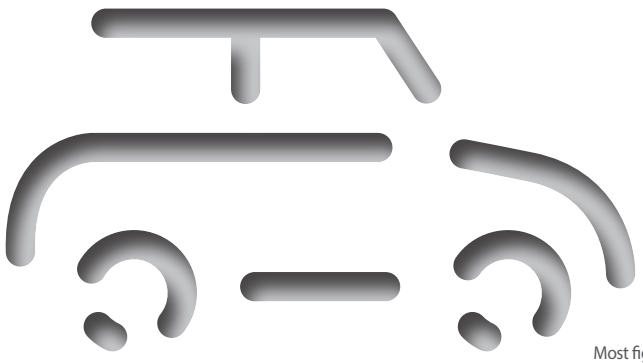
KOTRA자료 17-058

INVEST KOREA

INVESTMENT
OPPORTUNITIES
IN KOREA

AUTO PARTS

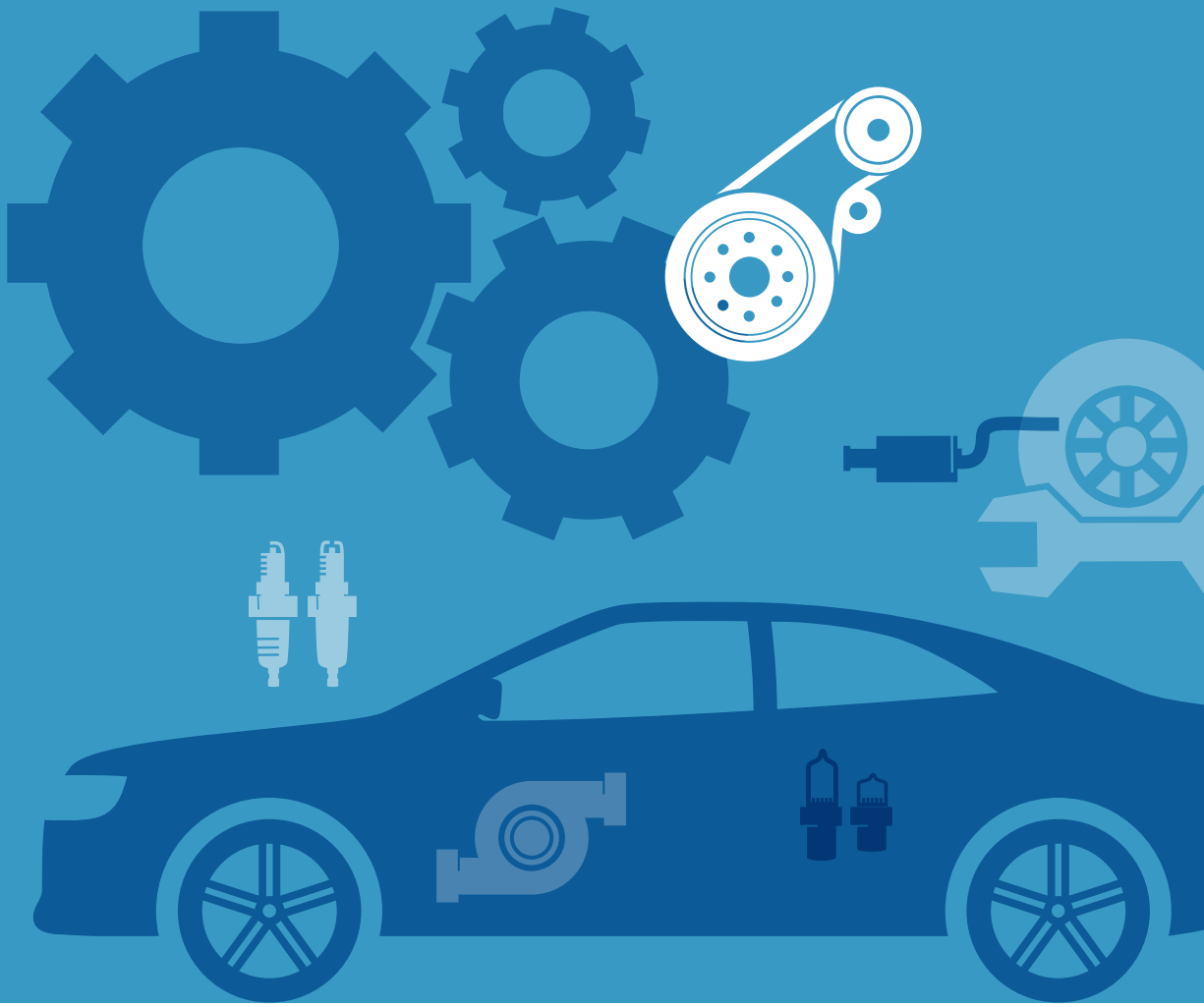
Contents



Most figures in this report are converted from KRW into USD based on yearly average exchange rates. But growth rates (e.g. CAGR and YoY growth rate) are calculated based on KRW to prevent any distortion caused by changes in exchange rates.

INVESTMENT OPPORTUNITIES IN KOREA

AUTO PARTS



01 INDUSTRY OVERVIEW

Definition of the Industry

As an upstream sector of the automobile industry, the automotive parts industry produces and supplies various automobile parts to finished car manufacturers.

- The key forward and backward linkage industries of the auto parts industry are the automotive and materials industry, respectively. The development of the auto parts industry is in close relation to that of the material, petrochemical, electronics, and machinery sectors.
- As convenience and eco-friendliness have recently been promoted as the key competitiveness of automobiles, the auto parts industry's linkage with the information technology and environmental technology sectors is also on the rise.

A finished automobile is composed of about 20,000 parts, ranging from simple functional parts to precision and electronic parts.

- Automotive parts vary according to the material, processing, standards, precision, and engineering basis, which is why labor division and specialization is critical in this area. Auto parts can be divided into a variety of categories depending on functions, manufacturing processes, materials and usage.

Classification of Automotive Parts

Standard	Contents
By Function	Car body (panel, door, bump, etc.) Power plant device (engine body, fuel system, intake and emission system, and cooling system) Power transmission device (transmission, axle, clutch, gears, etc.) Suspension system (shock absorber, spring, cross/side member, etc.) Steering system (steering gear, column/shaft, steering wheel, etc.) Brake system (brake system, disk, drum, cylinder, etc.) Electrical and electronic devices (battery, wires, motors, switch, sensor, lamp, etc.) Others (air-conditioning, heater, tire wheel, wiper, rubber products, seat, airbag, etc.)
By Manufacturing Process	Casting (cylinder block, cylinder head, piston ring, brake drum, etc.) Forging (crank shaft, cam shaft, connecting rod, axle shaft, etc.) Machining parts (piston pin, bearing, bolt, etc.) Press parts (wheel disk, fuel tank, body parts, frame, etc.) Assembly parts (radiator, fuel injector, air cleaner, carburetor, etc.)
By Material Used	Steel, nonferrous metal, rubber products, plastic products, etc.
By Form of Use	Element parts, universal parts, exclusive parts

Status of the Industry

Status of the Global Market

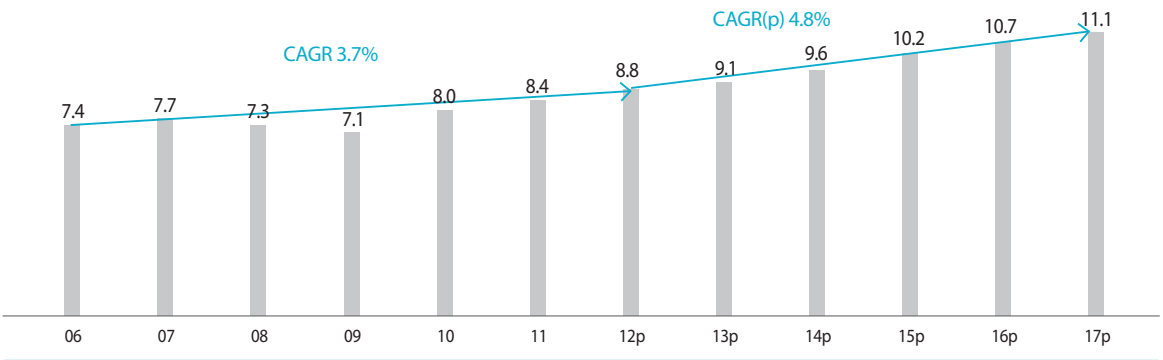
The global automobile parts industry suffered from sluggish growth due to a drastic decrease in automobile sales during the 2008 global financial crisis. However, it is expected to grow by 4.8% annually between 2012 (USD 880 billion) and 2017 (USD 1.1 trillion), mostly due to the growth in emerging markets such as China, India, and ASEAN countries as well as the economic recovery of the US.

