

Invest Korea

April 2023

Kim Tae Hyung

Commissioner of Invest KOREA

**FDI, Key to Building a
Sustainable Korea for the Future**

The Rapidly Developing Electric Vehicle Industry in Korea
JJNS, Leading the Development of Innovative Soundproofing Solutions that Defy the Mass Law
Daegu National Industrial Complex, Specializing in Cutting-edge Manufacturing Industries

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Economic Outlook

Economic Outlook provides an overview of the prospects for the Korean economy on a quarterly basis (in January, April, July, and October) based on sources published by the Bank of Korea.

Summary

- ◆ Korea's real GDP is projected to grow by 1.6 percent in 2023 and by 2.4 percent in 2024, considering the recent changes in domestic and international conditions.
- ◆ The number of persons employed is expected to increase by 130,000 in 2023 and 150,000 in 2024.
- ◆ Consumer prices are forecast to rise by 3.4 percent and by 3.3 percent in 2023 and 2024, respectively.
- ◆ The current account is expected to record a surplus of USD 26 billion 2023 and USD 48 billion in 2024.

Economic Forecasts

(%, *Year-on-year)

	2022 ^{e)}	2023 ^{e)}	2024 ^{e)}
GDP*	2.6	1.6	2.4
Changes in no. of persons employed*	820,000	130,000	150,000
Unemployment rate	2.9	3.4	3.3
Employment rate	62.1	62.1	62.1
Consumer prices	5.1	3.5	2.6
Current account (USD billion)	29.8	26.0	48.0

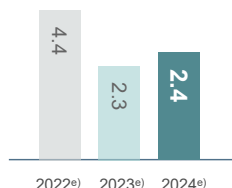
Source: Bank of Korea (bok.or.kr)

Macroeconomic Outlook

1. Economic Growth

Private consumption

(Year-on-year, %)

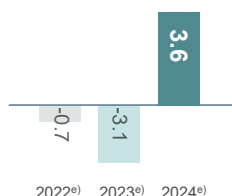


Private consumption is forecast to grow by 2.3 percent in 2023 and by 2.4 percent in 2024. Private consumption is expected to continue to recover, only gradually due to the slowdown in the rise of purchasing power and in the rise of debt servicing costs. The effect of pent-up demand* for overseas consumption is expected to accelerate, whereas domestic consumption is forecast to grow only gradually. The accumulation of household savings is expected to serve as a buffer.

*Pent-up demand: A rapid increase in consumption following a period of subdued spending.

Facilities investment

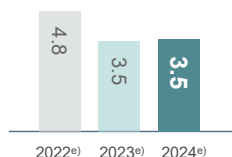
(Year-on-year, %)



Facilities investment is expected to contract by 3.1 percent in 2023 and by 3.6 percent in 2024. Facilities investment improved in Q4 2022 backed by the introduction of semiconductor manufacturing equipment. However, facilities investment is projected to shrink, affected by the global economic slowdown and the increased cost of capital. Investment in the IT sector is forecast to decline, led mainly by the semiconductor industry, and investment in the non-IT sector will continue its decreasing trend. Service sector investment is projected to increase mainly in ICT and air transport industries.

Intellectual property products investment

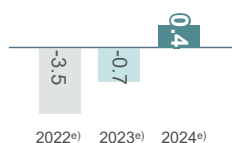
(Year-on-year, %)



Intellectual property products investment is expected to grow by 3.5 percent in 2023 and 2024. R&D investment is projected to slow, centered on private R&D investment, due to deteriorating corporate earnings caused by the slump in global demand. In contrast, other types of investment in intellectual property products are projected to continue to increase, led mainly by software investment for the digital transformation. More specifically, Korean companies are expected to invest more in incorporating AI technologies in their businesses.

Construction investment

(Year-on-year, %)

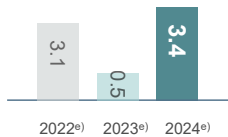


Construction investment is expected to grow by 0.7 percent in 2023 and by 0.4 percent in 2024. In Q4 2022, construction investment continued to be slow due to the sales of new houses and the delay in executing the government's SOC budgets. The construction of non-residential buildings is projected to be sluggish due to the economic slowdown while civil engineering is also expected to decline as the budget for government SOC expenditures decreases.

Exports of goods*

(Year-on-year, %)

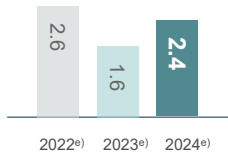
*Actual goods exported in GDP



Exports of goods are projected to grow by 0.5 percent in 2023 and by 3.4 percent in 2024. Exports of goods have been slow recently, mainly the exports to China and of IT product exports. However, the conditions are expected to improve gradually as the Chinese economy and the IT industry recover in the second half of 2023. Despite improved demands from China, exports of non-IT sectors including chemical products, steel and machinery, are expected to fall due to declining unit prices.

Economic growth

(Year-on-year, %)



Korea's real GDP is projected to grow by 1.6 percent in 2023 and by 2.4 percent in 2024. The economy will continue to be sluggish due to the global economic slowdown and interest rate hikes, but is expected to turn around gradually after the second half of 2023 as the Chinese economy and the IT industry recover.

2. Employment

The number of employed persons (year-on-year) continues to grow rapidly since the fourth quarter of 2022, but the growth is slowing down. The number of persons employed is expected to increase only slightly, as the effects of reopening decrease and as the economy slows. In the service sector, the growth of employment is forecast to slow mainly in non-face-to-face service sectors due to the sluggish economy. In the manufacturing sector, employment is expected to decrease slightly as exports stall. Unemployment rates are projected to reach 3.4 percent and 3.3 percent in 2023 and 2024, respectively, and employment rates will be 62.1 percent and 62.2 percent, respectively.

3. Prices

Consumer prices are forecast to rise by 3.5 percent this year, hovering below the November 2022 forecast of 3.6 percent. Inflation (not including food and energy) is expected to reach 3.0 percent by slightly surpassing the previous forecast of 2.9 percent. In 2024, consumer prices are expected to grow by 2.6 percent, and core inflation is forecast to rise by around 2.0 percent. Going forward, the trend of inflation is highly unstable as it is filled with risks including economic recovery and foreign exchange rates.

4. Current Account Balance

The current account surplus is projected to narrow this year, as growing demand for outbound tourism deteriorates the service account. The goods account surplus is expected to remain subdued for the time being due to a slowdown in exports, but it is then expected to improve gradually beyond the second half of 2023 as the economy recovers. The service account, notably in the travel and transportation sectors, is expected to widen its deficit as pandemic-related factors that had been supporting the sectors diminish. The current account is forecast to record a surplus of USD 26 billion in 2023 and USD 48 billion in 2024.

Foreign Direct Investment

60% of foreign-invested firms plan to ramp up investment in Korea

According to a survey conducted by the Korea Chamber of Commerce and Industry (KCCI), together with Prof. Oh Jun-seok at Sook-myung Women's University and the Korea Trade-Investment Promotion Agency (KOTRA), it was found that six out of 10 foreign-invested companies in Korea turned out to be considering investment expansion in South Korea.

Among the 95 foreign-invested firms surveyed, 64.2 percent said they intend to increase their investment in the country going forward, and 53.8 percent replied that they, effectively, plan to invest more in the country.

Korea pledges steps to attract more foreign investment

S. Korea will boost foreign investment in the country through increased incentives and deregulation, Finance Minister and Deputy Prime Minister Choo Kyung-ho said on March 8.

The government will strengthen ties with US investors, Choo said at a luncheon meeting in Seoul hosted by the American Chamber of Commerce in Korea (AMCHAM), the largest such foreign association in the country.

