned aerial vehicle manufacturing" according to the Korean Standard Statistical Classification (KSIC) classification. If investments into electronics and transportation machinery, which are classified as other areas, are included, the total investments could exceed USD 116 million in 16 cases for 5 years (2014–2018).

2.2

Success Cases of Major Foreign-Invested Companies

- Boeing and Korean Air have jointly established the Korean Air Flight Training Center in Yeongjong District, Incheon Free Economic Zone, to conduct aircraft pilot training.
- As a joint venture of Korean Air and United Technologies Corporation (UTC), which is an engine manufacturer, Incheon Aviation Tech (IAT) built an aviation engine maintenance center in Yeongjong District, Incheon Free Economic Zone, for testing aircraft engines (for B777, etc.).
- Israel Aerospace Industry (IAI) established Korean Aerospace Technology (KAT) in collaboration with Hankuk Carbon. The company develops and produces manned and unmanned aircraft with vertical takeoff and landing capabilities for military and civilian markets.

03

Policy and Locations

3.1

Key Policies and Incentives

Key investment benefits

- The Free Economic Zone Authorities of each region in Korea aim to improve the business environment and living conditions for foreign-invested enterprises and guarantee the autonomy of their economic activities through deregulation.
 - These Free Economic Zone Authorities offer favorable investment conditions for foreign firms, including various benefits such as support for management activities, good living conditions for foreigners, and immigrant investor programs.

Major government policies in the aviation industry

- (Fostering aviation industry) The following policies are being pursued to secure the Korean companies' competitiveness in entering the global market of finished aircraft and core parts, and to secure opportunities for market entry.
 - Support the development of finished aircraft for civil use and export-led industrialization, and establish an industrial development base in connection with military aircraft development.
 - Promote participation in the international joint development projects of large-scale civil aircraft, and strengthen the export industrialization capacity of civilian parts.
 - Industrialize the work of aircraft maintenance and renovation services.
 - Preempt personal aerial vehicle (PAV) technology, and expand into new service industries, including MRO services using AR and VR, outsourced engineering services, etc.
 - Expand the drone market, and foster industries by discovering public demand in the fields of the national land survey, police work, firefighting, etc.
- (Securing competitiveness) In consideration of the Fourth Industrial Revolution, the following R&D policies are underway to secure competitiveness in the core areas for the future:
 - Secure the independence of aviation engine technology, and concentrate on developing the three major technologies (sensor, flight control, and navigation) and ICT (information and communications technology) convergence technologies.
 - Strengthen participation in international joint development, and target ICT convergence niches, such as drones and smart cabins.

- Complement investment strategies for technology development, and strengthen cooperation among ministries to increase the R&D efficiency of aviation technologies.
- (Creation of industrial bases) For the development of the aviation industry, Korea will provide R&D and industrial and institutional infrastructure as follows:
 - Launch an aviation and ICT convergence alliance and build a drone convergence alliance.
 - Cultivate aviation clusters characterized by region and function.
 - Support the growth of the aviation industry by establishing customized financial support systems.
- (Aerial flight) The policies for providing safe and convenient air transportation services are as follows:
 - Create an aviation policy base to preemptively respond to future changes centered on aviation consumers, including the mobility disadvantaged persons.
 - Build a proactive and autonomous safety management system for air traffic.

Major government policies in the space industry

- (Independence in space projectile technology) Securing launch capabilities ranging from low orbit to stationary orbit
 - Foster an ecosystem for the Korea Space Launch Vehicle (KSLV-II) to secure the country's own launching capability and enter the launch services market.
 - Extend the technology of the KSLV-II to projectiles of various sizes.
- (Strengthening satellite development and utilization) Improving people's lives by developing and utilizing various advanced satellites
 - Enhance the level of satellite technology, and preempt future technologies by improving the efficiency of the satellite development system.
 - Jointly use satellites by ministry and agency, and promote support for satellite services in the public sector.
- (Beginning of space exploration) Engaging in activities of global space exploration, starting with lunar orbiters and landers
 - Develop and operate the Korea Pathfinder Lunar Orbiter (KPLO) to pursue follow-up projects after completing phase 1 of lunar exploration.
 - Promote various research for space science technologies and space exploration through

microsatellites and international cooperation.