Acquisitions of global automotive parts companies are on the rise. According to PWC estimates, there were a total of 211 acquisitions in 2014 alone, up 13% YoY.

- A growing number of auto parts companies are seeking acquisitions to diversify their product portfolios, in response to growing demand for electric/electronic parts used in eco-friendly cars (electric vehicles) and smart cars (self-driving cars). Another reason for rising acquisition is to respond to changing module production methods of finished car manufacturers and expanded global parts supply.
- PWC suggests that large-scale parts manufacturers in North America and Europe are actively pursuing acquisitions. They took up the biggest share of the global acquisition deals made in the last three years. Lately, however, European firms are showing more interests in acquisitions.

Size of the Global Auto Parts Market

(USD 100 billion)



Source: J.D. Power, IHS; estimate from the Korea Automobile Research Institute

As the automobile industry is going through significant changes (e.g. the development of eco-friendly and smart cars), new companies from a broad spectrum of industries are entering the industry. Their market entry is encouraging the expansion of the industry ecosystem through enhanced competition and cooperation with existing companies.

- The scope of suppliers is expanded to include companies with new technologies such as information technology and secondary batteries, intensifying competition in the auto parts market.
- Companies from diverse industries such as IT and communication services are increasingly joining the market for the development of core parts of smart cars including sensors, cameras, V2X communication systems, and telematics.

To survive the intensified competition in the global automotive industry, most automakers are pushing forward with "modularization" and "platformization" as part of their efforts to secure competitiveness and flexibility in terms of cost reduction or manufacturing.

- German auto parts manufacturers are strengthening related businesses to modularize parts based on the quality and technological power of their individual parts.
- As a growing number of finished automakers use advanced modularization strategies, German auto parts manufacturers are increasing investment in the development of modularized parts and system components, rather than sticking to individual parts.

Finished automakers are increasingly relying on the technologies and parts supply of large-scale parts manufacturers, as they seek to expand new platforms and accelerate the development of future-oriented cars.

- An increase of eco-friendly vehicle models such as electric vehicles and hydrogen fuel cell vehicles is putting the spotlight on future-oriented cars, triggering competition in the development of related core auto parts.
- Due to the development of self-driving vehicles, active safety technology is increasingly applied to ordinary vehicles. This leads to fierce competition among auto parts makers to secure the technology and supply related parts and components.

Status of the Korean Market

The auto parts industry of Korea represents 6.7% of the country's manufacturing-industry production and 6% of the industry's added value. It accounts for 8.7% of Korea's employment.

- Korea's auto parts industry has grown from a domestic-oriented industry to one driven by exports, with the industry share accounting for 4.9% of the country's total exports and the trade balance amounting to USD 20.8 billion.

Status of the Korean Automotive Industry

(no. of companies, thousand employees, USD million, %)

Category	Companies	Employees	Production Amount	Added Value	Export	Trade Balance
			(USD million)			
Finished Car Industry	25	85,426	82,260	26,303	45,794	35,009
(proportion)	0.0	2.9	6.10	6.00	8.7	
Auto Parts Industry	4,554	252,907	90,201	26,626	25,550	20,874
(proportion)	6.6	8.7	6.70	6.00	4.9	

Source: Statistics Korea
Note: 1) Number of companies, employment, production amount, and added value are based on 2014 figures. Export and trade balance are based on 2015 figures
2) "Proportion" shows the proportions to the manufacturing industry, except for the proportion of exports which refers to the proportion to total exports

Korea's auto parts industry has experienced steady development spurred by the growth of downstream industries. The industry grew by 5.9% annually from USD 41.2 million in 2005 to USD 62.9 million in 2015.

- The growth of the auto parts industry is attributable to increased unit prices due to specification improvements; increased overseas production of domestic finished-automobile manufacturers and increased exports due to the global sourcing trend of foreign finished-automakers; increased outsourcing and modularization of the finished-automobile manufacturers; and enhanced role of domestic auto part manufacturers.
- From 2003 to 2010, Korea's auto parts industry grew on the back of expanded production capacity of Hyundai/Kia Motor's overseas facilities. Since 2010, auto parts makers are enjoying independent growth through foreign market entry.

The recent slowdown of the global automobile market has led to sluggish export and lower production of finished cars. While the OEM supply is decreasing, exports of auto parts continue to grow.

Annual Sales of the Auto Parts Industry of Korea

(USD million, %)

Year	Sales Amount				Fluctuation
	OEM	A/S	Export	Total	
2011	44,825	2,690	11,366	58,880	15.2
2012	48,546	2,819	18,629	70,088	10.6
2013	48,072	2,884	19,946	70,902	-0.3
2014	47,302	2,838	19,636	69,776	2.5
2015	41,348	2,894	18,733	62,976	-3.7

Source: Korea Auto Industries Coop. Association (KAICA)

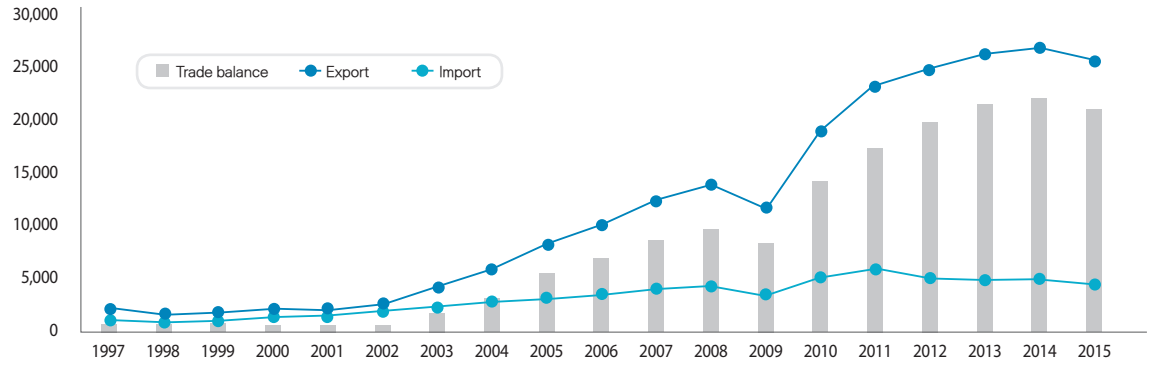
- Korea's auto parts exports increased mostly in the regions where overseas plants of domestic automakers are located, because of their continued expansion of production facilities and increased operation rate, which ramped up demand for auto parts.
- The global competitiveness of the Korean auto parts industry is substantially improving as parts manufacturers are integrated into the GVC through exports and overseas investments. This, in turn, has led to the growth of sales and employment as well as the diversification of demand.
- Large-scale auto parts manufacturers have signed contracts with global finished automakers such as BMW, GM, Volkswagen, Daimler, etc. based on their quality products and competitive standing on the global stage.

Since the mid-2000s, auto parts exports have been rapidly growing and leading industry growth, with its growth rate exceeding that of total sales.

- Total industry sales have increased 2.1% annually on average while exports have soared 2.6% over the past five years, which shows that Korea's auto parts industry has grown from a domestic-oriented industry to one driven by exports.
- This is due to increased direct exports to global finished-automakers and auto parts manufacturers, and the increased export of local auto parts due to the expanding overseas production of Korean finished-automobile manufacturers.

Export and Import Status of Auto Parts Industry

(USD million)



Source: Korea International Trade Association (KITA)

Korea's major auto parts export items are other auto parts, transmissions, other auto body parts, and brakes and their parts.

- "Other auto parts," including automotive knock-down kits and uncategorized and miscellaneous parts make up the majority of Korea's exports. They accounted for 46.4% of the total exports in 2015, while transmissions and other auto body parts accounted for 14.2% and 12.1%, respectively.
- Enhanced competitiveness of Korea's auto industry has boosted its exports of core auto parts for transmissions, brakes and axles.