In addition, 89.1 percent were satisfied with their overall investment in Korea.

In terms of investment factors, the following were those taken into consideration: market growth potential (55.1%), investment incentives (53.9%), domestic market entry (49.4%), and securing talented labor (44.9%).

Moreover, top government policy factors such as the attractiveness of investment incentives (68.8%), lack of regulatory issues (64.5%), and convenience of obtaining administrative and regulatory information (61.3%) were among the considerations.

The US continues to be the top investor in Korea, with USD 8.7 billion last year alone. Choo pledged Korea will make the country's investment environment even more favorable to US companies and other foreign firms.

In a bid to attract foreign investment in Korea, the government will expand subsidies for global high-tech firms to be based in Korea and ease regulations for a better business climate, the finance minister said.

Trade & Commerce

Korea to seek fast-track customs procedures with Saudi Arabia, Vietnam

The Korea Customs Service plans to speed up the customs declaration process with Saudi Arabia and Vietnam this year as part of efforts to boost exports.

"We will sign an authorized economic operator (AEO) mutual recognition arrangement (MRA) with Saudi Arabia in June and Vietnam in December," said TaeSik Yoon, commissioner of the Korea Customs Service, in a

recent interview with Maeil Business Newspaper. "We will also establish an electronic system that will exchange place-of-origin data with major trading partners."

Under the MRA, an authorized economic operator can get various customs benefits, including the exemption of certain customs inspections.

Japan's removal of export curbs on Korea to boost supply chain stability, ease biz uncertainties

Japan's removal of export curbs on S. Korea is expected to ease business uncertainties and help ensure stable supply chains of key industry materials amid global supply disruptions and tougher competition in advanced industry sectors, experts said on Mar. 16.

Earlier in the day, S. Korea's industry ministry announced Japan will remove export restrictions on three major industrial materials—fluorine polyimide, photoresist and

hydrogen fluoride—essential for chips and displays, effective immediately.

In response to the lifting of the export curbs, Seoul decided to drop its complaint with the World Trade Organization against Japan over the matter.

The two sides also agreed to close consultations on reinstating each other to their respective "whitelist" of trusted trading partners, according to the ministry.

Industry

Korea to create new high-tech industrial complexes in 15 regions

The S. Korean government plans to build national industrial complexes to foster high-tech industries such as semiconductors, future mobilities and robots in 15 regions across the country in addition to the world's largest semiconductor cluster planned in the Seoul metropolitan area.

The size of the national industrial complexes totals 40.76 million square meters. The government plans to foster high-tech industries customized to each region to promote balanced regional development.

The government has decided the plan to secure a balanced base for high-tech industries, said the Minister of Land, Infrastructure, and Transport Won Hee-ryong, adding that because timing is crucial for business investment, the government will lift regulations such as green belts and agricultural land restrictions in the biggest way possible to expedite the construction of the new national industrial complexes.

Construction is expected to begin in stages from the end of 2026 at the earliest.

Fitch keeps S. Korea's credit rating unchanged at 'AA-', outlook stable

Global credit appraiser Fitch Ratings said on Mar. 13 that it has reaffirmed S. Korea's sovereign rating at "AA-" with a stable outlook, while suggesting an economic growth of 1.2 percent this year.

Fitch's rating for Korea has been AA-, the fourth-highest level on the agency's table, since September 2012.

"Korea's rating balances robust external finances, resilient macroeconomic performance and a dynamic export sector against geopo-

litical risks related to North Korea, lagging governance indicators and structural challenges from an ageing population," the credit appraiser said in a release.

"Economic growth is likely to decelerate in the near term, but credit and policy buffers remain sufficient to manage these pressures," it added.

Korea's finance ministry welcomed the latest update, pointing out it reflected the government's efforts to stabilize the market.

Government & Policy

Seoul unveils plan for major financial district development to draw foreigners

Seoul plans to build a 50,000-square-meter international financial facility in the city's financial district and offer tax incentives as part of its measures to attract foreign companies and workers into the area.

At the 2023 London Conference held at the London Stock Exchange, Seoul Mayor Oh Se-hoon unveiled the plan to build the complex, which is equivalent in size to seven soccer fields, in Yeouido and vowed to seek a law revision to grant tax benefits to foreign

financial companies setting up business in the area, including 50 percent cut in acquisition and property taxes and a three-year exemption from corporate income tax.

The mayor also said that the city government will improve cultural and residential facilities for foreign employees in Yeouido by providing financial support facilities and 100 multi-purpose buildings with residential and commercial units.

A portrait of Dr. Kim Tae Hyung, a middle-aged man with dark hair, wearing glasses, a white shirt, a dark tie, and a dark suit jacket. He is smiling slightly and looking towards the camera. The background is a dark, solid color.

One-on-One with Dr. Kim Tae Hyung

Commissioner of Invest KOREA

FDI, Key to Building a Sustainable Korea for the Future

On January 19, the Korea Trade-Investment Promotion Agency (KOTRA) appointed Dr. Kim Tae Hyung as the new commissioner of Invest KOREA (IK), to spearhead the national investment promotion agency for the next two years. Dr. Kim earned his B.A. in Economics from Korea University and his M.A. and Ph.D. in Economics from the University of Washington. He is also a graduate of the Advanced Management Programs at Seoul National University and Harvard Business School. With a wealth of experience and a deep understanding of international investment, global value chain, and international taxation, Dr. Kim is well-equipped to lead Invest KOREA into a new era of growth and success.

Read on to learn more about Dr. Kim and how under his leadership, IK will continue to be a driving force in attracting foreign investment and creating new opportunities for businesses and communities alike.

What's Invest KOREA's mission, and how do you feel about being newly appointed as commissioner?

Invest KOREA was established within the Korea Trade-Investment Promotion Agency in 2003 as the national investment promotion agency (IPA), and we are excited to celebrate our 20th anniversary this coming December. As a representative of the South Korean government, we publicize the country's investment environment to foreign investors and execute the central government's investment policies for the successful settlement of foreign-invested companies in Korea.

In 2018, we also took on the roles of carrying out foreign M&A and supporting reshoring companies. Not only has IK has proved its capabilities as a strong and effective organization through the accomplishments made by Korea in terms of foreign direct investment (FDI) figures, but also through our partnerships and vast global network. In fact, FDI in 2022 hit a record high, reaching over USD 30 billion for the first time ever. We also continue to build and maintain our expansive network worldwide through our 36 investment promotion offices in 129 KOTRA offices in various countries.

I'm thrilled to be leading IK forward as we usher in the post-Covid era. I'm looking forward to utilizing

“

FDI in 2022 hit a record high, reaching over USD 30 billion for the first time ever.

”

the knowledge and resources I've gained in the course of my private sector experience to further promote foreign investment and contribute to the sustainable growth of the Korean economy.

Can you give us a little bit of context on the recent global investment trends?

As of the first quarter of 2022, global investment has been on a downward trend, and experts are telling us that the prospects are bleak. In 2021, we experienced a



Invest KOREA hosts the Global Logistics Investors Roundtable at the Westin Josun Seoul on March 23, 2023.

temporary rebound after the initial shock from the Covid-19 pandemic, but this growth momentum has wavered due to a sluggish world economy stemming from risks such as the Russia-Ukraine war, rising interest rates, intensifying protectionist policies, and disruptions in the global supply chain.

In January, the International Monetary Fund (IMF) forecasted the economic growth rate for advanced economies to be 1.2 percent. This demonstrates that global investment will also continue to dwindle in line with the global economy and that investor sentiment remains low. Still, we can find opportunities for growth, and foreign direct investment will be a key factor in leading the recovery of the Korean economy.