- (Construction of Korean satellite navigation system) Strengthening independence in locational and visual information by building Korea's system
 - Conduct a preliminary feasibility review of the project to establish the Korea Positioning System (KPS), finalize the specifications, and develop an implementation strategy and the framework of the project.
- (Response to space risks) Expanding the technology bases and response systems for space risk monitoring
 - Establish a comprehensive response system for all departments against space risks, including the operation of a space risk management center, and designate a space environment monitoring agency.
 - Secure the capacity to monitor falling objects in space for early warnings, watch space objects in orbit to predict collisions, and detect dangers from the sun.
- (Creation of innovative space ecosystem) Development of core technologies, localization of parts, expansion of private participation, the convergence of technologies, and strengthened cooperation in the space industry
 - Establish and implement strategies to encourage participation in industry-academia R&D, systematize technological development processes, and expand international cooperation.
 - Support the phased transition of the satellite and projectile development projects to private enterprise-led production systems, and help the commercialization of space technology.

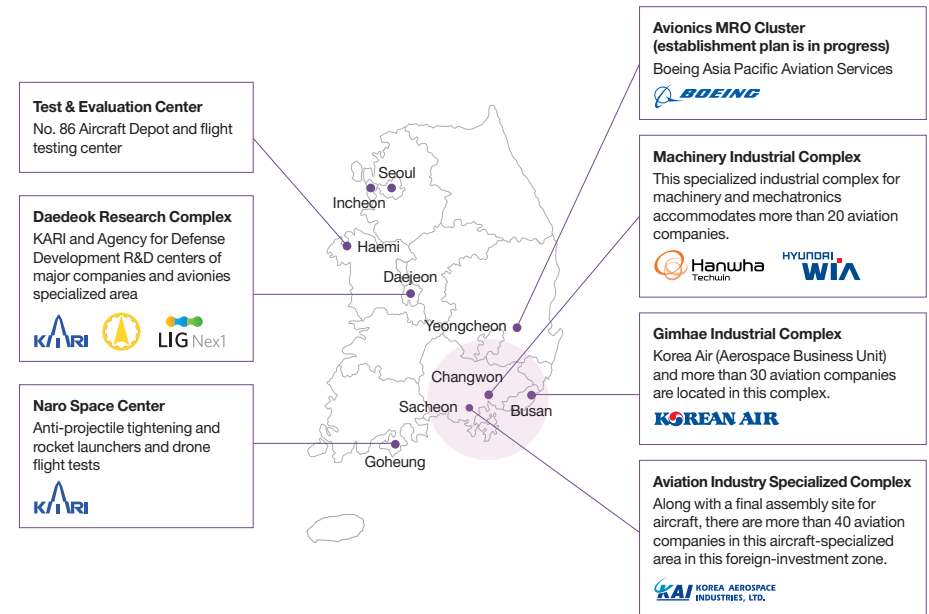
3.2

Major Locations

Regional infrastructure of the aviation industry

- Building the testing and evaluation facilities together with major companies in the aviation industry, especially in Gyeongsangnam-do
 - An Aviation Industry Specialized Complex has been established in Sacheon, where major aviation companies such as KAI are based. In addition, an Avionics MRO Cluster has been formed in Yeongcheon.