Changes in Export of Major Auto Parts Items

(USD million, %)

2005			2010			2015		
HS Code	Items	Export	HS Code	Items	Export	HS Code	Items	Export
870899	Other auto parts	6,190	870899	Other auto parts	14,069	870899	Other auto parts	11,856
870829	Other auto body parts (excluding seatbelts)	427	870829	Other auto body parts (excluding seatbelts)	985	870840	Gearboxes and their parts	3,626
870870	Road wheels and their parts and accessories	257	870840	Gearboxes and their parts	759	870829	Other auto body parts (excluding seatbelts)	3,089
870830	Brakes and their parts	255	870830	Brakes and their parts	664	870830	Brakes and their parts	963
870840	Gearboxes and their parts	120	870894	Steering wheels and steering boxes	254	870894	Steering wheels and steering boxes	805
870894	Steering wheels and steering boxes	113	870870	Road wheels and their parts and accessories	230	870850	Drive-axles with differential gears	686
870893	Clutches and their parts	103	870893	Clutches and their parts	225	870870	Road wheels and their parts and accessories	573

Source: Korea International Trade Association (KITA)

The major export markets of Korea's auto parts industry are the USA, China, India, Slovakia and Mexico where Korean finished-automobile makers have established overseas production facilities.

- The US took up about 25.7% of Korea's auto parts exports as of 2015. Korean auto parts manufacturers provide auto parts and A/S parts not only for Korean auto makers in the US but also for American automakers such as GM and Chrysler.
- While the industry's overseas production volume is highest in China, the share of China in the export market is on the decline due to localization and increasing supply from local auto parts firms.
- Although Mexico accounts for only 3.6% in Korea's export market, it has strong potential for growth as the country is emerging as a new automobile production base of North America.

Changes in Import of Major Auto Parts Items

(USD million, %)

2005			2010			2015		
HS Code	Items	Import	HS Code	Items	Import	HS Code	Items	Import
870840	Gearboxes and their parts	715	870840	Gearboxes and their parts	1,362	870840	Gearboxes and their parts	869
870899	Other auto parts	632	870899	Other auto parts	1,094	870899	Other auto parts	853
870829	Other auto body parts (excluding seatbelts)	409	841330	Pump for supply of fuel and lubricating oil or cooling refrigerant	410	841330	Pump for supply of fuel and lubricating oil or cooling refrigerant	476
841330	Fuel pumps, lubrication pumps, coolant and refrigerant pumps	388	870830	Brakes and their parts	339	870829	Other auto body parts (excluding seatbelts)	377
870830	Brakes and their parts	189	870894	Steering wheels and steering boxes	175	870830	Brakes and their parts	275
870821	Seatbelts	87	870829	Other auto body parts (excluding seatbelts)	170	870894	Steering wheels and steering boxes	191
842123	Parts of electric ignition or starting equipment used for internal combustion engines	59	870870	Road wheels and their parts and accessories	166	870850	Drive-axles with differential gears	134

Source: Korea International Trade Association (KITA)

The Korean auto parts industry has seen a downward curve in its imports, as a growing number of auto parts are domestically manufactured. However, imports recently started to rise, mainly because automobiles are increasingly equipped with state-of-the-art features. Furthermore, the market share of imported finished cars reached 15% of the total sales, which increased demand for A/S parts.

- By item, transmissions (including multi-range transmissions) and parts for premium cars have the highest share of 19.9%. Other auto parts including automobile electronics which are recently added to automobiles and not categorized yet, take up the second highest share of 19.6%.
- Due to the rising demand for A/S parts, imports of parts such as driving axles and auto body parts are also on the rise.

The major import markets of Korea's auto parts industry are China, Japan, Germany and the USA. China had the highest share of 26.4% as of 2015.

- The share of Japan went down from 32.0% in 2010 to 20.3% in 2015. The KOR-US FTA raised the share of the US from 6.4% in 2010 to 8.2% in 2015.
- With the rising sales of diesel vehicles, imports from Germany are also increasing as the country has a competitive edge in diesel-related parts.
- In addition, auto parts imports from emerging countries such as China and Mexico are increasing, which is a buyback of auto parts manufactured by Korean auto parts makers located in those countries.

Based on the annual sales amount in 2015, the top auto parts maker in Korea is Hyundai Mobis, whose annual sales amount exceeded KRW 10 trillion (USD 8.3 billion) (KRW 19.79 trillion or USD 16.5 billion).

- Other leading auto parts manufacturers include Hyundai Wia (KRW 7.7 trillion or USD 6.4 billion), Hyundai Powertech (KRW 3.4 trillion or USD 2.8 billion), Mando (KRW 3 trillion or USD 2.5 billion), and Hyundai Dymos (KRW 2.5 trillion or USD 2.08 billion).
- The companies mentioned above are large-scale, specialized parts manufacturers equipped with world-class, advanced technologies. They consist of the so-called "0.5 stage" partners that deliver modules for the assembly process and the "1st stage" partners that produce gearboxes, axles and brakes.
- Building on their expertise, these companies are expanding trade with global automakers while striving to increase sales through local production in China, the United States and other countries.

Status of Korea's 10 Largest Auto Parts Vendors

(USD million, no. of employees)

Rank	Company Name	Sales	Workforce	Major Production Items
1	Hyundai Mobis	16,272	8,841	Module and system (chassis module, cockpit module, and front end module)
2	Hyundai Wia	6,604	3,481	Transmission, engine, and universal joint
3	Hyundai Powertech	2,947	1,997	Automobile power transmission system (automatic transmission)
4	Mando	2,639	4,307	Brake, steering, and suspension
5	Hyundai Dymos	1,919	1,612	Transmission, axle, and seat
6	Hyundai KEFICO	1,373	1,199	Engine control system, automatic transmission control system
7	Kyungshin	1,163	1,326	Wiring harness
8	Sungwoo Hitech	1,063	1,659	Bumper rail, side member
9	Yura Corporation	1,039	2,105	Wiring harness, junction box
10	Heesung Catalysts	907	419	Automobile catalyst

Note: Rank is based on sales amount in 2015
Source: Korea Enterprise Data

Status of Foreign Direct Investment

In 2015, a total of 28 foreign investments were registered in the Korean auto parts industry, amounting to USD 50.99 million.

- Although foreign investments have recently shown the signs of stagnation due to the prolonged low growth of the global automobile industry, foreign investments in the Korean auto parts industry remain stable at a certain level.
- Korea has signed free trade agreements with several countries such as the US (took effect in March 2012), EU (July 2011) and Australia (December 2014) to open up the automobile markets. Many foreign companies are making aggressive investments in the Korean auto parts industry to utilize tariff benefits.
- For the finished automobile industry, investments are made for equipment replacement for new models rather than the expansion of production facilities. On the other hand, for the auto parts industry, foreign investments are channeled through parts for green vehicles (e.g. electric vehicles, hybrid vehicles) as well as conventional automobiles powered by internal combustion engine.

Annual Foreign Investment in Korea's Auto Parts Industry

(case, USD thousands)

Industry	Category	2009	2010	2011	2012	2013	2014	2015
Finished Cars	Investments	2	7	4	5	6	1	3
	Amount	417,352	373,301	3,694	889,391	799,563	10,000	186,000
Auto Parts	Investments	36	44	42	34	40	45	28
	Amount	88,481	2,079,611	188,890	254,056	274,941	142,157	50,998

Source: Ministry of Trade, Industry and Energy
Note: Based on notification

In 2015, 165 of Korea's auto parts makers were foreign-invested companies, taking up 18.7% of total primary auto parts manufacturers.

- Most of the world's top 10 auto parts makers have invested in Korea's local auto parts industry and have multiple subsidiaries in Korea.
- Many of the world's leading companies have invested in the domestic auto parts industry; Delphi and Visteon of the United States, Bosch and ZF of Germany, Yajaki and Denso of Japan and Valeo of France.
- Foreign-invested companies mainly supply high-tech core parts. The mother companies' strong negotiation power has pushed the operating profit rates of those foreign-invested companies above the industry's average level.

Global auto parts giants have advanced into the Korean market in order to use Korea as a key axis of their global network strategies.

- To that end, they have adopted the tactic of holding a majority of the equity shares of the local auto parts companies they have invested in.
- The region has other important auto-manufacturing countries, including Japan and China. But Korea has been assessed to have strategic significance due to its market size and production conditions.