Amid such geopolitical risks and a sluggish global economy, why is foreign direct investment important?

History tells us that FDI has always been a vital factor in the development of economies, and its importance continues to grow by the day. As we can see from the US Inflation Reduction Act and CHIPS and Science Act, as well as the EU Critical Raw Materials Act, nations around the world are striving to find the best possible ways for attracting investment from leading global companies.

Likewise, the Korean government is putting in all-out efforts to attract FDI. For instance, President Yoon Seok Yeol was in Ulsan on March 9 to attend the groundbreaking ceremony for the S-Oil Shaheen project, which involves the construction of a massive petrochemical plant worth an investment of KRW 9.3 trillion—the largest amount for a single project in the history of the Korean petrochemical industry.

Moreover, on March 15, the government announced its plans to create the world's largest semiconductor cluster by attracting KRW 300 trillion in investments to secure a competitive edge in this sector. On March 24, it also unveiled a detailed blueprint to promote six advanced industries—chips, display, secondary batteries, bio, future vehicles and robots. Through such initiatives, the government has vowed to shape Korea into one of the best investment destinations in the world.

Why Korea? Why Now? What are the reasons that foreign companies should invest in Korea?



Dr. Kim Tae Hyung makes remarks during the Global Logistics Investors Roundtable held on March 23, 2023 at the Westin Josun Seoul.

As a peninsular country, Korea naturally offers a geographical advantage and has signed 21 free trade agreements (FTAs) with 59 countries that account for about 85 percent of global GDP. Hence, companies from around the world are opening their offices and building their export bases here, utilizing Korea's strengths as a vibrant business and logistics hub.

In addition, Korea's cutting-edge technologies and innovative prowess contribute to overcoming transnational challenges like climate change, health crises and income inequality. In line with global trends like carbon neutrality, ESG, and digital transformation, Korea is actively fostering its industrial ecosystem, R&D, advanced technology, and human resources to create a sustainable future for all. This, together with K-culture, which encompasses K-pop, K-drama, K-beauty, and more, are putting Korea front-and-center on the global stage.

Furthermore, as the Korean government makes efforts to deregulate and create a more favorable investment environment, I'm certain that Korea's attractiveness as an investment destination will be enhanced, garnering even more interest from global enterprises.

What are IK's strategies for attracting more FDI?

We aim to take another leap forward as a global PR platform for Korea by focusing on three main strategies.

First, we want to build a "Sustainable Korea" through

“ Foreign direct investment will be a key factor in leading the recovery of the Korean economy. ”

the close cooperation between the public and private sectors. Let me call it the “Korea Investment Summit” strategy— simply put, you can think of it as a mini-Davos Forum. We want to invite top investors from all over the globe and give them a taste of what the future of Korea holds, and carry out government-wide investment attraction activities.

Second, we plan to create a mega-project comprised of investment attraction activities catered towards global CEOs and business leaders. We’re going to live up to our title as the national investment promotion agency of Korea, and continuously work toward stimulating investment, nurturing the advanced industrial ecosystem and stabilizing supply chains.

Third, we aim to reinforce our external network of advanced industry experts to strengthen our internal capabilities. With the rapidly changing trends, we will identify ways for cooperation with industry experts and related organizations to underpin our expertise and stay on top of our game.

Lastly, what would you like to accomplish during your time as commissioner?

Having spent the last 27 years of my consulting career in various countries around the world, I’ve learned that the best tool for sustainable growth is investment. I’ll tap into the resources and know-how I’ve accumulated in the duration of my career in the private sector and make good use of this new platform I now have as commissioner.

In accordance with the direction of the central government, we will do our part in contributing to the further advancement of the Korean economy and achieving sustainable growth by dedicating ourselves to promote foreign investment.

We understand the incredible contribution that foreign investors and foreign-invested companies make to the Korean economy. Invest KOREA will put in our utmost efforts to provide you all the help and support you need to successfully do business here. Our doors are always open, and we look forward to being your partner throughout your journey in Korea.

By Grace Park

Executive Consultant

Investment Public Relations Team

Korea Trade-Investment Promotion Agency (KOTRA)



Industry Trends

Statistics Korea provides Korea's monthly industry data compiled from the Ministry of Economy and Finance and the Korea Institute for Industrial Economics and Trade. The latest data available reflect that of the previous month in the case of exports, and the month prior to the previous month for production. Figures presented are subject to change and may be updated for accuracy by the respective organizations.

All Industries

In January 2023, production of all industries in Korea increased, driven by a strong rebound of the mining and manufacturing industries. Consumption increased in the service sector, but goods and retail sales were sluggish. Equipment investment fell while construction investment rose.

Monthly Industrial Activity Trends

Subject	All industries	Mining & manufacturing	Service	Retail sales	Equipment investment	Construction completed
Monthly Change (%)	0.5	2.9	0.1	Δ2.1	Δ1.4	1.8

In January 2023, production of mining and manufacturing industries rose by 2.9 percent to record the highest growth rate in 13 months, led by 9.6 percent and 6.7 percent increases in auto and primary metals, respectively, against a 5.7 percent decline in semiconductors and a 111 percent surge in communications and broadcasting equipment. Production of the service industry gained slightly, as wholesale and retail increased by 3.7 percent and information and communication rose by 3.1 percent, whereas transportation and warehousing increased by 2.0 percent and financial insurances fell by 3.1 percent. Retail sales fell as consumption of durable, nondurable, and semi-durable goods declined altogether. Whereas the investment in transportation equipment saw a sharp increase of 15.9 percent, equipment investment fell as semiconductor-related machinery investment declined by 6.9 percent due to the downturn in the semiconductor industry. Construction investment increased while civil engineering projects fell by 10.3 percent but construction investment increased by 5.9 percent as the truckers' union stopped their refusal to transport goods and as the construction of a semiconductor plant made progress. The cyclical change in the coincident index dropped by 0.4 percentage points due to declining retail sales while the cyclical change in the leading index fell by 0.3 percentage points due to the weakening of economic sentiment.

As the real economy continues to worsen since the second half of 2022, upside and downside risks coexist in the economic cycle going forward. On the production side, there are positive factors including China's reopening and the easing of hard landing concerns of the world's major economies including the United States and the eurozone. However, there are burdens such as an adjustment in inventories caused by the piling semiconductor inventories in Korea and a continued decline in semiconductor exports. The easing of quarantine restrictions for arrivals from China, the partial lifting of mandatory wearing of masks indoors, and accumulated household savings are positive signs for consumption and investment. At the same time, burdens exist such as a weakening of business sentiment and continued economic uncertainties such as monetary policies of major countries.

Trends by Industry

Automobile

Production growth continued with the easing of automotive semiconductor supply disruptions

In December 2022, production grew by 12.1 percent year-on-year to continue the double-digit growth for six straight months, backed by improved supply of automotive semiconductors. Domestic consumption in January 2023 saw an increase of 4.6 percent from a year ago, supported by the base effect of last year's parts supply issues and the effect of new models. Exports in January 2022 rose by 9.1 percent year-on-year as the accumulated potential demands that had been piled up by automotive semiconductor supply issues were realized. Exports of finished cars increased by 21.9 percent as exports to the United States and to the European Union grew by 25.7 percent and 10.5 percent, respectively, driven by the realization of potential demands and the increase of EV exports. Last year, the production and exports of the auto industry grew by 9.8 percent and 11.8 percent, respectively, as supply disruptions of automotive semiconductors were eased in the second half.