Major Companies and Infrastructure in the Aviation Industry by Region

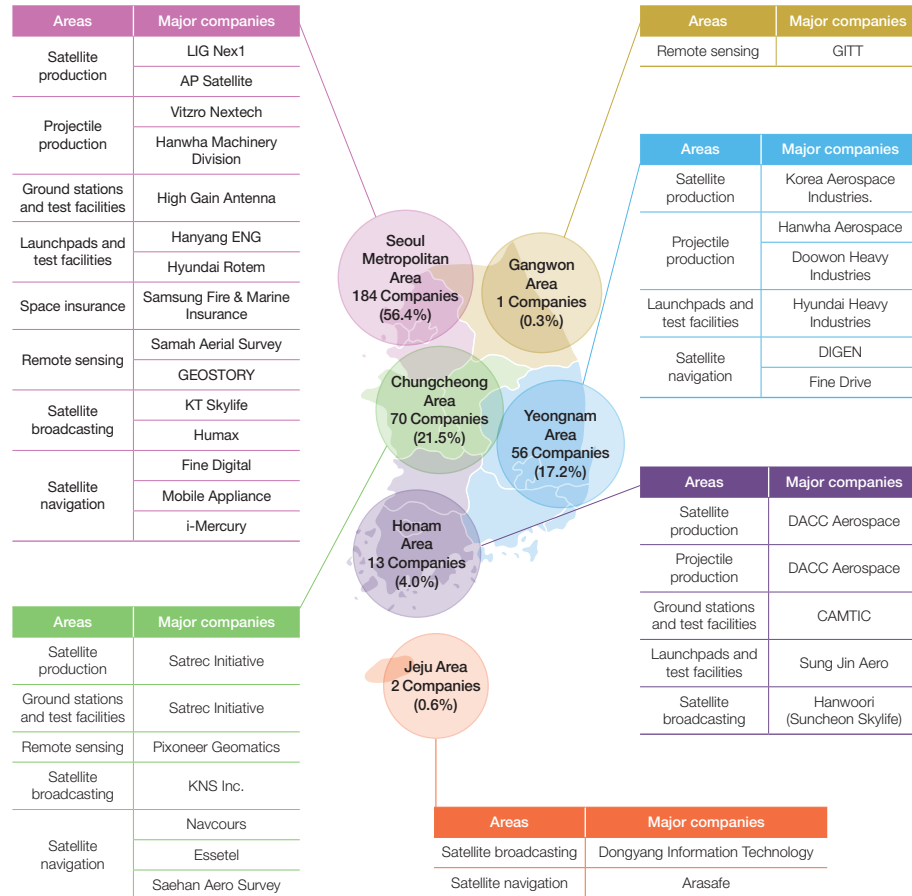


Source: KAIA

Regional infrastructure of the space industry

- Companies in the space industry are mainly distributed in the Seoul Metropolitan Area and Chungcheong areas (254 companies, 77.9%).
 - In the Seoul Metropolitan Area, there are various space-related companies (184 companies) specializing in satellite and projectile production. Meanwhile, in the Chungcheong area, major satellite-related companies, including Satrec Initiative, have formed their bases.

Major Companies and Infrastructure in the Space Industry by Region



Source: Space Industry Survey (2018)

04 Potential Partners



4.1

List of Related Companies

List of aviation companies

Areas	Participating companies
Overall system	Korea Aerospace Industries and Korean Air
Aircraft airframe	AeroSpace Technology of Korea, Hize Aero Corp., SAMCO, Yulkok
Propulsion system	Hanwha Techwin, Hanwha Aerospace, Korea Lost Wax, Hana ITM
Avionics	Hanwha Systems, LIG Nex1, Firstec, Danam Systems, and Huneed Technologies
Parts/Equipment	HYUNDAI WIA Corp.; DACC Carbon, Korea Carbon; Hanwha Machinery; NEUROS
Drone	Uconsystem, Korean Air; Korea Aerospace Industries
Others	DnM Aero, Hyune Aero-Specialty, Kyung Nam Metal, Giga Lane, Lakwoo Industry, Nes & Tech, Nexcoms, Navcours, Dawin Friction, Daesung TMC, Daehwa Aerospace Industries, Dongsung TCS, Dongyang AK Korea, Dongyoung M&T, Dongjin Electric & Machinery, Donghwa A.C.M, Digitron, LACO, UNIMAX, Mirae Aerospace, Busung, Scien, Samyang Composite Technology, Sharp Technics K, Seoul Standard, Sewoo Aerospace, Songwol Technologies, Soosung Airframe, Shinbo, Satrec Initiative, C&Lee Inc, I-ones, Appia Engineering, RH Focus, S&K Aerospace, SVM Tech, AS&D Solution, ANH Structure, Aero Master, Ace Antenna, AP Satellite, NDT Engineering, Mirae Metal Tech, MTDI, Yeonhab Precision, YP Electronics, UI Helicopter, U-Tel, Intellian Technologies, Intellics, Genohco, JNS, Jeil HTC, Joil, TCT, V Engineering, KAM, KP Aviation Industries, Core Aerospace, KOMACO, Kolon DACC Composite, COTS Technology, Qnion, Aviosys Technologies, TCT, TOPS, Forex Aero, Flex System, Hana ITM, KCI, Korea Non-Ferrous Metals, KJFAERO, Korea Surface Treatment Com., HANKUK Fiber, Hansung ILS, Hwaseung Material, Fine Precision, Micro Infinity, Smartec, Sun Aerosys, LIG Precision Technology, Korea Elecom, Pine Telecom, Pan West SNT