Advancement of Globally Leading Auto Parts Manufacturers Into Korea

Country	Parent Company	Company Name	Parts Supplied
US	TRW	Shinhan Valve	Engine valve
		TRW Steering	Steering gear
		TRW Automotive Korea	Safety belt, airbag sensor
	Delphi	Delphi Korea	Safety belt, airbag
		Packard Korea	Electric wiring device, wiring harness
		Delphi Connection Systems Korea	Connector, fuse box for automobiles
		Delphi Powertrain	Nozzle, injector, pump, and diesel engine parts
Canada	Magna Powertrain	Magna Powertrain Korea	Oil pump, water pump
		WIA-Magna Powertrain	Electronic coupling, etc.
		Magna Automotive Korea	Side mirror, sensor
Germany	Robert Bosch	Bosch Electrical Drives	Small electric motors for automobiles, motor control system
		Robert Bosch Korea	Diesel engine electronic control system
	ZF	ZF Sachs Korea	Suspension parts (shock absorber)
		ZFLK	Chassis, bumper parts
	Continental Automotive	Continental Automotive Electronics	Automobile temperature controller, electronic control system, and cluster
		Continental Automotive System	Automobile engine control system, sensor, electronic control system
France	Valeo	PHC Valeo	Clutch, bearing
		Valeo Electrical Systems Korea	Starter, alternator, and distributor
		Samsung Valeo Thermal Systems	Aluminum radiator, condenser, and oil cooler
		Valeo Automotive Korea	Air conditioner compressor, die-casting products
	Faurecia	Faurecia Emission Control System Korea	Catalyst conversion system, emission manifold
		Shinsung Faurecia	Dashboard, door panel, center console, and related parts
		Faurecia Automotive Seating Korea	Automobile seat
Japan	Denso	Denso Korea Automotive	Electrical parts, air-conditioning system, etc.
		Denso Korea Electronics	Cluster, smart key, HUD

Source: Data of Korea Enterprise Data were reorganized

Competitiveness of the Industry

Korea is the world's fifth largest auto parts manufacturer, following China, Japan, the US and Germany.

- The global production share of Korea's auto parts industry rose to 3.7% in 2005 from 2.6% in 2000, and has remained over 5% since 2010.
- Auto parts exports rose significantly and the industry's share of global exports increased sharply as well, from a mere 1.1% in 2000 to 5.2% in 2012 and 5.5% in 2015.
- Emerging auto manufacturers such as Mexico and India are rapidly catching up with Korea in terms of production scale. However, Korea is strengthening its competitiveness through the modularization and the advancement of auto parts, all of which was possible thanks to the introduction of green and smart vehicles.

Five Korean companies were included in the 2015 global ranking of the top 100 auto parts makers (based on sales amount). In particular, Hyundai Mobis ranked sixth with its sales amount of USD 26.3 billion.

- Hyundai Wia ranked 29th, growing by 1.5% YoY and with sales of USD 7.5 billion; Mando 45th, growing by 3.5% YoY and with sales of USD 5.6 billion; Hyundai Powertech 50th, with sales of USD 4.5 billion; and Hyundai Dymos 65th, with sales of USD 3.2 billion.

Global Ranking of Major Auto Parts Manufacturers

(USD million)

Rank	2010		2013		2015	
	Company (Country)	Delivery Amount	Company (Country)	Delivery Amount	Company (Country)	Delivery Amount
1	Bosch (Germany)	34,565	Bosch (Germany)	40,183	Bosch (Germany)	44,825
2	Denso (Japan)	32,850	Denso (Japan)	35,849	Denso (Japan)	36,030
3	Continental AG (Germany)	24,819	Magna International (Canada)	34,375	Magna International (Canada)	32,132
4	Aisin Seiki (Japan)	24,613	Continental AG (Germany)	33,500	Continental AG (Germany)	31,480
5	Magna International (Canada)	23,600	Aisin Seiki (Japan)	27,125	ZF (Germany)	29,518
Korea	Hyundai Mobis (9th)	14,433	Hyundai Mobis (6th)	24,677	Hyundai Mobis (6th)	26,262
	Hyundai Wia (45th)	4,115	Hyundai Wia (35th)	6,741	Hyundai Wia (29th)	7,480
	Mando (53rd)	3,827	Mando (43rd)	5,145	Mando (45th)	5,560
	Hyundai Dymos (92nd)	1,338	Hyundai Powertech (54th)	3,885	Hyundai Powertech (50th)	4,554
			Hyundai Dymos (76th)	2,434	Hyundai Dymos (65th)	3,200

Source: Automotive News

Korea's auto parts industry is more price competitive than that of Japan, and its quality competitiveness is also on the rise. When it comes to quality competitiveness, the gap with China is narrowing as China rapidly catches up with Korea.

- Korea's quality competitiveness increased from 91.6% of Japan in 2004 to 94.5 in 2014. This is due to

improvements in various areas, including the skill level of workers, production facilities, the level of efficiency in production processing, the quality of parts, and the management and design of parts.

- As for technological competitiveness, domestic auto parts makers are narrowing their gap with Japanese counterparts, but they are rapidly being chased by Chinese auto part manufacturers.
- In terms of parts for internal combustion engine vehicles, the gap between Korea and advanced nations is being reduced. At the same time, leading companies in advanced nations are striving to maintain the gap by leading technological development, such as lightweight and downsized engines, in order to improve the fuel economy.

Comparison of Competitiveness of Auto Parts: Korea, China, and Japan

Year	Price Competitiveness			Quality Competitiveness			Technological Competitiveness		
	Japan	Korea	China	Japan	Korea	China	Japan	Korea	China
2014	100	105.8	118	100	94.5	79.5	100	90.3	78.9
2004	100	112.5	127.8	100	91.6	73.9	100	87.4	67

Source: Korea Institute for Industrial Economics and Trade (KIET), Automobile Parts Promotion Foundation

Prospect for the Industry

The domestic production of finished car manufacturers grew by 2.1% annually from 3.69 million in 2005 to 4.55 million in 2015.

- Korea's automobile production seems to have reached maturity in 2011 when its production quantity peaked. However, the industry seeks a continued growth by developing future-oriented automobiles such as green cars and self-driving cars.
- Korea's production capacity is reaching its limit due to the long absence of new production facility establishments (especially after Donghee Auto's launch of Morning in 2002), but the global reputation of the domestic auto industry is being solidified with increased sales through overseas production.

Spurred by the growth of the downstream industry, the domestic auto parts industry is showing steady growth in terms of revenue.

- The domestic auto parts industry is expected to be on the same growth track as its downstream industry, the automotive industry.
- The exterior growth trend is forecast to continue thanks to existing growth contributors including the increased unit price of sales per vehicle due to improved specifications and sophistication (OEM revenue), the increased number of domestic vehicles in use (A/S revenue), the expanded overseas production of domestic companies and the global parts sourcing of overseas finished-auto makers.

Major finished automakers are pushing forward with strategies to expand the local procurement from emerging markets and optimize a global parts procurement network to ultimately improve cost competitiveness.

- A strong global sourcing trend among Japanese and American auto manufacturers has translated into the increased deliveries of Korean parts makers to global auto makers.
- Domestic parts makers will enjoy great opportunities to participate in the global sourcing trend, especially with overseas auto makers that are based in Korea.
- Korean auto parts makers will be able to play a greater role in the global auto parts market, as it accumulates experience in export and overseas production.

As domestic auto production is stagnant, the importance of the parts industry in Korea's overall auto industry will grow.

- Expanded overseas production is expected to negatively affect Korea's auto exports. However, increased parts exports to overseas production facilities run by domestic companies and global automobile manufacturers are expected to offset such loss.

South Korea has signed free trade agreements with the US, EU, Australia, and China, all of which have large demand for automobiles. Considering that Korea's automobile exports remained stable even before the signing of the FTAs, tariff reduction will provide even greater chances for Korean firms to increase exports.

- While there is a grace period for automobiles until tariff barriers are fully eliminated, tariffs on auto parts are immediately eliminated when the FTA comes into effect. As such, the overseas supply of auto parts is expected to rise in the near future.

02 LOCATIONAL COMPETITIVENESS

Locational Status

Korean automotive companies are located nationwide. The share of the automotive industry in each region is generally high, and the industry plays a crucial role in creating jobs and vitalizing local economies.

- Korea's auto parts manufacturers are located in the West Coast Belt (metropolitan area), Southeast Belt (Ulsan) and Southwest Belt (Gwangju, Gunsan).