General machinery

Production growth slowed and exports mainly to China plunged

Production in December 2022 gained slightly by 1.7 percent year-on-year due to the aftermath of sluggish exports. Production growth slowed as less machinery orders were placed alongside continued declines in exports and slow growth of domestic consumption and facilities investment. Imports in December fell by 7.0 percent year-on-year to reach USD 2.633 billion. Exports in January shrank by 15.8 percent from a year ago due to concerns of a global economic slowdown and sluggish exports to China.



Shipbuilding

Recovery of production index slowed while imports fell amid rising exports

Last year, global ship orders fell by 17.8 percent year-on-year to 44.56 million CGT with the interest rate increases of the United States causing concerns of an economic downturn. In comparison, Korea performed relatively well as the market was shaped around high value-added ship types, with orders declining by 7.3 percent to 16.56 CGT. Imports in December plunged by 43.3 percent year-on-year as less ships, ship engines and ship parts were imported. Exports in January 2023 surged by 86.3 percent from a year ago backed by increasing volumes and the clearance of ships at higher prices.



Steel

Production decline slowed and exports shrank faster affected by weak global steel prices

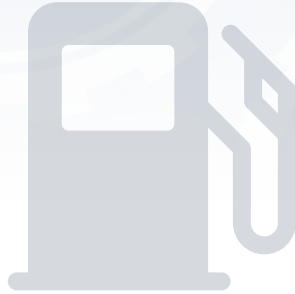
Steel production in December 2022 saw a decrease of 17.6 percent year-on-year affected by slow demands at home and abroad, falling export volumes, and typhoon damages. Imports in December 2022 decreased by 19.4 percent from a year ago as the global economy slowed and export unit prices fell. Exports in January 2023 saw a decrease of 25.9 percent from a year ago due to the global economic slowdown and the falling export unit price.



Oil refining

Despite falling oil prices, exports grew by 12.2 percent supported by high refining margins

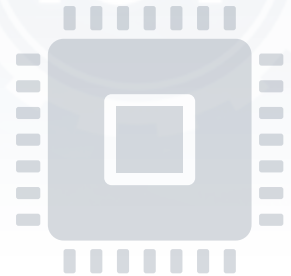
Production in December 2022 fell by 0.9 percent year-on-year due to sluggish domestic consumption. Exports in January 2023 grew by 12.2 percent from a year ago to record USD 4.13 billion. The base effect of global oil prices has diminished, but exports increased year-on-year driven by the increased export unit price and growing volumes. Oil prices saw a decline of 3.7 percent year-on-year, but the export unit price gained by 8.9 percent to USD 106.0/barrel.



Semiconductor

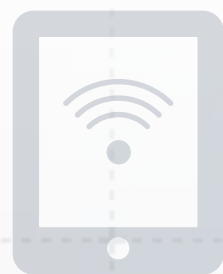
The industry's downward trend continued

In December 2022, production and shipments of semiconductors fell by 15.8 percent and 6.8 percent year-on-year, respectively. Whereas production gained slightly from the previous month, year-on-year inventory increased further to 24 percent affected by diminished demands for semiconductors. Exports in January 2023 shrank by 44.5 percent from a year ago to USD 6 billion to decline for the sixth consecutive month after ending the rally that continued for twenty-five months from July 2020.



Wireless communication devices

Global demands expected to improve slightly in 2023 as exports increased for the first time in eleven months



Production and shipments in December 2022 fell by 10.5 percent and 10.7 percent year-on-year, respectively, while inventories grew by 3.3 percent and capacity utilization rate declined by 42.3 percent. In December 2022, imports mainly to Europe, the US, and China saw a decrease of 17.9 percent from a year ago. Exports to the EU and the US surged by 186.1 percent and 84.3 percent, respectively, and exports to China grew by 9.5 percent.

Display

Production continued to fall affected by sluggish demands for electronic products



Production fell in December 2022 as the economic slowdown curbed demands for electronic products. Exports in January 2023 saw a decrease of 36.0 percent year-on-year to fall for eight straight months due to slower production of high-demand products and the base effect of COVID-19. As less smartphones were produced, exports to ASEAN, Korea's biggest export destination, fell by 21.1 percent.

Source: Korea Institute for Industrial Economics and Trade (kiet.re.kr)

The Rapidly Developing Electric Vehicle Industry in Korea



The Fast-Growing Korean EV Production and Sales

South Korea's automobile production and sales structure is rapidly shifting to electric vehicles (BEV +PHEV+FCEV). Last year, Korea produced more than 400,000 electric vehicles, and exports reached 267,000 units.

In Korea, the world's fifth-largest automobile producer, the proportion of electric vehicles among automobile production reached 11%, indicating that the structure of the automobile industry is rapidly shifting to electric vehicles. The share of electric vehicles in total vehicle exports was 11.6%, which was higher than its share in production.

Korean Automaker Emerges as Global EV Maker

Hyundai Motor Group was recorded as the world's 5th largest electric car seller last year, following BYD, Tesla, VW and Stellantis. Although GM—including Chinese company Shanghai GM Wuling—ranks 4th, GM



alone has fewer sales than Hyundai. Hyundai's sales growth rate reached 43%, a relatively high level.

Korea plays an important role in EV development. The GM Technical Center Korea (GMTCK) played a leading role in the development of the GM electric vehicle Volt, and continues to cooperate with various entities in the development of GM electric vehicles. Ssangyong Motor develops and sells electric vehicles through cooperation with Chinese electric vehicle maker BYD. Renault Korea plans to develop electric vehicles in cooperation with Chinese automaker Geely.

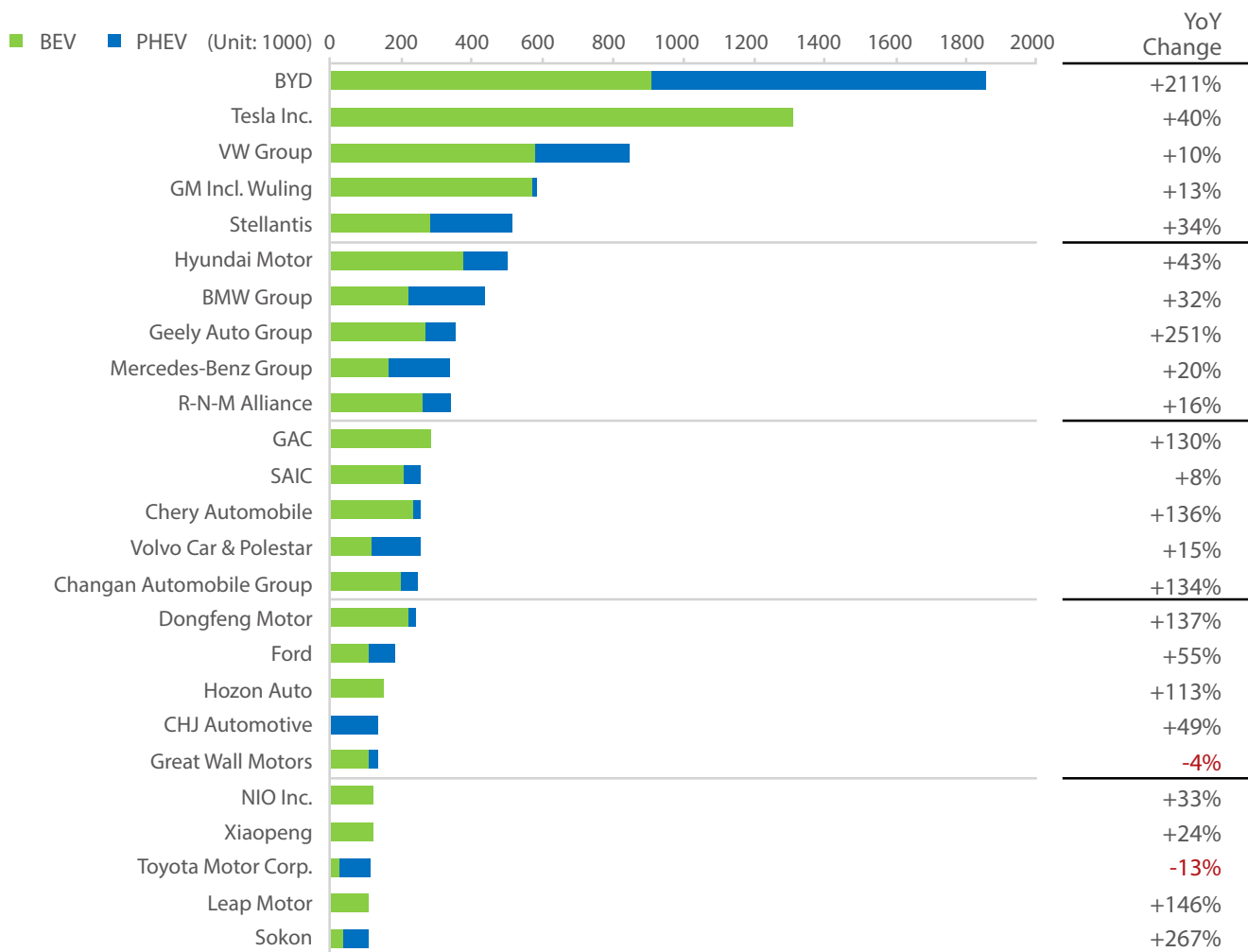
EV Supply and Demand Structure in Korea (2022)