Source: KAIA

Note: The data is based on the companies registered with the KAIA. Some companies are listed more than once (underlined).

List of space companies

Areas	Participating companies
Satellite production	GMW, KUKDONG Telecommunication, Nara Space Technology, Namkwang Engineering, NEUROS, Nimbus, Dai Heung Industry & Technology, DACC Aerospace, Dong Hun Co, Doowon Heavy Industries, Dream Space World, Rohde-Schwarz Korea, Lumir, MOA Software, Broadern, Sung Won Forming, Sole Top, Songwol Technology, Space Solution, Shinhan TC, Seal Tech, Satrec Initiative, ASP Precision Aero, i3 System, IFIVE, Ambient, SS Floutech, SM Tech, AD Solution, Ace Engineering, AM Systems, AP Satellite, LIG Nex1, Sentech, Woosung Tech, Weltech, ELM, EL Tech, EOS, EPS Tech, Ilijn Electronic Industrial, Jaewoo, Justek, CAMTIC, KTM Technologies, Kohmatic Korea, Cosmic Vision Technology, Kouno Soft, Qnion, Qbas, Kim Engineering, King Tech, TOMS, Fiber Pro, Falcon, PASSCOM, Promate, P-on Tech, Snap-on Korea, Korea Aerospace Industries (KAI), HANKUK Fiber Plant 2, Han/UI System, Hanwha Systems
Projectile production	Gumto Engineering, Giga RF, Namkwang Engineering, NEOSPEC, NEXTFOAM, Navcours, Danam Systems, DAT Advanced Material, DACC Carbon, DACC Aerospace, Doowon Heavy Industries, Rhinoceros, MOA Software, Mirtec Korea, Betaforce, VMV-Tech, Vitzro Nextech, Sam Yang Chemical, Samwoo Metal, Sewoo Aerospace, Sulim Tech, Space Solution, Seung Jin Precision, RSP, Ambient, SB ENG Metal Business Division, SNS ENG, S&K Aerospace, S&H, AP Solutions, MI Tech, INOCOM, Innotems, E&E, AEGIS Sealing Technology, Ingersoll Rand Korea, Jungjin Machinery, GV Engineering, Caph Micro, KTM Technologies, KP Aviation Industries, Kohmatic Korea, Kortek, Termosol, Pyro Tech, Parametrics Korea, Pyungchang Tech, Flex System, People 3EC, HASM, Hy-Lok Korea, Hylum Industries, Korea Conformity Laboratories, Snap-on Korea, Korea Seal Master, KJFAERO, Korea Aerospace Industries (KAI), HANKUK Fiber Plant 2, Halla E.B. Tech, Hanyang ENG, Hanwha Machinery Division, Hanwha Defense, Hanwha Aerospace, RICO, HHI Systems
Ground equipment	Daehan Consulting Group, D.M. Tech, Real Time Wave, BnCTek, Systemcore, Satrec Initiative, IRIS.Net, I-Spec, IMT, I-Ops, AR Technology, AP Satellite, MTG, UREA Tac, Wooribyul, ERETECH, EL Tech, InterCom, Ilijn Electronic Industrial, JIT Solution, J&T, GMT, Castec, CAMTIC, Micro Contact, KCI, KT Sat, High Gain Antenna, National Instruments, Snap-on Korea, Korea Aerospace Industries (KAI), Han Sung Well Tech, Hanyang ENG, HHI Systems, Gumto Engineering, Nard, Namkwang Engineering, Namwon Precision, Namwon Turboone, Dawha Testing Machine, Danam Systems, DAARA, Daeah Tech, Dong Hun Co, Doosan Heavy Industries, Ratec, Real Time Wave, May Eye, MOA Software, Barotech Synergy, Booyoung Engineering, Vitzro Nextech, Seoul Fluid System Technologies, Seoho Engineering, Sung Jin Aero, Seyeon ENS, Space Solution, Shinsung E&G, Shinsung Architect Office, Shinhan TC, IM Technology, SB ENG Metal Business Division, SIT, SM Instrument, AT Tech, Youngmin Construction, Uconsystem, UTOP Engineering Architect Office, EM Korea Changwon Branch, InGineers, JCA Autonomous, GTS Solutions, CAMTIC, K&C Energy, Korea Testing, KOSECO, ToKwang Construction, Power Network, FESTEC, Praxair Korea, Hana Electronics, Hy-Lok Korea, National Instruments, Snap-on Korea, KJFAERO, Hanyang ENG, Hanwha Machinery Division, Hyundai Rotem, Hyundai Heavy Industries, HHI Systems