Southwest Belt

Distribution of Domestic Finished Car Manufacturers and Primary Parts Suppliers

Incheon	55
Incheon	440,000 (GM Daewoo)
Seoul	55
Sohari	350,000 (KIA)
Hwaseong	600,000 (KIA)
Pyeongtaek	160,000 (Ssangyoung)
Gyeonggi-do	190
Asan	300,000 (Hyundai)
Seosan	150,000 (Donghae-KIA)
Chungcheongnam-do	93
Daejeon	9
Gunsan	260,000 (GM Daewoo)
Gunsan	20,000 (Tata Daewoo)
Jeollabuk-do	71
Jeonju	100,000 (Hyundai)
Gwangju	620,000 (KIA)
Gwangju	27
Jeollanam-do	8

Ganwon-do	4
Chungcheongbuk-do	23
Gyeongsangbuk-do	66
Daegu	50
Ulsan	39
Ulsan	6,000 (Daewoo bus)
	1400000 (Hyundai)
Busan	300,000 (Renult Samsung)
Busan	77
Gyeongsangnam-do	134
Changwon	210,000 (GM Daewoo)

Source: Korea Auto Industries Coop. Association (KAICA), Respective companies of finished automakers

Auto parts makers in the southwestern area form a belt stretching from the Gimje·Iksan·Jeongeup area to the Gunsan·Wanju area, reaching Gwangju. Korea's four auto majors —Hyundai Motor Company, GM Korea, Tata Daewoo and Kia Motors— are located in the southwest area.

Gunsan, Jeonju and Gwangju of Jeollabuk-do account for 17% of Korea's auto production capacity, with an annual production capacity of 760,000 cars (mainly passenger and commercial vehicles).

- The region accounts for 94% of Korea's medium and large-sized commercial automobile production and for all of the medium and large-sized trucks in Korea. Related industries including passenger and commercial vehicles, specialized trucks, tractors and agricultural machines are concentrated in the area.
- In Jeollabuk-do, large complexes, including the Wanju Industrial Complex 3 (Hyundai Motor Company), Iksan Industrial Complex 2 (Mando) and Gunsan Industrial Complex (GM Korea), and parts subcontractors equipped with injection, press, die casting and precision casting production technologies, are concentrated.

Kia Motors plants are located in Gwangju, and their annual production capacity is 600,000 cars (mainly SUVs and CUVs).

- Jeollanam-do provides a favorable environment for an auto industry belt because it is home to auto parts and materials clusters where POSCO (Gwangyang Steelworks), Hyundai Hysco and other companies in the Yeocheon Petrochemical Complex produce every essential material, including metal, ceramic and chemicals (plastic).

West Coast Belt

Local auto parts makers, including Hyundai Mobis (Giheung), Mando (Giheung) and Hyundai Wia (Hwaseong), and globally leading auto parts companies such as Bosch (Germany, Yongin), Continental (Germany, Icheon) and Delphi (USA, Giheung) are located in Gyeonggi-do.

- The province also accommodates the research centers and plants of major auto parts makers including Namyang Research Center of the Hyundai Motor Group. Proving grounds are also located in the region, including the Hyundai Namyang Research Center and Korea Transportation Safety Authority Hwaseong Research Center. K-City, an exclusive pilot area for self-driving cars will be established in this area in 2018.

In Chungcheong-do, auto makers are clustered in the southern part, and the province ranks third for production capacity in Korea, following Ulsan and Gyeonggi-do in terms of finished-automobile plants.

- 93 primary subcontractors, including three major auto parts makers —Hyundai Mobis (Asan), Daihan Climate Control (Cheonan) and Hyundai Powertech (Seosan)— are concentrated in the Cheonan, Asan and Dangjin areas.
- Auto parts research centers are also located in this cluster to support auto parts companies in terms of R&D, testing and certification, as well as training and information sharing.
- The Chungcheongbuk-do is home to Hyundai Autonet and other primary sub-contractors for automotive electronics. Nine primary sub-contractors, including Halla Visteon Climate Control Corp, are located in the Daejeon area.

Southeast Belt

Korea's major finished automakers, such as Hyundai Motors (the largest domestic automaker), Renault Samsung, and GM Korea are located in the southeast region.

- Although the three areas in the Southeast Belt —the Ulsan, Busan, Gyeongsangnam-do— maintain close work relations, the Ulsan and Gyeongsangnam-do areas in particular have high self-supply rates.

The Ulsan auto cluster is led by conglomerates. It comprises of Motor and parts conglomerates that supply parts to Hyundai Motor.

- Thanks to their long history of auto production facilities operation (since 1968), the companies in the cluster are well equipped with port and transportation infrastructure, logistics systems and a skilled labor force. Related industries are also developed in the region, including the steel, petrochemical and machinery industry.

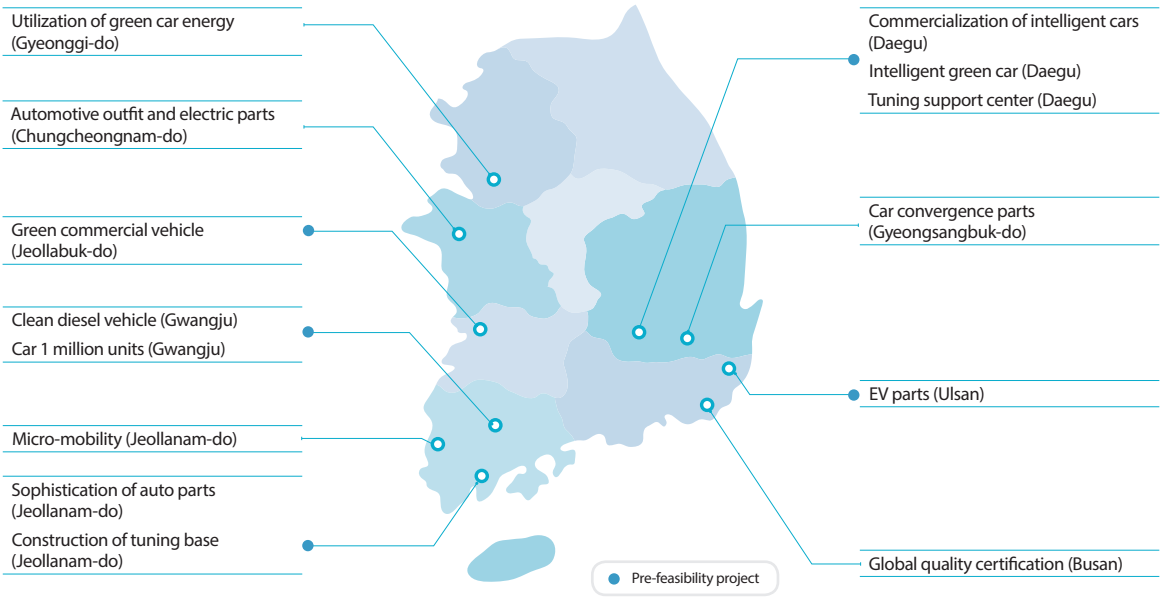
Locational Conditions and Benefits

The Korean government is promoting a synergy effect between the enhancement of regional innovation capacity and specialization development by providing support for industry-academia-research institute projects tailored to each region's needs.

- For example, the government is promoting convergence parts that use materials in Gyeongsangbuk-do; intelligent auto parts in Daegu; fuel cells and green electric vehicle parts in Ulsan; and untapped areas in the unit parts field, such as quality certification in Busan.
- In addition, the government is providing specialized support to the green automobile design and convenience system fields in Chungcheongnam-do; clean commercial vehicle parts in Jeollabuk-do; clean diesel car parts in Gwangju; and high-end car-tuning parts in connection with the F1 circuit in Jeollanam-do.

In response to the recent significant changes in the automotive industry, the Korean government is pushing forward with strategies to support the development and commercialization of electric vehicles, hydrogen fuel cell vehicles, self-driving vehicles, and core parts. It is also accelerating efforts to promote investments by forming parts innovation clusters in each region.

Region-specialized Support for Auto Parts R&D Projects



Source: Ministry of Industry, Trade and Energy

The Chungcheongnam-do is designated as a specialized region for parts for automobile fabrication/design and electronics. The government plans to promote fuel-cell electric vehicles (FCEV) businesses in the region to transform the green vehicle industry into a high value-added industry.

- Two finished automakers (Hyundai Motors and Donghee Auto) and 664 auto parts makers are located in the region, for its proximity to major industry complexes (e.g. steel industry complex (Dangjin), petrochemical complex (Seosan), display complex (Asan), and automobile complex (Seosan)).
- The region has a well-established foundation for R&D, with the presence of the Korea Automotive Technology Institute (KATECH) and the Korea Institute of Industrial Technology (KITECH) as well as 13 universities that nurture automobile professionals.