Category	Production	Domestic Sales	Export	Export Share in Production (%)
PHEV (units)	47,310	0	46,173	97.6
BEV (units)	348,895	123,676	220,507	63.2
FCEV (units)	10,804	10,336	400	3.7
Total EV (units)	407,009	134,012	267,080	65.6
Total Auto Vehicles (units)	3,757,049	1,395,111	2,300,333	61.2
PHEV Share (%)	1.3	0.0	2.0	
BEV Share (%)	9.3	8.9	9.6	
FCEV Share (%)	0.3	0.7	0.0	
Total EV Share (%)	10.8	9.6	11.6	

Note: Battery Electric Vehicle (BEV), Plug-in Hybrid Electric Vehicle (PHEV), Fuel Cell Electric Vehicle (FCEV)

Source: KAMA

Global EV Sales by OEM/OEM Group for 2022



Source: EV Volumes

Korea's Outstanding EV Parts and Charging Infrastructure Supply System

Electric vehicles are built on an electric vehicle platform, and major electric vehicle-related parts are installed on the platform. Hyundai Motor's electric vehicle platform, Electric-Global Modular Platform (E-GMP), is equipped with a Power Electric (PE) system composed of a motor, EV transmission, inverter, etc., a charging system, and a battery system.

Electric vehicles require a speed reducer, a thermal management system, and tires. The most important parts related to electric vehicles, such as batteries, motors, and

inverters, are produced by existing electric industry-related companies. Existing auto parts makers are responsible for the control devices, cases, and assemblies that necessary to apply these major parts to automobiles. Batteries are brought from a battery cell manufacturer in the form of cells or modules, assembled in a pack form, and mounted on a vehicle together with a control system (BMS), various switches, electric current sensors, and cooling systems.

Korea owns world-class battery cell companies such as LG Energy Solution, Samsung SDI, and SK On. The overall battery system is managed by Hyundai Mobis, but the production of parts such as pack assembly

Electric-Global Modular Platform (E-GMP)



Note: Power Electric (PE) System (1-1. Motor, 1-2. EV Transmission, 1-3. Inverter- Converter), 2. Vehicle Charging Management System (VCMS), 3. Integrated Charging Control Unit (ICCU), 4. Vehicle Control Unit (VCU), 5. High-voltage Battery, 6. 400/800V Multi-charging System
Source: Hyundai Motor

and related cases is mainly entrusted to existing auto parts companies. Motors are produced by Hyundai Mobis, LG Electronics, and S&T Motiv, and related core parts are also produced by Korean companies. The drive motor core, an important component of drive motors, is produced by POSCO International, which aims to become the world's No. 1 company with a global market share of 20% by 2025. LG C&S produces Enamel Wire for drive motors.

The heat management system and air conditioning are handled by Hanon Systems, the heating system is produced by PCT heaters, and the air conditioner hose and coolant hose, which are major components, are produced by Hwaseung R&A. Hankook Tire develops and supplies tires suitable for electric vehicles, and SL is in charge of LED lamps used in electric vehicles. Korean parts makers supply electric vehicle parts to major global automakers.

- VW: Battery Cell (LG Energy Solution, Samsung SDI, SK On), Tire (Hankook Tire), E-Compressor & Thermal (Hanon System)
- GM: Battery Cell (LG Energy Solution), Drive Motor (LG Electronics), Converter, Inverter, ODC (LG Electronics), Head Lamp (SL), Tire (Hankook Tire)

Regarding electric vehicle charging, it can be divided into the charger manufacturing and charging business, and major companies operate both at the same time.

Recently, leading Korean conglomerates have newly entered the electric vehicle charging business. Hyundai Motor Group aims to lead the charging market with its super-fast charging brand E-pit. Regarding the charging business, LS Group established LS E-Link, and Hanwha Solutions launched Hanwha Motiv, an electric vehicle charging brand. SK acquired Signet EV (SK Signet), a super-fast charger and solution provider, and GS Energy established GS-Connect, a joint venture with GENTEL, the second largest electric vehicle charging service in Korea. Lotte Information Communication entered the charging business market by acquiring a 71.14% stake in JAC, the second largest manufacturer of chargers. Major charger manufacturers such as Daeyoung Chaevi, Moderntech, and Everon received investment to prepare for competition.

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** The opinions expressed in this article are the author's own and do not reflect the views of KOTRA.*

Daegu National Industrial Complex, Specializing in Cutting-edge Manufacturing Industries

With the objective of developing the nation's future growth engines, the Daegu National Industrial Complex was established to revitalize the local economy based on projects focused on cutting-edge manufacturing sectors, including next-generation electronic communication, cutting-edge machinery, future cars, and renewable energy. Currently, more than 200 companies are operating in the Complex, including 92 machinery, 84 transportation equipment and 38 electric and electronic businesses. It was designated as a national industrial complex in 2009, and construction is nearly completed followed by the completion of stage 1 in 2017.

- **Title: Daegu National Industrial Complex**
- **Location: Around Guji-myeon, Dalseong-gun, Daegu**
- **Area**

(Unit: 1,000m²)

Total area	Industrial facilities	Supporting facilities	Public facilities	Green area
7,479	4,943	349	1,288	899

• **Transition to future industries:** The Daegu National Industrial Complex is located nearby specialized institutes including the Korea Intelligent Automotive Parts Promotion Institute and the Korea Automotive Technology Institute (Daegu Gyeongbuk Headquarters), and is starting to play a crucial role in planning and discovering new projects based on robots, convergent medical devices, and future car industries by collaborating with local innovative institutions. The partnership of urban air mobility, semiconductors, digital healthcare, and ABB (AI, big data and blockchain) is accelerating the transition to future industries, and the synergy will grow further in line with the Daegu Metropolitan City's policy of promoting future cutting-edge industries.