Areas	Participating companies
Space insurance companies	KB Insurance, DB Insurance, Lotte Insurance, Meritz Fire & Marine Insurance, Samsung Fire & Marine Insurance, Hanwha Insurance, Hyundai Marine & Fire Insurance, Heungkuk Fire & Marine Insurance
Satellite services and equipment	Gaia3D, Geospatial Information Technology, DigitalCom, LIBRA, Bnt solution, Samah Aerial Survey, Sole Top, R&G World, SIIS, Space Environment Laboratory (SELAB), Space and Earth Technology System (SET System), eKsys, INDYWARE, InSpace, Chung-ang Aerosurvey, G-SOULUTION, GISOFT, GMT, GEOSTORY, GEO C&I, GITT, Chaeum, K Weather, Nokwon CNI, Telecons, Pixoneer, High Gain Antenna, Hyper Sensing, KSIC, IMU Korea, STX Engine, Nanotronics, New Edge Corporation, DAGS, Double Wave, Dongyang IS, Dongyang Telecom, Dongjin Communication Systems, DMT, Mercury, Modootel, Broadsys, Bluewavetel, BINGCO, Intellian, SkyBank, Sky-Win, SpaceLink, Syswin Electronics, Arion Technology, Arion Communications, I-do-it, SRT, SKTelink, ADRF Korea, ASAT, Ace Engineering, ARTechnology, A&PST, ATRON, APSatellite, XMW, MRC Korea, Opentech, Waldo System, Woogyong Cableline, Wooribyul, Wiznova, ES Communications, ELTech, Intek Digital, Intellian Technologies, Genohco, Joongil, GMT, KBSMedia, KNS Inc., KSSolution, KMH, KT, KTSkyLife, Comesta, CoreElecom, Topfield, Powernet Systems, Falcon, FoodTV, Phillisat, Filtech, High Gain Antenna, Korea Air Cleaning Association, HANDAN BroadInfoCom, Hanwoori, Hanwha Systems, Homecast, HuneedTechnologies, Humax, MASCO, GanaPrecision, GolfzonDeca, Nara Space Technology, Navcours, Network Customizing, Dongyang Syscom, DusiTech, DHE, DIGEN, Libra Consultant, Lohim, River&Sea, Mycen, Mappers, Mesco, Mobile Appliance, Pan Asia Engineering, Beagle, Saracom, Samkwang Machine Industry 2'nd Factory, Sambu Ceramics, Saehan Aero Survey, SoleTop, CDCOM Korea, CNS Link, Arasafe, AscenKorea, i-Mercury, IFIVE, Attowave, Anse Technologies, Essetel, HMS, ATS Technology, AP Electronics, Wooribyul, Willtronics, UB1st, e-Marine, EMW, Insung International, JBT, GNSD, GMT, Geotwo, Carnavicom, KCI, KODIA, Qrontech, TelAce, Fine Drive, Fine Digital, Prochild, PPSolution, HajeMtech
Scientific research	Gaia3D, Space Environment Laboratory (SELAB), G-SOULUTION, GISOFT, Ziin Consulting, Jinyang Industrial, High Gain Antenna, Hyper Sensing, Environmental Prediction Research, Nara Space Technology, Shinhan TC, Space Environment Laboratory (SELAB), G-SOULUTION, Jinyang Industrial, HighGainAntenna, Space Environment Laboratory (SELAB), Space and Earth Technology System (SET System), G-SOULUTION, HighGainAntenna
Space exploration	Nara Space Technology, Sensorpia, Space Solution, AM Systems, AP Satellite, Wiznova, TOMS, Korea Aerospace Industries (KAI)