Two of the four major commercial vehicle manufacturers in Korea are located in Northern Jeollabuk-do, making the region a representative production outpost for mid and large-sized commercial vehicles.

- With the goal of making a high added-value auto parts industry a new engine for growth, a project for the development of core technologies regarding export-oriented, green commercial vehicles is now underway.
- A total of KRW 173.6 billion (USD 144.67 million) has been poured in the region for the last five years since 2012. Research institutes, such as the Jeonbuk Institute of Automotive Technology (JIAT), and Korea Automotive Technology Institute (KATECH), as well as domestic commercial vehicle companies have established an infrastructure for the technological development of core element parts of commercial vehicles.

The Ulsan/Gyeongsangnam-do area is home to the world's largest finished automaker. The region has recently launched a project to lay the foundation for green electric vehicles and to develop core parts. Efforts are made to develop core technologies, establish an industrial infrastructure and enter the global EV market.

- Assistance has been provided for local parts manufacturers in terms of the development and production of EV parts as well as the production of small-sized commercial electric vehicles.

The Daegu/Gyeongsangbuk-do area is slated to implement a project to develop core technologies of self-criving cars to boost its competitiveness in the self-driving vehicle sector.

- The project will help parts manufacturers develop eight key self-driving parts and two key self-driving services through the 5-year investment worth KRW 145.5 billion (USD 121.25 million) starting 2017.

03 GOVERNMENT POLICIES AND REGULATIONS

Government Policies

Support Policies for Material/Parts Industry

The government came up with the "Fourth Master Plan for the Development of Material/Parts" in 2016, in recognition of the importance of the material/parts industry as a source of added value, and the fact that the development of core materials/parts would give the country an edge in the market.

- According to the plan, the government will develop new materials and parts to respond to the Fourth Industrial Revolution and strengthen its major industries. Moreover, the existing material research and certification centers will be revamped to a convergence alliance system of five major industries (metal, chemical, textile, ceramic/electronics, and machine/automobile).
- In order to assist the foreign market entry of parts and materials companies, improvements were made to provide full-fledged support from R&D, infrastructure, processing, track record and overseas market entry.

Support Policies for Green Vehicle Industry

The government announced its strategies to prepare for the commercialization of green vehicles, called the "Third Master Plan for the Development and Distribution of Environment-Friendly Automobiles." The plan shows how the government will develop competitive eco-friendly cars and build a low-cost, highly-efficient industry infrastructure.

- The government will make investments worth KRW 150 billion (approximately USD 125 million) over the next five years to support the development of technologies related to seven core parts*. It seeks to overcome problems such as short operating distances of electric vehicles and high prices of hydrogen/hybrid vehicles and to secure independent competitiveness.

* (Technologies related to seven core parts) Improvement of battery density, cooling and heating system, electric power conversion device, lightweight car body, high output power-driving system, and multi-stage transmission driving system.

- It also plans to expand EV charging facilities and diversify charging methods to ultimately establish a low-cost and highly-efficient industry infrastructure. It is slated to build a total of 1,400 units of public EV quick-charging facilities and 80 units of hydrogen vehicle-charging machines by 2020, primarily in major distribution cities.

Support Policies for Self-driving Car Industry

The government has designated "smart vehicle" as a new engine for growth, and is setting up a public-private joint action plan. The road map will include several plans to establish a smart car ecosystem through industrial convergence, and develop new technologies through cooperation among government agencies.

The Ministry of Trade, Industry and Energy included self-driving cars in its 13 "key industry engine projects." The Ministry will assist SMEs to lead the development of core parts and systems for self-driving cars.

- The ministry plans to pour KRW 77.9 billion (USD 65 million) for the next five years to domestically develop core parts (sensors) and systems for self-driving cars.
- It also added a project for "the convergence of automobiles, ICT and road infrastructure & the innovation of the self-driving car industry" in the list of nine key national strategic projects. Moreover, it will support the development of six new convergence technologies including artificial intelligence for autonomous cars, as well as three new convergence services, for the next eight years.

Efforts will be accelerated to domestically produce eight core parts* such as sensors, communication and control parts, all of which are items that Korea lacks technological competitiveness and is highly relying on imports. Once the items are manufactured, they will be applied to automobile systems for demonstrations.

*(Eight core parts) High-resolution camera that can recognize surrounding situations, radar/radar sensor, vehicle-external communication module, vehicle position measuring module, high-precision 3-D digital map, driver monitoring, self-driving integrated controller, and self-driving recording system.

- Buyer firms will be invited to participate in the entire process of design, development, testing and demonstration, to secure the quality of products and maximize the outcomes of the project.

The Ministry of Science, ICT and Future Planning selected "smart car" as one of its 30 major science and technology sectors for national development and established a strategic road map. In particular, the ministry has supported the development of software and vehicle communication security technology for self-driving cars. It also showcased a self-driving car on the road for the first time in Korea.

The Ministry of Land, Infrastructure and Transport has designated the self-driving car sector as one of its seven key engines for growth. The Ministry is focusing on the improvement of related laws and institutions, as well as the establishment of infrastructure and the development of relevant technologies.

04 COST

Cost and Labor

The table below shows production cost comparisons between Korea and other countries with a strong automobile industry. Korea's raw material costs and labor costs are estimated at 68.6 and 4.7, respectively, out of 100.

- Korea's auto labor costs have been on the rise, but the country's absolute level compared to those of advanced countries, including Japan, Germany and the United States, remains low.

Cost Structure of Major Auto Manufacturing Countries (2011)

Cost Structure	Korea	Japan	Germany	Mexico	US
Sales	100.0	100.0	100.0	100.0	100.0
Raw Material	68.6	67.8	71.0	59.9	77.6
Fuel	0.5	1.0	0.9	0.8	0.5
Outsourcing Cost	3.2	3.2	3.2	3.2	3.2
Labor	4.7	10.1	13.9	3.3	11.0
Depreciation	5.5	4.8	3.7	11.1	4.5

Source: Mizuho Bank of Japan

For the auto parts industry, the ratio of major production cost and labor cost to sales is 75.8% and 10%, respectively, which are higher than those of finished cars (68% and 8.3%).

Cost Structure of Korea's Auto Parts Industry (2014)

(KRW billion, %)

Category	Amount of Production (Added Value + Major Production Cost)	Added Value		Major Production Cost
			Labor Cost	
Finished Car	90,428	28,915 (31.9)	7,464 (8.3)	61,513 (68.1)
Auto Parts	97,336	28,768 (29.5)	9,020 (9.2)	68,567 (70.4)

Source: Statistics Korea
Note: Based on companies with 10 or more employees. ( ) is the ratio to production amount

Structure of Production Cost of Korea's Auto Parts Industry (2014)

(%)

Category	Raw Material	Fuel	Electric Power	Water	Outsourced Processing	Repair	Major Production Cost
Finished Car	96.8	0.8	0.4	0.1	1.4	0.4	100.0
Auto Parts	87.1	0.4	1.7	0.1	9.9	0.7	100.0

Source: Statistics Korea
Note: Based on companies with 10 or more employees

Raw material accounts for the largest share of major production costs (87.1%), followed by outsourced processing (9.9%).

Profitability

The growth potential and profitability of the Korean auto parts industry are being improved, thanks to the expansion of overseas businesses and the diversification of customers to include overseas OEM delivery.

- The bargaining power of auto parts manufacturers has enhanced in tandem with their size. Moreover, the trend of modularization and sophistication of parts are improving profitability.
- The slowdown of Korea's major auto parts exporting countries such as Russia and Brazil as well as the depreciation of local currencies are putting a downward pressure on the sales (converted to Korean Won) and operating income of Korean auto manufacturers. As an industry highly sensitive to economic conditions, its profitability has also deteriorated as the global trend of protracted growth continues.
- The comparative competitiveness and profitability of companies that compete with Japanese counterparts is negatively affected by the long-term depreciation of the Japanese yen.