• **Local-led Investment Job Project:** The Daegu National Industrial Complex was selected in the government's Local-led Investment Job Project* (mobility industry). Daedong Mobility is an affiliate of Daedong, Korea's no. 1 producer of agricultural machinery that is operating in the Complex, and it was selected as the first case of the Daegu-type Job Project, planning to produce 650,000 new products through a KRW 181.4 billion investment by 2026. It is focusing on producing e-scooters and AI robot chairs in its newly-established S Factory and is planning to train and recruit local talents in the fields of mobility and robotics.

*Local-led Investment Job Project: A project through which the labor, management, private sector and government discuss and reach consent on investment, employment and welfare for the aim of attracting regional investment and creating jobs. (based on Article 11-2 of the Special Act on Balanced National Development)

Source: (Text and photo) Korea Industrial Complex Corporation
For more information, visit kicox.or.kr; or call 070.8895.7000

JJNS, Leading the Development of Innovative Soundproofing Solutions that Defy the Mass Law

About the Company

Established in 2020 as a venture enterprise specializing in metamaterial platforms, JJNS is currently operating in the Daejeon Center for Creative Economy and Innovation located at the Korea Advanced Institute of Science and Technology (KAIST), in Daejeon. JJNS develops and provides soundproofing materials used for reducing EV road noise and noise from upstairs in apartment buildings, and its 10 members include the CEO and key developers specializing in physics and acoustic systems. Products include Wave META, a patented high-performance and light-weight soundproofing material developed with advanced technologies to reduce the composite road noise of EVs. Wave META was developed by addressing the limitations of existing competing products and improving their strengths to optimally reduce noise.

Background

The strengthening of global carbon emission regulations and the announcement of the Fit for 55 package are ushering in a world where cars powered by internal combustion engines will no longer be produced after 2035. In line with the trend, the EV industry achieved a remarkable growth in the last few years along with the

rapid growth of related technology and markets. Nevertheless, soundproofing materials used in the existing transportation industry must be improved in density and thickness to ensure their performance, but their development is at a standstill due to difficulties in effectively blocking low-frequency noise such as that generated on road surfaces. Using existing materials on EVs will lead to serious problems as they will reduce the internal space and compromise fuel efficiency. Committed to overcoming the physical limitations of existing soundproofing materials, JJNS developed Wave META, an innovative, light-weight material with low density that effectively blocks low-frequency waves, which are the key properties of noise.

About the Product

Wave META is a soundproofing material that defies the mass law of sound by using its technology based on acoustic meta-structure that adjusts the effective density of air. The Multi Anti-resonance mode Technology (MAT) incorporated in the product can block low-frequency noise (below 500 Hz), which is the main cause of road noise and noise between floors, more than 10 times more effectively than rubber products. It is also very light, weighing less than 60 percent the weight of existing soundproofing materials, and the light-weight material



Photo 1. Wave META used for reducing NVH of EVs (left) and Wave META used for reducing noise between floors (right)

can selectively block the frequency of the desired band. Wave META is designed as a patterned modular type that combines a mode-implemented structure and a thin elastic membrane structure, which enables the product to be applied to the desired area. The performance of Wave META's large-sized version (4m x 3m) was verified by the Korea Laboratory Accreditation Scheme (KOLAS), and its technology and design patents have been applied or registered in Korea and the United States. In the initial business stage in 2021, JJNS was selected in Hyundai Motors' ZERO1NE Project and partnered with Hyundai Motors and Hyundai NGV to develop meta-structure wheel guards used in EVs. Selected in the Tech Incubator Program for Startup Korea (TIPS) in 2022, JJNS is developing EV parts that produce noise, vibration, and harshness (NVH) such as wheel guards, floor carpets and luggage boards by applying Wave META for reducing EV indoor noise. The company's R&D Center completed the production of a prototype through continuous optimization and further development of elemental technologies, with the aim of verifying the product in real-world testing in 2023.

Starting from 2023, JJNS applied Wave META's technologies to ultrasonic sensors and succeeded in improving the detection range by more than twice the existing range, and plans to expand the business area to vehicle control systems of EVs and electrical control systems used in other industries.

Competitive Edge and Business Strategy

The company's competitiveness is based on its ability to develop materials that are technologically differentiated from other competitors and can be applied to various industries as they are developed by using metamaterial design, analysis, optimization algorithms, manufacturing, and measurement system technologies. In addition, the expertise and product planning capabilities of its excellent team members enable the company to excel at metamaterial application and commercialization.

In the beginning stage, JJNS plans to apply Wave META to noise reduction. The biggest advantage of the soundproofing material lies in its light-weight and thin

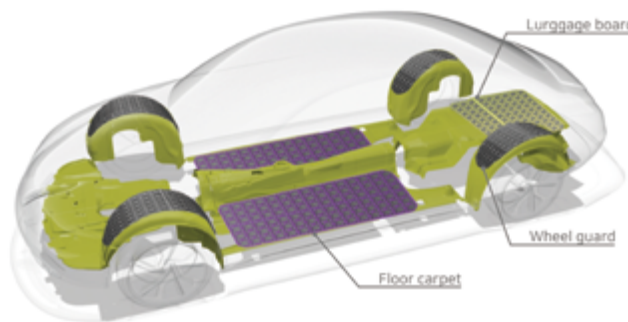


Photo 2. A conceptual diagram of installing Wave META for reducing indoor noise of EVs

properties, which effectively blocks noise independent from spatial constraints. In addition to EVs, its low cost and excellent compatibility enable application to other business areas such as construction, ships, and machinery.

The product's business model is to initially enter the market by manufacturing products applied to wheel guards, floor carpets and luggage boards, which are made of PP and can attach to insulation, so as to improve the NVH performance of EVs. After stabilizing sales, JJNS plans to enhance market competitiveness by saving production costs and strengthening supply capabilities through the establishment of in-house production lines. The final stage will be to participate from the early stage of EV parts development to further expand NVH parts applied with Wave META such as headliners, trunk mats, trunk sides and undercovers so that they can reduce noise and vibration from the outside and absorb noise generated indoors.

Additional business areas include products that are installed to the ceilings of buildings to reduce noise between floors. JJNS was selected as a partner for a project led by the Korea Institute of Civil Engineering and Building Technology (KICT) to solve various problems arising in residential areas and plans to apply Wave META in the project.

Future Plans

- **Accredited testing and standardization**
 - Real-world tests and test reports
 - Durability and environmental tests
- **Establishment of a mass production system**
 - Introduction of infrastructure for the mass production of Wave Meta and establishment of production lines
 - Introduction of a smart factory with an automated production system
- **Launching products used for reducing NVH of EVs (early 2024)**
 - Launching of Wave META applied to wheel guards for blocking road noise
 - Launching of Wave META applied to floor carpets for blocking wind noise
- **Development of sales channels for exports to mobility companies in the US, Europe, India, etc.**

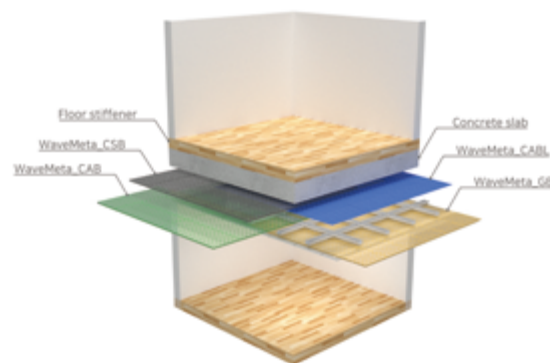


Photo 3. A conceptual diagram of installing Wave META for reducing noise between floors in buildings