Source: Space Industry Survey (2018)

Note: The data is based on the final respondents of the Space Industry Survey, among the populations of the space industry areas. Some companies are listed more than once (underlined).

4.2

Related Associations

Company name	Major roles	Website
Korea Aerospace Industries Association	Policy research/trend analysis, international cooperation and project support	aerospace.or.kr
Korea Association for Space Technology Promotion	Policy research/trend analysis, international cooperation and project support	www.kasp.or.kr

Invest KOREA's Global Network

Supporting foreign investors worldwide

36 overseas offices
in 19 countries

HEADQUARTER

13, Heolleung-ro, Seocho-gu,
Seoul, Republic of Korea
Tel (82-2) 1600-7119
E-mail ikonline@kotra.or.kr
Homepage www.investkorea.org

NORTH AMERICA

New York, USA
Tel (1-212) 826-0900
E-mail kkotrany@gmail.com

Los Angeles, USA
Tel (1-323) 954-9500
E-mail info@kotrala.com

Chicago, USA
Tel (1-312) 644-4323
E-mail info@kotrachicago.com

Dallas, USA
Tel (1-972) 243-9300
E-mail inquiry@kotradallas.com

Washington D.C., USA
Tel (1-202) 857-7919
E-mail washington@kotradc.org

Silicon Valley, USA
Tel (1-408) 432-5000
E-mail info@kotrasv.org

Detroit, USA
Tel (1-248) 619-1601
E-mail dtt_ktc@kotra.or.kr

Vancouver, Canada
Tel (1-604) 683-1820
E-mail info@kotrayvr.com

Toronto, Canada
Tel (1-416) 368-3399
E-mail info@kotra.ca

EUROPE

Frankfurt, Germany
Tel (49-69) 2429-920
E-mail frankfurt@kotra.or.kr

Hamburg, Germany
Tel (49-40) 3405-740
E-mail info@kotra.de

Munich, Germany
Tel (49-89) 2424-2630
E-mail munich@kotra.or.kr

Paris, France
Tel (33-1) 5535-8888
E-mail paris@kotra.or.kr