Profitability of the Auto Parts Industry

(%)

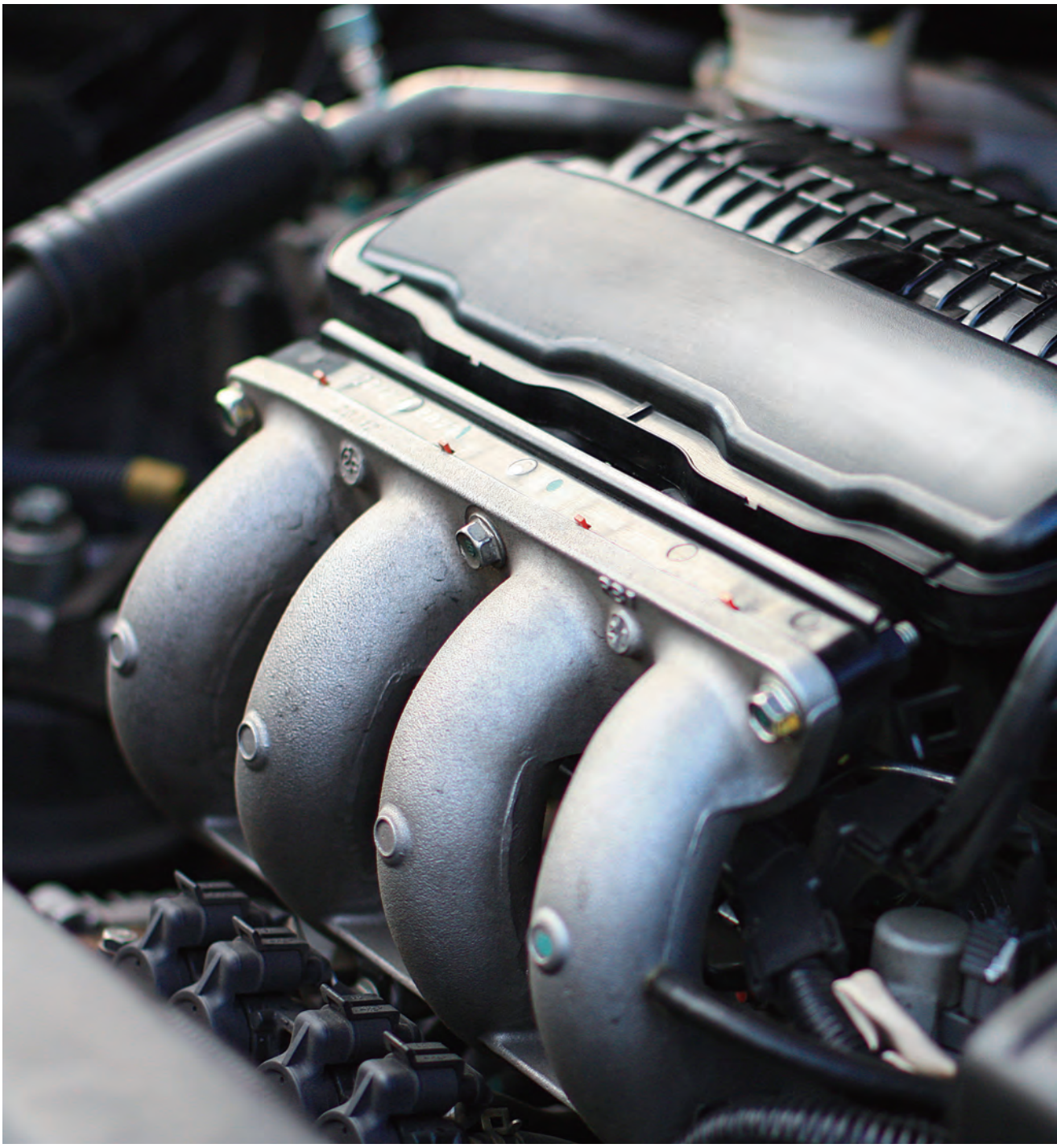
Indusrty	Category	2009	2010	2011	2012	2013	2014
Finished Cars	Operating margin	5.31	6.21	7.03	5.62	6.73	5.41
	Profit margin	6.23	10.14	6.90	7.30	8.41	7.53
	Cost to Net Sales	79.52	79.41	79.67	81.08	79.99	80.83
Auto Parts	Operating margin	4.02	5.31	5.03	5.16	4.98	4.34
	Profit margin	4.34	6.04	4.37	4.70	4.55	4.47
	Cost to Net Sales	86.93	86.53	87.84	87.72	87.75	88.22

Source: Corporate management analysis of the Bank of Korea

However, the Korean auto parts industry will continue to grow, as major finished automakers in the US or Europe increasingly outsource their auto parts to expand their market share in emerging markets where small-sized cars are major products.

- Parts suppliers are strengthening their bargaining power by independently developing or securing core technologies through their overseas affiliated companies. As such, they are expected to forge a long-term relation with automakers and maintain stable profit and profitability.

05 SUCCESS CASES OF FOREIGN INVESTMENT



Robert Bosch Korea

Robert Bosch Korea, a subsidiary company of the world's largest auto parts maker Bosch in Germany, has a production plant in Daejeon, headquarters and a research center in Yongin.

- The Daejeon plant produces electronic engine control devices, common rail injectors of diesel engine and fuel pumps. The Yongin center conducts research on the applications of gasoline and diesel engines on Korean and foreign automobiles.

Bosch Group entered the Korean market in 1985 when it established an office in Seoul. The company began its sales in earnest when it established Korea Bosch in 1989, which was fully owned by Bosch.

- The company began its operation by selling parts including engine ECU. It established an interim technology research center in 1991 to keep up with the pace of development of engines by finished automakers.
- Subsequently, it opened a research center in Yongin in 1996 and went through several rounds of acquisitions. The company's name was changed to Robert Bosch Korea in December 2009.

Robert Bosch Korea supplies a variety of products including fuel injection pumps to Korean finished automakers such as Hyundai, Kia, and GM Korea. In 2014, its sales recorded KRW 2.1 trillion, a 21% increase compared to the previous year. The success factors of Bosch include strengthened R&D efforts, business diversification, and continued investments.

- Among 1,900 employees, over 250 people are engineers working for the R&D sector. The company invested a total of KRW 21.7 billion (USD 18.08 million) in 2007 to expand its technology center to be equipped with cutting-edge testing and application facilities.
- In 2015, Bosch established a joint venture KB Wiper System, together with KCW. The new joint venture is currently building a manufacturing plant at Daegu Industrial Complex with investment worth KRW 200 billion (USD 166.7 million).

Robert Bosch Korea changed the name of the auto parts technology business sector to the mobility solution sector.

- The company set up a strategy to gain expertise in all areas regarding mobility such as automation, electrification and connection, and to provide mobility solutions for diverse industries.
- Robert Bosch Korea is aware of the technological prowess and a strong heavy industry infrastructure of Korea. The company is slated to expand investments in the country, especially in safety technology areas such as driver assistance system (DAS) and adaptive cruise control (ACC).

06 RELATED COMPANIES AND ASSOCIATIONS

List of Related Companies and Associations

Related Associations and Institutes

Name	Website	Major Roles
Korea Automotive Technology Institute (KATECH)	www.katech.re.kr	Established in 1990 to complement insufficient R&D manpower and technologies to develop high equipment in the auto parts industry, KATECH has been steadily supporting R&D activities in the industry. KATECH provides comprehensive, systematic support to promote the development of new technologies through various projects, including those for the development of next-generation automotive technologies, automobile-based technologies, future-vehicle technologies and new corporate consignment projects.
Korea Auto Parts Industry Promotion Foundation (KAP)	www.kapkorea.org	As a private, autonomous public corporation for the development of the auto parts industry, KAP provides support to auto parts companies with regard to technology-related difficulties, the establishment of a quality system and business management, along with offering information about the overall auto industry.
Korea Auto Industries Coop. Association (KAICA)	www.kaica.or.kr	As a representative association of the auto parts industry, KAICA supports auto parts companies through proposals to the government and finds export channels for them to promote the global market entrance of domestic auto parts companies.
Busan Automobile Parts Industries Coop. Association (BAICA)	www.baica.or.kr	BAICA supports the technological development and quality improvement of auto parts makers in Busan. It provides assistance to auto parts companies with their industry research, technology training, exports, and participation in showcases held home and abroad.