- **Business expansion to building materials and interior design markets**
 - Signing of an MoU for joint R&D with Hyundai Engineering for reducing floor noise and pilot application to sample households
 - Introduction of Wave META in households supported by the Korea Institute of Civil Engineering and Building Technology
 - Expansion to interior design projects implemented in aged apartment buildings and commercial buildings
- **Commercialization of acoustic enclosures (ships, airplanes, spacecraft, etc.)**
- **Attracting investment**
 - Pre-A series in the first half of 2023 with target to attract KRW 800 million
 - Completion of initial investment of KRW 300 million from the Korea Science and Technology Holdings (December 2021)

By Jong Jin Park

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** The opinions expressed in this article are the author's own and do not reflect the views of KOTRA.*

Break Up of Another DMZ on the East Sea

A great leap forward was made in March when President Yoon Suk-yeol took a two-day shuttle trip to Tokyo to meet Japanese politicians and business leaders. It was as surprising as was great, because the previous two presidents of Korea, president Park and Moon, had never dared to do so. It was also equally audacious, as the political consequence of the visit was far from assuring for the administration suffering a record low approval rate from the start. Despite countless similarities, the two nations have been so hindered by centuries' old historical conflicts, personal anxiety, and emotional animosity that any acquaintance at any time between the two summits could trigger an unsurmountable cascade of opposition on both sides. That is exactly why president Park and Moon had refrained from visiting Tokyo under their presidencies. It is almost like another DMZ on the East Sea. For President Yoon, the trip was a serious risk-taking venture like walking through a mine-fields of DMZ, but he could not put it off further as the urgent current economic and security circumstances surrounding the East Sea has left him with no other choice but to dash into immediate action. He said it took great courage. Slow economic growth, rapid inflation, global slackening of trades, tumultuous financial environments and North Korean provocations all directed the President to a quick response.

As a business trip, it was not formality but substance that mattered to President Yoon and his government. The substance he dearly sought after was a “cooperating

partnership” between the two nations. Cooperation, not just in the areas of mercantile businesses, but in security matters, research and technology, human rights, environmental protection, climate change, supply shortages, and sustainable common prosperity. Being one of the top three industrial economies in the world, Japan has tremendous capability that Korea could benefit from through mutual cooperation. During the visit, President Yoon and Korean business leaders met with a number of business gurus in Japan to discuss possible venues for mutual cooperation, paving a critical path for building a cooperative partnership. The first step was launched through the mediation of President Yoon for a business bridge between the Federation of Korean Industries (FKI) and the Japan Business Federation (JBF, Keidanren). It was dubbed as the Korea-Japan Business Roundtable, and this alone could have been enough to make the two-day shuttle trip a success. It was quite a symbolic and historic gathering, as it was a meeting between the biggest business associations in each of the countries, representing almost all of the world-class enterprises of the two nations. It is hoped that FKI and its Japanese counterpart JBF could come up with systematic and long-lasting schemes upon which major enterprises in both nations would cooperate in investments, technology development and human resources for mutual prosperity in the future.

The business cooperation between Korea and Japan should further be extended, however, to small and me-

dium enterprises (SMEs) because there lies much more potential to gain from bilateral cooperation than between conglomerates. SMEs in both nations seem more susceptible to fierce global competition and the changing economic environment that they would be more inclined to cooperate with on another. In this respect, it is urged that the administrations in both countries arrange a table for dialogue between the representatives of their SMEs.

Furthermore, bilateral business cooperation was not the only concern for President Yoon. There were more pertinent issues of procuring future technology, which are essential and critical to both nation's economies. Cutting-edge technologies in AI, robotics, bio-health science, aerospace exploration and tele-communication are sine-qua-non for future economic sustenance in both countries, and the odds become a lot greater if Korea and Japan cooperate together in R&D investments than otherwise. Japan has been one of the leading countries in scientific research, especially in natural science and engineering. The Japanese government has been spending the highest proportion of its budget in R&D. With 29 Noble laureates, of which 25 are in natural science such as physics and chemistry, Japan is undoubtedly a formidable powerhouse in scientific research that Korea seeks to become. The Yoon government announced the 12 national strategic technologies (NSTs) at the last presidential conference on October 28, 2022, and cooperation with Japan and Japanese R&D institutions could propel and speed up Korea's tech advancement initiatives. Cooperation amid competition between leading R&D institutions in both nations seems much more inevitable.

Another important area of bilateral cooperation is finance and trade. Japan has long been the second largest international investor after the US in global finance and among the top five international traders. With its status of global currency, the Bank of Japan (BOJ) could supply a significant amount of global liquidity without jeopardizing its financial stability. If the Bank of Korea (BOK) could reinvigorate a swap-agreement with BOJ, as it has been in the past after the financial crisis in 2008, Korea's financial stability could be further enhanced. This could further stabilize the value of the won and decrease volatility of interest rates.

Despite such innumerable advantages, there has been a pocket of people who vehemently oppose any level of talks whatsoever between Korea and Japan. Generally emotionally charged, the deep-rooted hatred and antagonism against Japan emanates from the historical atrocity under the colonial occupation from 1910 to 1945. They believe Japanese apologies have not been enough, nor had they been truthful and sincere, which almost everyone in Korea would have to agree. Nonetheless, President Yoon seems to believe that Korea cannot, and should not, be a prisoner of the past, doing nothing until Japan comes up with an almost unconditional surrender to Korea by conceding to all the requests that anti-Japanese groups have been asking for the last eight decades, which is near impossible in practicality. Here is the audacity of President Yoon, by exercising a Geddes Axe on the centuries' old Gordian knot. With his surprising strike, Japan has agreed to immediately nullify the export ban on three key materials, and the Korean government correspondingly halted a World Trade Organization (WTO) dispute against Japan regarding export infringement. The two countries also restored military information-sharing pact soon after. Still, the Korea-Japan relationship has just returned to its pre-2018 state, and there remain many more steps that the two nations must take to proceed forward together in the future.



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** The opinions expressed in this article are the author's own
and do not reflect the views of KOTRA.*

Korea 101: Shopping

Shopping Options in Korea

TIP

Want more information on shopping in Korea?

Visit the 'Visit Korea' website run by the Korea Tourism Organization, select the language of choice and go to [Shopping] and [Where to Shop]. You can check detailed information such as the address, website address and phone number of various shopping venues in Korea. Choose places close to your location and suitable to meet your shopping purpose.

Website: <http://www.visitkorea.or.kr>

Languages: 14 languages including English, Japanese and Chinese

(1) Traditional Markets

Traditional markets in Korea are traditional-style markets with a unique ambience and generous merchants. They offer a variety of goods including food, clothing, and much more. In addition to permanent traditional markets, there are five-day and seven-day traditional markets that regularly move from place to place every five or seven days.

There are many specialized traditional markets, too, largely for seafood, agricultural products, fruits and vegetables, and traditional herbal medicine. One of the many perks of traditional markets is that prices there are negotiable. You can also shop various items at nearly half prices in the evening before merchants there close their shops for the day.



(2) Discount Stores

Korea has many discount stores that sell almost all the items customers need in their everyday lives. Note that they regularly close. In Seoul, most of them close every second and fourth Sundays of the month.

Discount stores are gaining in popularity because consumers can save time and money on the back of reduced prices and frequent promotional events.

Checkout can be a time-consuming experience there during particularly busy hours. You might as well reconsider going there just for a couple of items.



(3) Department Stores

Department stores in Korea stock all kinds of products from luxury fashion items of famous international brands to daily necessities. They are widely known for excellent customer service, too.

Most of them also offer foreign language services in English, Japanese and Chinese. Foreign tourists find shopping there very convenient and pleasant. Almost all of them run food corners in their basement floors, which offer a 50-70 percent discount on their semicooked and fully-cooked foods in the evening (usually between 18:00-20:00).