London, U.K.
Tel (44-20) 7520-5300
E-mail kotra@kotra.co.uk

Brussels, Belgium
Tel (32-2) 203-2142
E-mail kotrabru@kotra.or.kr

Milan, Italy
Tel (39-02) 79-5813
E-mail kotramil@kotra.it

Zurich, Switzerland
Tel (41-44) 503-5300
E-mail ktc@kotra.ch

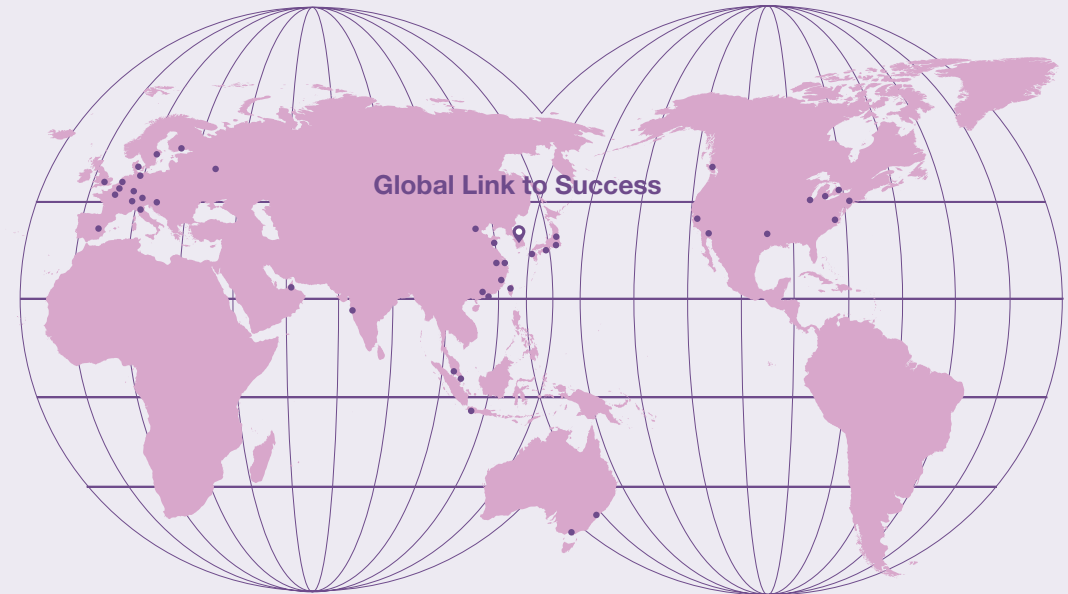
Stockholm, Sweden
Tel (46-8) 308-090
E-mail stockholm@kotra.nu

Copenhagen, Denmark
Tel (45) 3312-6658
E-mail info@kotra.dk

Amsterdam, Netherlands
Tel (31-20) 673-0555
E-mail info@koreatradecenter.nl

Vienna, Austria
Tel (43-1) 586-3876
E-mail kotravie@kotra.at

Madrid, Spain
Tel (34-91) 556-6241
E-mail madridktc@kotra.or.kr



ASIA & OCEANIA

Singapore
Tel (65) 6426-7200
E-mail info@kotra.sg

Sydney, Australia
Tel (61-2) 9264-5199
E-mail info@kotra.org.au

Melbourne, Australia
Tel (61-3) 9860-0500
E-mail info@kotramelbourne.org.au

Tokyo, Japan
Tel (81-3) 3214-6951
E-mail kotratky@kotra.or.jp

Osaka, Japan
Tel (81-6) 6262-3831
E-mail osakto@kotra.or.jp

Nagoya, Japan
Tel (81-52) 561-3936
E-mail nagoya@kotra.or.jp

Fukuoka, Japan
Tel (81-92) 473-2005
E-mail fukuoka@kotra.or.jp

Beijing, China
Tel (86-10) 6410-6162
E-mail yifan2775@kotra.or.kr

Shanghai, China
Tel (86-21) 5108-8771/2
E-mail shanghai@kotra.or.kr

Guangzhou, China
Tel (86-20) 2208-1600
E-mail canton@kotra.or.kr

Qingdao, China
Tel (86-532) 8388-7931
E-mail qd_kotra@hanmail.net

Hong Kong, China
Tel (852) 2545-9500
E-mail kotra5@kotra.org.hk

Taipei, Taiwan
Tel (886-2) 2725-2324
E-mail kotra.tpe@msa.hinet.net

MIDDLE EAST

Dubai, United Arab Emirates
Tel (971-4) 450-4360
E-mail ktcdxb@emirates.net.ae

*KOTRA operates a global
network of 127 overseas offices
in 84 countries