Related Companies

Company	Main Item	Website	Location
Hyundai Mobis	Chassis module, driver seat module, electrical parts, and brake system	www.mobis.co.kr	Ulsan, Asan, Gwangju, Seosan, Anyang, and Cheonan
Mando	ABS, ECPS, brake system, and steering system	www.mando.com	Pangyo, Pyeongtaek, Wonju, and Iksan
Hanon System	Compressor, intercooler, and air con module	www.hanonsystems.com	Daejeon, Pyeongtaek, and Ulsan
Sungwoo Hitech	Car body parts	www.swhitech.com	Busan, Yangsan
Hyundai Wia	Transmission, CV joint	www.hyundai-wia.com	Changweon, Ansan, Pyeongtaek, Seosan, and Ulsan
INZI Controls	Engine cooling system, sensor	www.inzi.co.kr	Siheung, Gyeongju, and Okcheon
SL	Lamp, chassis, steering, powertrain, lever, and door module	www.slworld.com	Gyeongsan
Hwashin	Chassis module, car body parts, and engine parts	www.hwashin.co.kr	Yeongcheon

Company	Main Item	Website	Location
DY	DC motors, wiper	www.dy.co.kr	Incheon, Asan, and Changweon
S&T Motiv	Transmission, chassis, and ECU	www.sntmotiv.com	Busan, Incheon, Changweon, Yangsan, and Boryeong
Seoyon E-Hwa	Door trim, interior parts, and seat	www.seoyoneh.com	Ulsan, Asan, and Anyang
Pyeonghwa Automotive	Door module, latching system, and system module	www.phakr.com	Daegu, Asan, and Suwon
Daewon	Coil spring, plate spring, stabilizer bar, and vehicle seat	www.dwku.com	Cheonan, Changweon
Sejong	Muffler, purifier	www.sjku.co.kr	Yongin, Asan, and Ulsan
Motonic	Engine parts, sensor, rocker arm	www.motonic.co.kr	Daegu, Seongju
YURA	Wire harness	www.yuracorp.co.kr	Cheongju, Pyeongtaek, and Gyeongju
Hyundai Powertech	Transmission	www.powertech.co.kr	Seosan, Hwaseong
KOFCO	Axle, flange, and half shaft	www.kofco.co.kr	Ulsan
Hyundai Dymos	Transmission, axle, and sea	www.hyundai-dymos.com	Seosan, Asan, and Ulsan
Hyundai KEFICO	Powertrain control system	www.hyundai-kefico.com	Gunpo
Kyungshin	Wire harness, junction block, and connector	www.kyungshin.co.kr	Incheon, Hwaseong, and Gunsan
Donghee	Fuel tank, roof system, axle housing, and electrical parts	www.donghee.co.kr	Hwaseong, Asan, Ulsan, and Gwangju
DY Auto	Driver seat module, crash pad, door trim, console, and anti-pad	www.dyauto.kr	Ulsan, Gyeongju, and Yesan
AUSTEM	Steel wheel, car body parts, chassis parts, and seat	www.austem.co.kr	Cheonan, Incheon
Sangsin Brake	Brake parts	www.sangsin.com	Daegu
HS R&A	Brake hose, conveyor belt	www.hsrna.com	Yangsan
DW	HVAC, cooling motor, condenser, and compressor	www.dwdcc.com	Asan
Mann Hummel Korea	Oil filter, air filter, cabin filter, and absorption system	www.mann-hummel.com	Wonju
erae Automotive	HVAC module, steering, converter, brake parts	www.erae-automotive.com	Daegu, Gunsan, and Jincheon

Relations with Other Industries

Finished car Industry

In 2015, Korea maintained its position as the world's 5th largest automobile manufacturer, by producing a total of 4.55 million cars and taking up 5% of the global automobile production.

- Finished car makers are striving to expand their sales in emerging markets. However, their capability to expand domestic production through exports has reached its limits, as a growing number of foreign companies are increasing the share of local production.
- Korean auto parts manufacturers have recently changed their strategies to focus on "quality growth," instead of "quantity growth." In this context, the industry seeks to develop green vehicles such as EV and hydrogen fuel-cell vehicles, as well as smart cars characterized by their convenience and safety features.

Company	Main Item	Website	Location
Hyundai Motors	Passenger cars, SUV, bus, truck, and special vehicles	www.hyundai.com	Ulsan, Jeonju, and Asan
Kia Motors	Passenger cars, SUV, bus, truck, and special vehicles	www.kia.com	Gwangmyeong, Hwaseong, and Gwangju
Korea GM	Passenger cars, SUV, bus, and truck	www.gm-korea.co.kr	Bupyeong, Gunsan, and Changweon
Ssangyong	Passenger cars, SUV	www.smotor.com	Pyeongtaek
Renault Samsung	Passenger cars, SUV	www.renaultsamsungm.com	Busan
ZYLE Daewoo Bus	Bus	www.daewoobus.co.kr	Ulsan
Tata Daewoo	Truck	www.tata-daewoo.com	Gunsan

Association	Website	Main Roles
Korean Automobile Manufacturers' Association (KAMA)	www.kama.or.kr	In order to enhance business efficiency to facilitate the country's auto industry, KAMA's work includes nurturing the auto industry; responding to trade-related issues; proposing suggestions for safety-related policies and regulations; and publishing auto-related studies and statistics.

Steel Industry

The Korean steel industry, which supplies materials to export-oriented industries such as shipbuilding, automobile, machinery and parts industry, has secured a base for stable demand, thanks to the high growth potential of these industries.

- With its expanded facilities and surging demand, Korea became the world's fifth largest steel producer. In 2014, Korea produced 4.3% of the global blister steel production.
- Korea's integrated steel mills boast world-class competitiveness. POSCO Gwangyang and Pohang respectively are the largest and second largest single steel mills in the world. Hyundai Steel also has large-scale, state-of-the-art production facilities in Dangjin.
- While Korea excels in technological innovation, human resources, the size of facilities and cost competitiveness, it lacks competitiveness in terms of raw material procurement and energy cost.

Company	Main Item	Website	Location
POSCO	Hot-rolled steel sheet, thick-rolled steel plate, wire rod, cold-rolled steel sheet, grain-oriented electrical steel, etc.	www.posco.co.kr	Pohang, Gyeongsangbuk-do
Hyundai Steel	Rebar, cast steel, stainless cold-rolled steel plate	www.hyundai-steel.com	Incheon
Dongkuk Steel	Rebar, shaped steel, thick plate, colored steel plate, luxteel, and cold-rolled steel	www.dongkuk.com	Dangjin, Chungcheongnam-do
Dongbu Steel	Cold-rolled steel, galvanizing, electrical galvanizing, and colored and tin plate	www.dongbusteel.com	Dangjin, Chungcheongnam-do
SeAH Besteel	Special steel bar, wire rod, shaped steel, casting steel, steel wheel, and other special steel	www.seahbesteel.co.kr	Gunsan, Northern Jeollanam-do
KISWIRE	Spring wire, bead wire, galvanizing stranded cable, an wire rope	www.kiswire.com	Busan
SeAH Steel	All-steel pipes, stainless steel pipe, colored steel, and insulated double-wall pipe	www.seahsteel.co.kr	Pohang, Gyeongsangbuk-do
KISCO	Rebar, forged steel, and welded steel pipe	www.kisco.co.kr	Changweon, Gyeongsangnam-dp
Dongkuk Industries	Galvanized steel plate, cold-rolled narrow steel	www.dkis.co.kr	Pohang, Gyeongsangbuk-do
POSCO C&C	Surface treatment, zinc and aluminum plating, and colored steel plate	www.poscocnc.com	Pohang, Gyeongsangbuk-do
HUSTEEL	Oil pipe, PFP, steel pipe pile, carbon steel plate, and conduit tube	www.husteel.com	Dangjin, Chungcheongnam-do

Association	Website	Major Roles
Korea Iron and Steel Association (KOSA)	www.kosa.or.kr	KOSA aims to improve the global competitiveness of the Korean steel industry and fosters the sustainable development of the industry. It provides full-fledge support for steel companies in their public relations, policy implementations, research on industry trends at home and abroad, cooperation with global counterparts, human resource development, training, and steel demand development.
Korea Iron and Steel Association	www.kosa.or.kr	STS promotes the coexistence of steel scrap suppliers and buyers. It seeks to stabilize the supply and demand for steel scrap, and lay the foundation for the processing industry so that they improve quality and processing levels of steel scrap products.
Steel Tube Committee	www.steelpile.com	The Steel Tube Committee conducts various activities to create new markets and products for the Korean steel pipe industry. It aims to substantially improve laws, regulations, and systems regarding the industry, in response to significant changes in the market. It also supports related firms to enhance its industrial competitiveness.
Korea Iron and Steel Association (KOSA)	hrd.kosa.or.kr	KOSA is putting efforts to conduct research on the industry's employment, provide training programs as well as qualification and standard setting programs, and promote cooperation between industry and academia. The objective of the association is to encourage continuous consultation in the supply and demand side of the steel workforce and to cultivate human resources that are needed on the ground.

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