(4) Outlet Malls

By outlet malls, Koreans refer to a couple of different shopping facilities. Most frequently, they mean stores that sell 'carryover' brand items at much lower prices.

These stores offer their merchandise at even lower prices during sale periods.

An increasing number of people visit outlet malls to buy top brand items while spending their free time with their loved ones as the malls have evolved from a mere shopping venue to a space rather closer to a theme park.



(5) Convenience Stores

Most convenience stores are open 24/7 so you can pick up instant foods and various everyday items. The stores are mostly small so you won't find any difficulty locating what you want there.



(6) Supermarkets

By supermarkets, Koreans refer not only to midsize stores but also to small neighborhood stores, as opposed to large discount stores. They mostly target customers in an apartment complex or a neighborhood.

The variety of items they carry depend on the size of the store. Their prices vary significantly, too as some of them offer discounts while others do not.



For further inquiries, please contact the Investment Consulting Center



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or visit



www.investkorea.org

Is it possible to notify foreign investment online or in foreign countries?

Every month, Invest Korea provides answers to some frequently asked questions submitted by foreign-invested companies in Korea and potential investors.

Q.

Is it possible to notify foreign investment online or in foreign countries?

A.

Currently, notification of foreign investment cannot be filed online.

In principle, foreign investment cannot be notified in countries outside of Korea, either.



- However, a foreign investment notification can be filed in certain countries where the Korea Trade-Investment Promotion Agency (KOTRA) operates overseas FDI offices to render support to foreign investors. The list of such overseas FDI offices is available on the Invest KOREA website (www.investkorea.org ► About Us ► Contact Us ► KOTRA's Overseas Offices Dedicated to Investment)

KOTRA's 36 Overseas FDI Offices

Region	Overseas FDI Offices (Cities)
North America (9)	- US (7): New York, Silicon Valley, LA, Chicago, Dallas, Detroit, Atlanta - Canada (2): Toronto, Vancouver
Europe (13)	- Germany (3): Frankfurt, Hamburg, Munich - UK (London), France (Paris), Sweden (Stockholm), Denmark (Copenhagen), Spain (Madrid), Netherlands (Amsterdam), Belgium (Brussels), Italy (Milan), Switzerland (Zurich), Austria (Vienna)
Southeast Asia·Oceania (3)	- Singapore (Singapore) - Australia (2): Sydney, Melbourne
Japan (4)	- Japan (4): Tokyo, Osaka, Fukuoka, Nagoya
China (6)	- Hong Kong, Shanghai, Beijing, Qingdao, Guangzhou - Taiwan (Taipei)
Middle East (1)	UAE (Dubai)

For further inquiries, please contact the Investment Consulting Center



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Invest KOREA Market Place

Invest Korea Market place (IKMP) is an online business matching platform available on Invest KOREA's website with information on approximately 300 Korean companies seeking to partner with foreign investors. This month, Invest Korea introduces some outstanding companies in Korea's automobile industry.

COMPANY A



Smart dashboard



Non-camera method and 3D reproduction prevent blind spots and identify all incidents



Driving safety score

Investment Requirement		Company Profile	
Amount	USD 1 million	Patents and Certificates	1 registered patent, method & system for analyzing operation records and operation record device
Investment Structure	Equity Investment	Financial Performance	(Sales in 2021) USD 0.04 million

Investment Highlights

- **Two-wheeled vehicles' fatal accident rate in delivery service market:** Safety concerns are mounting due to the increase in delivery persons and PM drivers such as motorcycles and bicycles following the surge in the non-face-to-face delivery service market. About KRW 150 billion worth in related markets is expected to be created annually with 500,000 overseas delivery persons in North America and 800,000 in Europe, and about KRW 50 billion in market growth annually in Korea with 450,000 delivery persons.
- **Management of mobility safety and collection of operational safety data through AI:** By simply attaching a small and low-power IoT device to mobility, it accurately identifies the operation status from large construction equipment to small kickboards, regardless of the size and type of mobility. It monitors illegal, reckless driving, and accident-prone situations unable to be identified by GPS in real time. It promotes safety and responds quickly in the case of a crisis through big data from driving and responses collected in real time.

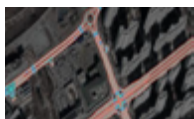
COMPANY B



Sensing and classification of surrounding objects based on lidar analysis



Sensing lanes, objects, and traffic lights based on deep learning



Utilization of the pointer cloud cluster, vector map

Investment Requirement		Company Profile	
Amount	Over USD 20 million	Patents and Certificates	7 registered patents, applied for registration of 27 patents, registered 12 trademarks at home and abroad, including autonomous driving full stack software, applied for registration of 4 patents in foreign countries
Investment Structure	Equity investment	Financial Performance	(Sales in 2020) USD 1.09 million

Investment Highlights

- **Autonomous Driving:** The company specializes in autonomous driving. It has developed an autonomous driving vehicle platform, VLP-16 SDK, unmanned vehicle performance test kit, and autonomous driving sensing system technology. It has secured system stability by developing its own embedded board for vehicles to execute autonomous driving software. It possesses the technical know-how required to promptly handle cases for the determination control stack based on rules, by filtering the information critical to perception only from among various data in a large amount entered into the cognitive stack. The company started its own PVB platform project to prepare for the design and mass production of localized unmanned mobility equipped with its autonomous driving software.
- **Autonomous vehicle market:** The global market is expected to grow explosively at an annual average growth rate of 41%, rising from USD 7.1 billion in 2020 to USD 154.9 billion in 2025, USD 656.5 billion in 2030, and USD 1 trillion 120.4 billion in 2035. The value of the autonomous driving-related sensor market alone is expected to reach USD 25.8 billion by 2022, while that of the autonomous driving software market is expected to exceed USD 18 billion in 2020 and USD 52 billion in 2025.

For more information please e-mail ikmp@kotra.or.kr, or visit the Invest KOREA Market Place page on www.investkorea.org.

Invest KOREA's Services

Foreign Investment Ombudsman

The Office of Foreign Investment Ombudsman is an organization established in 1999 to provide close aftercare support and grievance resolution services for foreign-invested companies, and is dedicated to resolving any difficulties that foreign-invested companies face while doing business in Korea.

One-Stop Service for Foreign Investors

The Inbound Investment Consulting Department not only assists foreign investors and foreign-invested companies in the investment review and implementation stage, but also offers customized services to help foreign investors and their families get comfortably settled in Korea.

Invest KOREA Market Place (IKMP)

IKMP is a project aimed at discovering promising Korean SMEs seeking to attract foreign investment and matching them with foreign investors who have compatible needs. Projects looking for investment are posted on our website at www.investkorea.org.

Job Fair for Foreign-Invested Companies

IK organizes regular job fairs to help foreign-invested companies discover qualified local talent, and job seekers find employment through job consultations, on-site interviews, and more.



Invest KOREA Plaza (IKP)

Invest KOREA Plaza (IKP) is Korea's first facility dedicated to the incubation and investment of foreign investors. Each year, more than 40 foreign-invested companies rent out offices in the plaza and utilize IK's one-stop service.

IKP also provides serviced offices, business lounges, video conference rooms and a shower and sleeping lounge to maximize convenience for foreign investors.

IKP Offices for Lease

Foreign-invested companies

Companies planning to notify investment: Those who expect to report foreign direct investment of which the arrived amount is over USD 100,000 within 1 year of move-in.

IKP Occupancy Procedure

Counseling in occupancy → Application for occupancy → Screening committee evaluates application → Result notification(result confirmed in 1-2 weeks) → Conclusion of lease contract → Move into IKP



KOTRA's Global Network

KOTRA has 129 overseas offices and 10 headquarters worldwide

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